UNIVERSITY OF WISCONSIN--MADISON

DEPARTMENT OF AGRICULTURAL ECONOMICS

1450 Linden Drive
Madison, Wisconsin 53706
Phone 608-262-3653

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March 2, 1978

Mr. Dennis Wendel
State Department
SA-18 (RPC)
Room 613 E
Washington, DC 20523

Dear Dennis:

Enclosed is a copy of our evaluation. I look forward to seeing you soon.

Yours very truly,

Daniel W. Bromley
Professor of Resource Economics

DWB:ch

Enclosure

PREFACE

This draft report represents the first stage of a review of the Small Scale Irrigation Project of USAID in cooperation with the GRP's Farm Systems Development Corporation (FSDC).

The review team received valuable assistance from USAID/Manila and FSDC staff, and we are very appreciative of this help. Several of the supporting documents in this report were prepared by USAID staff and were very helpful.

The team spent approximately 14 days in the Philippines visiting ISA's, talking with FSDC and USAID staff, and preparing a first draft of this report. A briefing with USAID and FSDC was held in Manila on January 20, 1978. The full draft was written after the team members returned to the U.S.

D.W.B.
Madison, Wisconsin
February 10, 1978

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I-IV

II Indicate collection of short studies detailed description which they are about

EXECUTIVE SUMMARY

A. General

1. The purposes of the FSDC Program are to: (1) assist in the creation of small farmers organizations (Irrigator's Service Associations--ISA's) around the shared input water; (2) help such organizations plan and construct irrigation systems; (3) help farmers through a variety of training programs; (4) help to finance the irrigation system and various machinery; (5) help to promote better agricultural practices primarily--although not exclusively--on rice; (6) help to improve marketing practices by ISA farmers; (7) help to create regional federations of ISA's; and (8) promote ISA-owned agro-industrial enterprises.

2. In the three years of its existence, 641 projects have been initiated to irrigate approximately 90,000 hectares serving over 30,000 farmer members. The projects are primarily pump systems from rivers, although there are approximately 200 gravity projects. For 1978 FSDC plans to start work on 123 pump projects and 187 gravity projects to serve a total of over 48,000 ha (and approximately 36,000 farmers). Additionally, 438 new ISA's will be organized involving approximately 42,000 farmers.

3. AID has been involved with the program since the beginning of FY 1976 and the first phase terminates at the end of FY 1978. The AID Program consists of $6,500,000 in loan funds, and $1,156,000 in grant funds. Grant funds are used by FSDC to finance direct-hire salaries, for contract technical assistance, for participant training, and for research and development support. Loan funds are used for construction of irrigation systems, and for pumps and power sets.

4. The strengths of the program are several:
   (a) The ISA is an extremely viable concept around which farmers can share a valuable input (water).
   (b) FSDC has been--to date--an excellent organization in terms of attracting good staff, giving them appropriate responsibilities, keeping channels of communication open, and adjusting management structure and methods in response to perceived needs.
   (c) The work of FSDC with individual ISA's has been good, especially through the institutional officer (IO).
   (d) The FSDC Program is targeted for--and appears to reach--the relevant AID target group (the poor and small farmer).

5. There are several aspects of the program about which we were unable to obtain clear impressions. They are:
   (a) The ability of ISA's to survive as organizations of small farmers in the absence of reliable irrigation deliveries to farmer members.
   (b) The ability of FSDC to continue to attract excellent personnel and then to keep them satisfied as the organization matures.
   (c) The ability of some ISA's to meet past debt service (amortization).
   (d) The adequacy of agricultural advice given to ISA farmers.
   (e) The adequacy (primarily in terms of program scope) of financial advice given to ISA's.

6. The problem areas of the program would seem to be the following:
   (a) The extension of financial management advice to ISA's is probably adequate now, but it will become a more troublesome aspect as ISA's move from a preoccupation with establishment of the irrigation system to enterprise development and modern agricultural practices.
   (b) The ability of FSDC to act as a catalyst across a broad range of necessary agricultural services as production and marketing take on added significance in the ISA's.
   (c) The ability of FSDC to adequately monitor the production performance (as distinct from progress in building the irrigation system) of the ISA's. This is related to the previous point and will require special attention by FSDC.
   (d) The ability of FSDC to adequately work with ISA's on improved water management practices as modern agricultural practices imply better performance from the water distribution network.
   (e) The ability of FSDC to adequately work with ISA's on the full range of problems facing farmers from harvesting and storing crops through the marketing of same.
   (f) The willingness of AID to rectify past shortfalls in counterpart technical assistance to FSDC.
   (g) The commitment of AID to help FSDC in those areas of increased importance: (1) improved agricultural practices; (2) improved water management; (3) improved methods of handling crops after harvest; and (4) improved marketing.
   (h) The appropriatemess of the "Project Goals" and "Project Purposes" in the first AID Project Paper (May 1975). These are listed in Section III-B1 and III-B2 of this report. They should perhaps be redefined as follows:

Project Goals

(1) Increase income of small farmers.
(2) Demonstrate value of cooperative action by small farmers through developing farm systems organized around shared irrigation, machinery, other inputs, and marketing.

Project Purpose

(1) Increase rice yields to 53 cavans/ha with irrigation, and to 70 cavans/ha with production packages.
(2) Increase yields of vegetables by 30-40 percent over their 1975-78 average.
(3) Increase intensity of land use through double cropping of rice or reliable (dependable) rotations of rice and vegetables
(4) Reduce post-harvest losses.
(5) Help farmers to learn methods for better utilization of agricultural inputs and improved marketing.

B. Recommendations

AID should:

1. Provide long-term funding for technical assistance in the following areas:
   a. Project Officer (direct hire)
   b. Irrigation Engineering
   c. Financial Management
   d. Water management
   e. Training
   f. Agricultural Production
   g. Mechanization
   h. Marketing

2. Change title of program from Small Scale Irrigation to "Small Farmer Organizations", or "Small Farmer Development".

3. Assist FSDC in acquiring office space, transportation, and office supplies and equipment for the 5 area offices.

4. Revise Project Goals and Project Purposes

FSDC should:

1. Develop better methods for monitoring production performance of ISA's

2. Improve its program of assistance to ISA's in financial management, agricultural production, water management, mechanization, and marketing.

3. Improve its ability as a catalyst to bring various GRP agricultural services to the ISA's

I. THE SMALL SCALE IRRIGATION PROGRAM

A. FSDC

The Farm Systems Development Corporation (FSDC) was created by Presidential Decree No. 681 in April 1975. It is conceived to promote the organization and support of irrigation cooperatives and other farm-based associations. Its purpose is to increase agricultural productivity, raise farmer incomes, and hasten rural development.

In June 1975 FSDC undertook the Barangay Irrigators' Service Association (BISA) which became its major program. This program was conceptualized during a government-sponsored workshop held at the Development Academy of the Philippines. It was begun in 1974 as a pilot rural development program within the Office of the President and involving four agencies of the government: Development Academy of the Philippines (DAP), National Irrigation Administration (NIA), National Electrification Administration (NEA), and Provinical Development Assistance Project (PDAP).

The BISA Program has the following objectives:

(1) Improving and expanding land resources through irrigation and farm support services and facilities.

(2) Group action by the farmers through participation in farm-based associations.

(3) Education for development through continuing organizational technical, and agricultural training.

(4) Credit adapted to the needs of the association and coordinated with education and training.

FSDC implements these objectives through assisting farmers in developing private cooperative organizations based upon the common need for water and other farm-based and farmer-identified needs. These associations called Irrigators' Service Associations (ISA's) are registered with the Securities and Exchange Commission (SEC). The ISA becomes the mechanism through which all aspects of rural life are brought together. The BISA Program works through the ISA for the institutionalization of advanced farm systems, including better technology and entrepreneurial methods among organized farmers. Eventually, groups of the ISA's would work together to develop ISA enterprises through an ISA Federation.

The BISA Program strategy consists of three basic program elements that are interwoven to meet the needs and stage of development of the individual ISA's. These are:

Stage I: Development of Farmers' Organizations

Phase I. Establishment of the ISA
Phase II. Development of ISA Entrepreneurship
Phase III. Development of ISA Enterprises

Stage II: Economic Integration

Phase I. Establishment of the ISA Federation
Phase II. Land Consolidation
Phase III. Agro-Industrial Development

Stage III: Government/Private Sector Partnership

At present, most of FSDC's activities are Stage I activities. Phase I of Stage II is beginning on a limited scale. Nevertheless, the general nature of what FSDC can and cannot do is fairly clear. FSDC can develop small farmers organizations (ISA's), help such organizations plan and construct irrigation systems, undertake all types of training appropriate for ISA's, finance farm equipment, promote marketing

activities by the ISA's, create regional federations of ISA's, and promote ISA-owned agro-industrial enterprises. FSDC cannot build rural roads, rural electrification systems schools, agricultural research and extension systems, or national farm news programs.

Where FSDC needs help in things which it cannot do, it has to work closely with other government agencies. These include: the National Irrigation Administration (NIA), National Electrification Administration (NEA), National Grain Authority (NGA), National Food and Agricultural Council (NFAC), and the University of the Philippines College of Agriculture. There are always problems involved in cooperation with other agencies. Nevertheless, FSDC is making progress in developing closer working relationships with such agencies.

As of December 31, 1977, 641 projects have been initiated by FSDC since its inception. These facilities were installed to serve 90,000 hectares and the aggregate number of farmer members is 30,718. Approximately 400 pump irrigation projects are located in 30 provinces and 200 gravity projects in over 60 provinces.

The FSDC targets for 1978 include construction of 123 pump projects to serve 15,000 hectares and reach approximately 11,279 farmers. The average farm size is 1-1/3 hectares according to an FSDC baseline survey of December 1977. One hundred eighty seven gravity projects are also targeted for construction to serve 33,320 hectares and reach 25,053 farmers. In addition, 438 new ISA's are to be established with approximately 42,000 farmers involved.

FSDC's field work is the crux of the BISA Program and the farmers are reached through the institutional officer (IO). The IO's are

assigned two ISA's each and generally spend three days a week with each of the associations. The IO's are recruited from the province and speak the dialect of their ISA's. They receive extensive training in organizational development and management skills as well as additional education in rice production and water management. The IO functions as a catalyst in coordinating ISA organization and activities, providing appropriate training according to farmer needs and serving as an information resource for farmers.

Through the IO over 2,000 classes in preparation for the establishment of the irrigation system (Phase I) were undertaken for approximately 40,000 farmers as of September 30, 1977. Over 600 classes for 6,000 participants had been conducted in activities such as operation, and management of pump sets which are a part of the development of ISA entrepreneurship (Phase II). One hundred fifty seven classes have been conducted for farmers in the management of the following innovation packages: institutional credit, organized buying, seed production, organized rice production, farm tools and equipment pool, organized selling and applied research. Therefore, FSDC current training efforts have been extensive.

FSDC has recently undergone a major reorganization effective January 1978. Certain structural changes have occurred to reflect the perceived need and desire to decentralize. Certain FSDC top-level management staff have moved out to the five area offices to strengthen the field efforts and concentrate policy and implementation decision-making at that level. The ISA structure was also made flexible to allow it to accommodate varying existing levels of organization and

cooperation. The IO therefore selects the training methods and information appropriate to an ISA from a wide range of field-tested activities.

The need for reorganization stemmed from the growing size of the BISA Program, including expansion into new provinces and barangay within provinces, the growing involvement of FSDC in the NIA initiated communal gravity irrigation program, and the concomitant difficulty of managing such activities from Manila. It was also felt that it would be easier, less time-consuming and more appropriate to address problems in the field as they arose.

B. USAID

In September 1974 the Director of the BISA Program informally presented a preliminary project description for financing small pumping projects in Mindanao to the Mission. USAID's initial response was an investigation of the overall BISA and field inspections in two provinces where BISA projects had been installed. USDA became interested in developing a project which would introduce a integrated approach for adopting modern irrigation techniques.

The PID was submitted to Washington in June 1975. The PRP was prepared and submitted and approved in December 1975. The duration of the project is from FY 1976 to FY 1978 (three years). It encompasses $6,500,000 in loan funds and $1,156,000 in grant funds.

Grant funds are presently being used by FSDC to finance direct-hire salaries/costs, contract technical assistance, participant training, and research and development support. To date AID has obligated $766,000 of these funds. Twenty months of engineering

advisory services and 16 months of operations advisory assistance has been forward funded. FSDC has negotiated a contract with Camp Dresser and McKee International, Inc. (CDM) engineering consultants to assist in improving the technical design of the systems. USAID project inspections noted some deficiencies which had to be rectified prior to reimbursement. Additional grant funds in the amount of $356,000 are planned to provide 20 months of continued technical assistance in the areas of improved water management procedures and farm systems practices. Training for three FSDC personnel in data collection, farm analysis, and rural sociology is planned for the coming year. The $6.5 million in loans have been disbursed in the following manner. During the last week of September, FSDC requested and was reimbursed by USAID in the amount of $1.8 million covering work done on 232 irrigation subprojects and 62 farm support systems. An additional reimbursement has been approved for $460,000 for 59 projects. A December $0.7 million request for disbursement for approximately 96 projects is presently being processed and will bring total USAID disubrsement to $3.4 million under FAR agreements.

An Invitation for bid (IFB) for procurement of vehicles, engineering, and communication equipment in the amount of $900,000 has recently been issued and a second IFB for procurement of pumps is expected to be issued in the amount of $600,000 by the end of the year.

Inevitable difficulties delayed the implementation of this project according to its original schedule. A revised implementation was arranged between FSDC and USAID Manila in March 1977 and is presently being followed. The difficulties have occurred for the following reasons:

(1) Interagency coordination and organizational problems consumed more time and effort than was anticipated by USAID or the GOP at the time of project design.

(2) Technical problems encountered by FSDC in its efforts to develop appropriate pumping equipment that would provide adequate reliability and reasonable efficiency.

(3) Difficulties and delays in recruitment and assignment of direct-hire expatriate technical advisors to assist FSDC. Only two of the original four full-time positions for the project are in place.

(4) Problems with the special letter of credit (SLC) financing mechanism.

These problems are now being addressed and reimbursement is proceeding on a monthly basis. The problems in staff assignment continue to be a concern as both of the two positions in place have been abolished. USAID's technical assistance efforts are therefore not being provided as expected and needed.

II. EVALUATION CRITERIA

A. Introduction

Any program evaluation must proceed from a set of anticipated or expected accomplishments. In this evaluation two sets will be used: (1) those utilized in the AID Logical Framework, and (2) those developed by the evaluation team based on their knowledge of--and experience with--agricultural development programs in other developing countries. To the extent that (1) differs from (2) there is an opportunity to compare the expected accomplishments at the time of program inception (1975) with expected accomplishments in 1978. Given the dynamic nature of development programs it would be surprising if valid expectations in one period were not slightly different 3-4 years hence.

B. Program Expectations

As with all AID programs, the Logical Framework contains three categories of project effects which could be considered expectations: (1) project or sector goals; (2) project purposes; and (3) project outputs. These are summarized from the 1975 Project Paper as:

<u>Project Goals</u>

(1) Increase farmer income.

(2) Double (at least) employment opportunities/labor requirements for participating farmers.

(3) Fill at least 50 percent (168,000 M.T.) of the 1974-75 rice deficit.

<u>Project Purposes</u>

(1) Increase rice cropping from one to two per year.

(2) Increase rice yields from 38 cavans/ha[1/] to 53 cavans/ha with the irrigation package, and with the production package to 70 cavans/ha.

(3) Reduce post-harvest losses from 30 percent to 15 percent by the third year after an ISA is organized.

(4) Increase net marketing returns from ₱50/cavan to ₱53.50/cavan.

Project Outputs

(1) Organized and mobilized ISA's.

(2) Modern rice production practiced and innovative machinery used.

(3) Post-harvest service centers and farm equipment pools established.

(4) Preparation of detailed program plans.

(5) Recruitment of FSDC staff.

(6) Training of FSDC staff.

(7) Management skills training for ISA members.

(8) Rice production training for ISA farmers.

(9) Introduction of innovation package.

(10) Marketing training for ISA members.

(11) Program administration.

(12) Installed and operational irrigation systems.

(13) Installed and operational farm implements pool and post-harvest facilities.

(14) Loans for irrigation facilities, farm implements, and post-harvest facilities granted.

(15) Delinquency rate of no more than 20 percent on loans granted.

1/ 1 cavan = 50 kg.

C. Additional Criteria

In addition to these objectively verifiable expectations, there is a more subjective set of criteria by which the program must be evaluated. These include the following:

(1) Is the ISA's a valid concept in organizing the rural poor to improve their socio-economic position?

(2) Are ISA's effective in providing information, training, and other services relevant to integrated rural development?

(3) What is the long-run viability of the ISA's likely to be with respect to currently perceived needs, as well as for expanding to assist with other needs?

(4) What is the effectiveness of the institutional officers (IO's) in providing information, training, appropriate services, and in coordinating ISA activities.

(5) What is the appropriateness of the organizational assistance provided by FSDC so far (for getting started)?

(6) Is the organizational assistance of FSDC appropriate to enhancing the long-run viability of the ISA's?

(7) Is FSDC providing the appropriate assistance to ISA's in financial management? ISA management?

(8) How successful is FSDC in assisting ISA's obtain resources and services from other agencies' programs?

(9) Does FSDC have an appropriate system for monitoring ISA performance and evaluating its own activities with respect to ISA performance?

(10) What is the magnitude of the FSDC Program--and its rate of growth--with respect to the total size of the (rural poor) target group?

(11) Are nontarget group beneficiaries significant in number or in benefits received?

(12) What is the outlook for the viability and political integrity of FSDC?

(13) Is AID's program contributing to the small farmer program and how?

(14) Does AID's program require modification to meet changing program needs? What changes are needed?

III. PROGRAM EVALUATION

A. Program Expectations

Project Goals

1. Increase farmer's income.

xxxx

This is an appropriate goal for the program and one which is capable of quantification. The evidence seems clear that when water is reliably provided farmer's income does increase. We observed this, and the FSDC report (Research and Evaluation Office) cited in Appendix H documents this fact.

2. Double employment opportunities/labor requirements for participating farmers.

xxxx

In retrospect this would seem to be a questionable goal. It would appear that the reasoning in the Logical Framework derives from the assumption that double cropping (where only one crop is now grown) will automatically double labor needs. This is fine as far as it goes, but it is not reasonable to assume that for every ISA cropping intensity (and hence labor use) will double. The FSDC evaluation study reveals that a cropping intensity for an entire ISA of two will not likely be met.

Hence while the ISA does permit greater cropping intensities in many instances, it is an unreasonable program goal to hope that employment opportunities will double.

3. Fill at least 50 percent of the 1974-75 rice deficit.

xxxx

This is an entirely inappropriate goal for a program of this sort and relates to aggregate (macro) agricultural policy in

the Philippines rather than to a program of small farmer development.

Project Purposes

1. Increase rice cropping from one to two per year.

xxxx

As indicated above, it is quite unreasonable to expect that for the program as a whole rice cropping intensities will increase from one to two. Of course there are farmers within an ISA who can double their cropping intensity, but for all farmers on all ISA's this is unreasonable.

A second reason for questioning this purpose is that in many areas the second crop will be vegetables, not rice. This rotation is perfectly rational for the farmer and it makes little sense to be bound by an arbitrary cropping intensity for rice. To the extent that an ISA provides reliable irrigation then incomes of farmers will increase; if this occurs via one rice crop and one eggplant (or corn) crop in a year (where only one was possible heretofore) then we must consider the program as successful.

2. Increase rice yields from 38 cavans/ha to 53 cavans/ha with the irrigation package, and with the production package to 70 cavans/ha.

xxxx

Where water is reliably received rice yields of 50-70 cavans/ha are not uncommon even without major efforts at introducing more "modern" rice culture; this does imply some fertilizer usage. The FSDC evaluation study reports yields of approximately 60 cavans/ha for the 1976 wet season and 54.5 cavans/ha for the

dry season. Without irrigation the survey found yields averaging 42.3 cavans/ha for the wet season, and 35 cavans/ha for the dry season. This represents a 42 percent increase of yields during the wet season, and a 55 percent increase during the dry season.

3. Reduce post-harvest losses from 30 percent to 15 percent by the third year after an ISA is organized.

xxxx

This project purpose involves longer-run aspects of the FSDC Program and no results can be expected at this early date. It is possible in the short-run for post-harvest losses to increase which should not reflect on the merits of the overall program as much as on the reality of sequencing of program elements. That is, the first stage consists of improved irrigation which then makes double cropping possible. If the harvest of the second rice crop occurs during the wet season then post-harvest losses (in a relative sense) could initially be higher than when only one crop were grown. But this is something which can be rectified as the ISA moves into the later stages of mechanization and enterprise development.

4. Increase net marketing returns from ₱50/cavan to ₱53.50/cavan.

xxxx

While this is an admirable purpose we question whether or not it is appropriate for a program concerned with small farm development to become too contingent for its measured success upon aggregate pricing policy in the agricultural sector. If, through better drying, higher quality palay, or more bargaining power the farmers of an ISA are able to average higher net marketing returns

that is fine. But, it is difficult to expect FSDC to have much effective control over this aspect of the program.

Project Outputs

1. Organized ISA's.

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By the end of calendar year 1977, 641 ISA's had been organized. These projects served over 30,000 farmer members on approximately 90,000 hectares of land. These projects consist of approximately 400 pump systems in 30 provinces, and over 200 gravity systems in 60 provinces.

2. Modern rice production practiced and innovative machinery used.

xxxx

Where water is reliably delivered there is a clear interest in--and use of the high-yielding varieties of rice, in increased fertilizer use, and in improved pest control. The crucial variable in the adoption of modern rice production practices is definitely that of predictable water supplies. The ability of FSDC to deliver information on modern rice production practices does appear to be limited at this time. This focus on agricultural practices is intended for subsequent phases of the program and many ISA's are just now at a stage where this program element will become important.

As for mechanization, this too depends upon the stage of development of the respective ISA's. Where labor is scarce relative to land there seems to be considerable interest in machinery to help clear and work the land. This was particularly so in Davao del Norte Province. Where land is scarce

relative to labor there seems to be less interest in machinery.

Some figures for machinery on ISA's are listed below:

Type	Number of ISA's	Number of Units
Power Tiller	16	85
Thresher (IRRI Design)	29	39
Back-Pack Sprayer	53	601
Hand Weeder	11	357

3. Post-harvest service centers and farm equipment pools established.

xxxx

There has been little accomplished in this area. primarily because it is early in the program and these project outputs follow the development of irrigation systems.

4. Preparation of detailed program plans.

xxxx

This is one of the strengths of the program, with FSDC having done a very good job of formulating its plans, both for the short-run as well as for the long-run.

5. Recruitment of FSDC staff.

xxxx

According to the FSDC Personnel Division approximately 1,410 employees worked for FSDC as of December 31, 1977. They were allocated as follows:

Office of the Administrator	10
Internal Audit Services	20
Board Secretariat	3
Management Staff	90
Administrative Department	61
Finance Department	54
Treasury Department	19
Engineering Department	252

Plans and Programs	102
Operations Department	504
Special Projects Department	296

6. Training of FSDC staff.

xxxx

Prior to 1976 the statistics were sketchy, but between January 1976 and June 1977 the following training activities for institutional officers (IO's) occurred.

	Type of Training	Number of Groups	Number of Individuals
(1)	Basic Institutional Development	7	228
(2)	Basic Management/Rice Production/Water Management	7	269
(3)	Rice Production/Water Management	2	59
(4)	Innovation Packages Consists of:	5	137
	Institutional Credit Organized Buying Seed Production Organized Rice Production Farm Tools and Equipment Organized Selling Applied Research		693 Total

7. Management skills training for ISA members.

8. Rice production training for ISA members.

9. Introduction of innovation packages.

10. Marketing training for ISA members.

xxxx

The December 1977 FSDC Progress Report lists the following statistics for training as of December 31, 1977. This information pertains to questions 7-10.

Training	Number of Classes	Number of Participants
Pre-Organization	382	15,304
Board of Directors	299	2,895
General Membership	536	15,685
Irrigation Management Committee	218	1,152
Business Management Committee	207	1,117
Audit and Inventory Committee	191	1,187
Education and Training Committee	146	820
Grievance Committee	167	1,038
Production Management Committee	147	682
Proper Operation and Maintenance of Pumpsets	235	533
Management Function for BOD and Different Committees	27	815
Irrigation Management	71	1,331
Pesticide, Insecticide and Fertilizer Application	32	750
Rice Production	122	2,063
Water Management Training	117	604

The status report also indicates training activities for the innovation packages training listed under question (6) above. These figures represent farmer participation, but may also include IO participation as reported earlier.

Innovation Packages	Number of Classes	Number of Participants
Institutional Credit Project	27	1,746
Organized Buying Project	22	736
Seed Production Project	17	1,222
Organized Rice Production Project	18	1,007
Farm Tools and Equipment Pool Project	30	1,522
Organized Selling Project	22	1,225
Applied Research Project	21	1,379
		7,837

A description of training for ISA farmer members appears in the appendix (Part V), section I; there is also a discussion of training for the Institutional Officers (IO's). By way of improving those training activities it is suggested there that the IO's begin to be more aware of government documents, programs, and the like that hold particular relevance for their ISA. The area offices could help in this regard. This material would also be useful for acquainting new IO's with the project area.

Additionally, increased emphasis on helping farmers acquire new techniques (water management, improved agricultural practices, marketing methods) will be required. It is not clear whether this training should occur at the ISA or at the area office; this matter requires some careful thought. In this regard, many farmers expressed a desire for more technical information and perhaps the IO should be trained as more than generalists/catalysts.

The present plans for more self-training on the ISA are commendable. As officers change it should be expected that the need for continued "outside" training would diminish.

11. Program administration.

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As indicated elsewhere, administration of the program from FSDC's point of view seems to be excellent, at least so far. However, the emphasis on different types of activities which FSDC can engage in will change as it moves through the phases of Stage I and into Stage II. At present, the emphasis is on the organization of ISA's, the development and improvement of irrigation systems, and organizational, management, and financial training. Less attention is being given to production technology, farm equipment, and marketing activities. The predominate emphasis on the organization of new ISA's, construction of irrigation systems and training is likely to continue for at least the next three to five years. Other aspects of the BISA Program, such as farm mechanization, will gradually become more important. This will require gradual changes in the structure of FSDC staff. There is a need for at least a few agricultural technicians on the FSDC staff to help train and backstop IO's. In general, these technicians should be in the Area Offices where they can most directly assist IO's with crop production problems. Farm equipment will become increasingly important; particularly in those areas where labor is scarce relatively to land, such as in Mindanao. Marketing problems will become more evident as the ISA's increase their production and move to the production of new crops. FSDC needs to begin building stronger staffs in the areas of farm equipment and marketing. In both areas, AID

technical assistance could be extremely useful; the AID under-staffing of the program will become more serious as the ISA's (and FSDC) move from a focus on operational irrigation systems to a focus on farm systems development.

One of the major problems FSDC is likely to face during the next two to three years is a slowness on the part of the ISA's to make payments on the irrigation system loans. This will be in part due to engineering problems with existing systems and in part because some irrigation systems will not prove as profitable as initially expected. To push too hard for payment could destroy ISA's. To not require the loans be repaid is inconsistent with the concept of the ISA. Thus, some loans and repayment schedules undoubtedly will have to be renegotiated.

12. Installed and operational irrigation systems.

xxxx

As of December 31, 1977 the following number of irrigation systems have become operational.

Pump systems	231 projects serving 26,783 ha.
Gravity systems	132 projects serving 24,022 ha.

13. Installed and operational farm implement pools and post-harvest facilities.

xxxx

There is a slight discrepancy in numbers but it would appear that approximately 100 ISA's covering about 10,000 ha have received farm tools and equipment as of December 31, 1977. The units are:

Hand Weeders	357
Back-Pack Sprayers	301
Threshers	39
Hand Tractors	85

Many ISA's have not taken advantage of their eligibility for financing of farm tools and equipment which occurs at the time repayment of the irrigation system loan. Few of the ISA's receiving equipment have begun pooling efforts although approximately 30 training classes have been conducted for 1,522 participants. It appears as if the ISA members have a strong preference for fully repaying the irrigation loan before acquiring yet more debt service obligations. No post-harvest facilities have been installed.

14. Loans for irrigation facilities, farm implements, and post-harvest facilities granted.

xxxx

Of the $1,156,000 in grant funds, $766,000 have been obligated as follows:

Direct-Hire (36 Months)	$240,600
Limited-Term Contracts	
Engineering (20 Months Advisory Forward Funded)	$204,500
Operations (16 Months Advisory Forward Funded)	$ 66,100
Short-Term Consultants	$ 58,300

Participant Training	$138,960
Commodities	$ 22,540
Invitational Travel	$ 5,000
Grant: Research & Development	$ 30,000
Total	$766,000

FSDC has negotiated a contract with Camp Dresser and McKee International, Inc. (CDM) engineering consultants to assist in improving the technical design of the systems. USAID project inspections noted some deficiencies in technical design which had to be rectified prior to reimbursement.

During the final week of September, FSDC requested and was reimbursed by USAID in the amount of $1.8 million covering work done on 232 irrigation subprojects and 62 farm support systems. An additional reimbursement of $460,000 for 59 projects has also been approved. A December request for disbursement of $0.7 million for approximately 96 projects presently being processed will bring total drawdown on USAID loans to $3.4 million under FAR agreements.

An Invitation for Bid (IFB) for the procurement of vehicles, engineering, and communication equipment in the amount of $900,000 has also recently been issued and a second IFB for procurement of pumps is expected to be issued in the near future.

15. Delinquency rates of no more than 20 percent on loans granted.

xxxx

Initially, farmers were to begin repayment of the irrigation system following a one-year grace period. Two recent changes in repayment schedules have been adopted: (1) farmers now begin payment one year from the time at which their pumping

systems are operational; and (2) the repayment period has been lengthened from seven to ten years. These changes and the existence of several unforeseen (natural) circumstances render it difficult to determine the delinquency rate on present loans. We visited some ISA's which were behind, and at least one which was ahead of schedule.

B. Additional Criteria

1. Is the ISA a valid concept in organizing the rural poor to improve their socio-economic position?

xxxx

Yes. Given that small farmers are least advantageously situated to have an influence on their economic milieu the ISA Program has the potential to help them act in a concerted manner with respect to crucial aspects of their farming enterprise--reliable access to water, good technical advice, marketing assistance, and organizational assistance.

2. Are the ISA's appropriate and effective mechanisms through which to provide information, training and other services relevant to integrated rural development?

xxxx

Water is the unifying agricultural input for the ISA. Where water can be reliably provided to farmers they can readily see the value of working together. The initial focus of the ISA on developing a reliable irrigation system therefore makes the value of training and information provided by FSDC more apparent to the farmers. As the ISA's irrigation system begins to

operate, for example, farmers recognize the problems involved in the group management of water and can immediately use the information, training and services obtained from FSDC to solve those problems. They also have an increased incentive to utilize information on improved farming practices. Thus the ISA's not only provide a useful mechanism for FSDC inputs but could also be utilized by other government agencies as a communications channel to small farmers.

3. What is the long-run viability of the ISA's likely to be with respect to currently perceived farmer needs, as well as for expanding to assist with other needs?

xxxx

If the ISA is viable with respect to a few important aspects of agricultural production--water, production training, marketing assistance--then it seems that other needs could be provided with some assistance from FSDC or other pertinent government agencies. It is more difficult to judge how well it might function in the provision of as yet unanticipated needs over the long-run.

4. What is the effectiveness of the institutional officers (IO's) in providing information, training, appropriate services, and in coordinating ISA activities?

xxxx

To a certain extent the effectiveness of the IO is a function of the "personality" of the farmers in an ISA, the engineering and mechanical integrity of the irrigation system, the reliability of water receipts, and--of course--the skills of the IO. Con-

ceptually the IO is a very appropriate and crucial participant in the rural development process. The IO is the representative of FSDC and if the ISA is weakened by problems in water deliveries--or in multi-barangay disputes--the IO will bear some of the blame (rightly or wrongly). In sum, even the best IO cannot make an ISA viable if the system will not deliver water to its members. The IO is just that--institutional officer--and as such is a catalyst. The IO is not a decision-maker nor a technical advisor. It is, therefore hard to evaluate any one IO in isolation from the water delivery system of an ISA, the nature of group dynamics among ISA members, and the other support provided by FSDC.

5. What is the appropriateness of the organizational assistance provided by FSDC up to this point?

xxxx

Two aspects of FSDC's organizational assistance merit discussion. First, FSDC started with an organizational structure for the ISA's (Board of Directors, committees, officers, subproject divisions) which is not only highly imaginative with respect to irrigation systems around the world, but extremely logical as well. Secondly, after several years FSDC modified its organizational model to allow for variation across ISA's to reflect local conditions. The structure is highly egalitarian in nature, and is designed to assure all farmers of equal participation in the affairs of the ISA.

This is one of the most impressive aspects of the FSDC program. The willingness to judge ISA performance and then suggest

variations to better suit local problems is a rare bureaucratic trait.

6. Is the organizational assistance of FSDC appropriate for enhancing the long-run viability of the ISA's?

xxxx

As indicated in question (5), this aspect of FSDC appears to be very strong. It is difficult to be definitive about ISA problems and FSDC response over the long-run but the evidence to date is encouraging.

7. Is FSDC providing the appropriate assistance to ISA's in financial management? ISA management in general?

xxxx

FSDC appears to be providing appropriate assistance to the ISA's in financial management and it places a great deal of emphasis on such training. It is important that it continues to do so from the very beginning of an ISA's operation. Initially the financial management of an ISA is relatively simple compared to what it would become in the later stages of development of the ISA. In the first stage of an ISA's development, financial management may require little more than keeping records on irrigation pump costs and farmers contributions to those costs. As the ISA purchases farm equipment and/or undertakes marketing activities, the financial management becomes more complex and the early financial training more important.

FSDC also places much emphasis on ISA management training for the ISA president and officers through the institutional officer. The extent and depth of this training varies in the different ISA's according to their stage of development. The first ISA officers are normally given organizational and functional training which they should then transfer to their successors. At the ISA level it was observed that this transferral of skills and information did not systematically occur. FSDC could enhance its assistance to ISA management through further developing the ISA's self-training capability. Although records are already kept by the ISA secretary each ISA officer could maintain a journal during his tenure. This journal could describe the functions of the office as well as the manner in which the officer addressed issues as they arose. This journal could be passed along to the newly elected individual who would also be briefed on the responsibilities of the position. The ISA could develop a self-training management capability in this way with FSDC's assistance.

FSDC's overall financial and management assistance to the ISA could also be evaluated on a monthly or quarterly basis through a questionnaire distributed to the farmers by the ISA officers. FSDC could then review and assure the appropriateness of its work.

8. How successful is FSDC in assisting ISA's to obtain resources and services from other agencies and programs?

xxxx

At the farm/ISA level varying degrees of coordination among agriculture and rural development programs appear to exist. The farmers of several ISA's felt that there was good coordination between agencies in the provision and integrated services responding to their needs, while the farmers in other ISA's did not mention this linkage. However, there must be assistance from the agricultural extension program as the ISA's move from concern with water delivery to concern with agricultural production. This assistance may be strengthened at the farm/ISA level in the future as some coordination has apparently begun at the top administrative levels.

9. Does FSDC have an appropriate system for monitoring ISA performance and for evaluating its own activities with respect to ISA performance?

xxxx

FSDC is employing PERT to monitor ISA progress with respect to water delivery. There does not appear to be a detailed management system for ISA agricultural performance.

It is, perhaps, only now that this sort of performance monitoring of agricultural aspects becomes relevant for most ISA's but it is vital to the success of the whole program. The management section of FSDC must have its own means for judging ISA production performance so that subsequent programs are initiated at the proper time, and so they proceed at the correct pace.

10. What is the magnitude of the FSDC Program--and its rate of growth--with respect to the size of the (rural poor) target group?

xxxx

As of December 31, 1977, 641 projects have been initiated by FSDC since its inception. These facilities were installed to serve 90,000 hectares and have reached 30,718 farmer-heads of households. (An FSDC estimate indicates that the average size of the small farmer family is 6; therefore 184,308 of the rural poor target group have been reached.)

The FSDC targets for 1978 include construction of 123 pump projects to serve 15,000 hectares and reach approximately 11,279 farmer-heads of households (at approximately 1-1/3 hectares per farm according to an FSDC survey December 7, 1977). One hundred eighty seven gravity projects are also targeted for construction to serve over 33,000 hectares and reach 25,053 farmer-heads of households.

Assume that the target population is 750,000 potential ISA farmers, FSDC will have reached 67,050 farmer-heads of households at the end of FY 1978. This figure represents 11.2 percent

of the total target group. In the future, FSDC plans to proceed toward serving new farmers at least the same rate we observed for 1978.

11. Are nontarget group beneficiaries significant in number or in benefits received?

xxxx

The benefits of the program will accrue to ISA farmer members, hired labor used in ISA's, hired labor used in agricultural support activities beyond the ISA, and landowners in ISA's who are not also ISA farmers. The benefits of the program to the very small farmer seem to be significant--particularly where multiple cropping is rendered feasible. It is doubtful if many nontarget group individuals will benefit, although nonfarmers and owners in ISA's will benefit from the increased production. Additionally, the irrigation infrastructure will enhance their land values. FSDC's evaluation of the BISA Program suggests that the irrigation systems of the ISA's have not significantly increased the demand for labor or affected the distribution of benefits from the increased production.

12. What is the outlook for the viability and integrity of FSDC?

xxxx

The striking feature of FSDC is the idealism and the commitment of its personnel. Many employees have joined FSDC at considerable financial sacrifice, and others have joined when it meant transfer out of Manila to one of five Area Offices; in many cases wives and children have remained behind. This dedication is illustrative of the high regard in which the organization and its administrator are held. The Area Offices are not merely offices

but most of the employees live there as well. A typical work-day seems to go from 7:30-8:00 in the morning to 7:00-8:00 at night. Weekend work is not uncommon.

It is safe to say that this sort of devotion to an organization and its mandate to help small farmers is extremely rare. The long-run viability is more difficult to judge, and most certainly this sort of devotion will subside somewhat as the program moves into subsequent stages. However, it is difficult to imagine FSDC ever losing all of its commitment to small farmers and hence vis-a-vis other agricultural organizations in developing countries the outlook for FSDC is indeed encouraging.

13. Is AID's program contributing to FSDC's small farmer program? How?

xxxx

It is clear that in the very brief life of the program FSDC has had a profound impact upon a large number of very small (and poor) farmers. To claim too much for AID's role in that success would detract from the inherent viability of FSDC; to claim too little would detract from the significant contribution of a few USAID people who have given a great deal of their energies to the program.

The financial assistance of AID was minimal ($136,862 of a $6,500,000 loan) as of August 31, 1977. Therefore, it did not assist FSDC as it was hoped for the first 2-1/2 years of the project. Disbursements from September 1977 to present bring the total AID assistance to $3,400,000.

It is important to recognize that development assistance requires more than money. Technical assistance from AID has been an important part of the small scale irrigation project. AID personnel must always be more than mere cashiers and this requires spending long hours with counterpart technicians in a variety of situations.

The evaluation team was struck by the extent to which AID personnel are considered as colleagues--and the subsequent opportunity to openly discuss management and technical problems within FSDC. The FSDC staff is genuinely interested in discussion, debate, brainstorming, and experimentation on a variety of management and technical issues. The AID personnel seem to fulfill this role admirably.

14. Does AID's program require modification to meet changing needs of FSDC and small farmers? What changes are needed?

xxxx

FSDC envisions the following sequence in its small-farmer program:

<u>Stage I. Development of Farmers' Organizations</u>

Phase I. Establish ISA's
Phase II. Develop ISA entrepreneurship (seed program, marketing)
Phase III. Develop ISA enterprises (ISA work on cropping patterns, service centers)

<u>Stage II. Economic Integration</u>

Phase I. Establish ISA Federation
Phase II. Land Consolidation
Phase III. Agro-Industrial Development

<u>Stage III. Government/Private Sector Partnership</u>

As FSDC moves from Phase I to Phase II Stage I and beyond it is clear that a different program focus will be needed on the part of AID. As ISA's become self-reliant in terms of organization/water delivery/amortization it will become crucial for FSDC to assist in agricultural and water management aspects. This will require greater AID capability in these areas to work with FSDC counterparts in developing a management program, an information delivery mechanism, and a technical assistance capability.

We would suggest that some time be devoted over the next 4-6 months to developing job descriptions for AID contract personnel to help meet the changing needs of FSDC.

IV. RECOMMENDATIONS

A. General

AID should provide more reliable and thorough assistance to FSDC in the future than it has in the past. Certain factors justify this increased attention:

1. FSDC has had a profound impact upon a large number of very small and very poor farmers which are part of AID's poor majority target group. Farmer incomes have risen and the farmers are now able to have a greater impact on their economic environment.
2. The planning and administration of FSDC is excellent. The corporation is sensitive to the needs of the farmer and continually assesses its performance to better address those needs, as evidenced by the recent reorganization.
3. FSDC personnel are striking in their devoted commitment to the organization and the improved welfare of the small farmer. The depth of this commitment can be seen in the considerable financial and personal sacrifices many employees undergo to join the organization. They are young energetic, and genuinely interested in creatively addressing the needs of the farmers.
4. FSDC has the support of the GRP as a government corporation.

The performance and capabilities of FSDC, as well as the the target group it reaches, indicate that it is a project worthy of AID's continued assistance. Furthermore, AID has had difficulties in the

implementation of past commitments which could now be rectified. AID also is capable of providing valuable financial assistance to FSDC as well as technical assistance in critical areas. This technical support will be crucial to the success of the program as ISA's move from a concern with the water delivery system to a concern with farm systems development.

B. Recommendations for AID

1. As a minimum, AID should provide long-term grant-funded technical assistance in the following areas:

   a. Project Officer

      The position of Project Officer in the Mission has recently been eliminated. This position should be reinstated; it is essential to the continued success and development of FSDC.

   b. Irrigation Engineering

      FSDC is upgrading the quality of its irrigation systems. However, as AID is buying the pump sets under FAR agreements, it would be preferable to have a full-time field engineer to verify the appropriateness and adequacy of the engineering design and offer necessary technical assistance.

   c. Financial Management

      As the ISA's develop and expand their activities financial management will become increasingly complex. Certain field staff are now being trained in financial management and they will transfer their knowledge to the ISA's. Additional assistance will prove to be critical as the project develops.

d. Water Management

To date the major emphasis has been on constructing the water distribution network. As the ISA's undertake efforts to improve agricultural practices the performance of the water distribution system will become more important. It is crucial that FSDC receive technical assistance in on-farm and among-farm water management.

e. Training

FSDC places considerable emphasis on training activities. However, there is a need to help to monitor these activities and to suggest possibilities for improvement in the overall training program. AID could be of considerable assistance here.

f. Farm Systems Development

As FSDC proceeds in assisting the ISA's in diversification of their activities it will become more important to provide technical assistance in agricultural production (rice and vegetables), mechanization, and marketing. This is a function which AID could perform very well.

All of the positions implied by the foregoing should be funded through a grant program. While the Project Officer should be direct-hire AID staff, the others could be handled through contractual arrangements.

2. While the focus of the early FSDC program was the provision of water, the ultimate program purpose is the development of small farm systems. Hence, AID should consider changing its

program title from Small Scale Irrigation to "Small Farmer Organization", "Small Farmer Development".

3. The recent move of FSDC staff from the Central Office to the five area offices has left these area offices very short of space, vehicles, typewriters, and general supplies. AID should consider the possibility of assisting FSDC in this regard.

4. AID should revise the Project Goals from the original Project Paper. Proposed Goals are:

   a. Increase income of small farmers.

   b. Demonstrate value of cooperative action by small farmers through developing farm systems organized around shared irrigation, machinery, other inputs, and marketing.

5. AID should revise the Project Purposes.

   Proposed Purposes are:

   a. Increase rice yields to 53 cavans/ha with irrigation, and to 70 cavans/ha with production packages.

   b. Increase yields of vegetables by 30-40 percent over their 1975-78 average.

   c. Increase intensity of land use through double cropping of rice or reliable (dependable) rotations of rice and vegetables.

   d. Reduce post-harvest losses.

   e. Help farmers to learn methods for better utilization of agricultural inputs and improved marketing.

C. Recommendations for FSDC

1. FSDC should develop better methods for monitoring the production performance of the ISA's.

2. As the ISA's enter subsequent stages of development it will be necessary for FSDC to improve its program of assistance in financial management, agricultural production, water management, mechanization, and marketing.
3. FSDC needs to improve its ability to act as a catalyst across a range of necessary agricultural services available through other organs of the Philippine Government

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A. SOCIAL PARAMETERS IN SMALL SCALE FARMING: AN OVERVIEW

William Jansen
USAID
Manila

To more fully evaluate the extension of irrigation to small farmers, it is necessary to understand the social setting of small scale agriculture in the Philipnines. A knowledge of the social setting within which the farmer grew up and lives provides us with an insight into the kinds of variables or parameters which affect and help to pattern farmers' responses to change.

As in many Southeast Asian countries, the traditions of Philippine agriculture have been based upon a class-based rural society and the extraction of agricultural surpluses into the control of a relatively small proportion of the population. Part of the tradition involved the ownership of large tracts of prime agricultural land by individuals with varying degrees of social, political and economic power. Most agricultural production was the result of the labors of people who lived and worked on small parcels of land, but who provided shares of their crops to the influential landowners. These tenants (or sharecroppers) represented the bulk of the population involved in agriculture. As such, it is a familiar story.

Admittedly, the current situation in rural Philippines has changed significantly. Agrarian reform is well underway and the incorporation of farmers working small pieces of land into government agricultural programs is a long established policy of the Philippine government. Important behavior and belief patterns born in agricultural tradition influence the actions of farmers today. As a result the small farmer

in the Philippines displays a conservative and pragmatic outlook on life. Although change is ever present in the rural Philippines, it should be remembered that social tradition represents a known entity, secure and faithful. Change on the other hand represents the unknown, full of uncertainty and risk.

Today, the average farmer with whom FSDC deals still relies on traditional sources of socio-political power for decision-making which affects an entire community. As an example, in the majority of cases, the farmers themselves did not ask for irrigation systems. They were not even aware that an agency existed which could provide them with irrigation nor how to apply for assistance. As in the past, access to the resources of government is not through the farmer but rather through brokers or go-betweens in the upper socio-economic levels of rural society. The initiative to acquire FSDC assisted irrigation works continues to rest primarily among upper class brokers or the government itself rather than from the small farmers.

This external but logical initiative (given the traditional class structure of rural Philippines) for irrigation must then be measured against the realities of small farmer existence. Despite some general increases in production capacity, the small farmer still views himself as being in a relatively risky business. The rainy season may come late or the dry season early, so that the weather is not always reliable. Then again, the threat of a typhoon's destructive force is a yearly occurrence that is all too often realized. Farmers see themselves in something of a delicate balance with nature--a balance which sometimes is tipped in favor of nature.

Against this background of risk and weather uncertainty, water represents an easily recognizable means through which the farmer can obtain some further degree of control over weather. An element of certainty and elimination of risk is given to the small farmer. Such an insurance function is immediately realized and its value actually voiced by farmers.

In addition, farmers see hard work as a necessity in rural life, but at the same time place a high value on leisure time. Leisure time allows rural families to devote the necessary attention to personal interactions. Rural life in the Philippines requires close interaction with neighbors and friends. Personal interrelation provides the context for information flow; access to resources; sharing of labor; and for entertainment. It is the importance placed on personal interrelationships which spawns such traditional values of Pakikisama, or Bayanihan. Interestingly, however, the strength of personal relationship and the values of cooperative mutual assistance is based largely in the immediate community.

The immediate community is frequently composed of elaborately intertwined kinship alliances. Loyalty and a sense of common interest to one's own logically ties the community. Therefore, cooperative endeavors which cut across community lines usually are faced with having to create some new sense of common cause and often times face the problems of old rivalries. This sense of allegiance to one's community at the expense of others even includes a sense of obligation to one's old landlord.

The continuing respect relationship due to old landowners is sharpened by the realization that most (68%) of the farmer-participants

in FSDC projects do not own their own land. Although some are in the process of acquiring land, the process can take as long as 15 years and involve three stages (tenant, leasee, landowner). The old landowning families continue to occupy a high social status and may still receive payments from ISA farmer-members. Nevertheless, the relative omnipotency of the landowner as a patron in rural Philippines has decreased noticeably.

Another variable which irfluences the current society of the small farmer is the existing philosophy toward the acquisition of economic surpluses.

As mentioned above, the small farmer traditionally lived in the realm of economic marginality. That is he grew enough to meagerly support his family and provide the surplus to the landlord and the grain merchant. The farmer then struggled to acquire enough to satisfy his perceived needs.

Today, the philosophy of growing enough to satisy his perceived needs continues to influence behavior. The important feature of his philosophy on the current scene is that the perceived needs, born in tradition, do not appear to have increased significantly. What this means is that even when given the means to maximize production and therefore income (to even double that which he received in the past), the farmer may well elect not to maximize. He is more likely to pursue some increase in production but only within "satisfying" parameters. One must remember that the farmer's perception of standards of farmers are conditioned by comparison with the past life-styles of their parents and grandparents. Relatively slight improvements are therefore viewed as major steps toward a "comfortable" life.

In this context, it is significant to note that farmers universally see education as the primary means of social mobility. Increased income, in itself, is not viewed as the major means to long-term personal improvement. Farmers, in fact, do not appear to hope for changes in their own standards of living, rather they place their hopes for a better life in their children. Education is a way to become something other than a farmer, perhaps entering even a "professional" career. Education, they feel, is the primary way to provide their children with that opportunity. An increase in income through increased yields is sometimes valued by farmers simply as an avenue which can make possible the goal of educating their children.

B. THE ISA AND THE SOCIAL SETTING

William Jansen
USAID
Manila

One important aspect of the small scale irrigation program is how it relates to farmer behavior patterns and the rural social setting. At the level of involving farmers, the small scale irrigation program revolves about the functions of the ISA.

As mentioned earlier, the initiative to acquire an irrigation system has rarely come from the farmers themselves. Farmers do not have the knowledge of the kinds of government programs available to them. Farmers therefore react to an offer of an irrigation system, an offer which originates outside their immediate community. This pattern of the initiative to acquire irrigation coming from an external source follows the age-old tradition of the small farmers dependence upon influential patrons. Such a pattern in itself is not necessarily bad; it merely exemplifies a continuing social tradition in the interaction between FSDC and farmers.

Once the initiative is made, the pervading motivation leading farmers to accept the concept of having an irrigation system and to join an ISA is the provision of water. Water is seen basically as a means to reduce the risk of not attaining traditional levels of production due to variations in weather; and to allow the possibility of increasing yields beyond traditional levels.

Irrigation has a long tradition in the Philippines existing prior to the coming of the Spanish. Farmers are readily aware of what a regular supply of water can mean. Simply stated, access to water is why farmers join an ISA.

With water, farmers by and large, continue to follow the existing cropping pattern with which they are familiar and which has proven to be relatively successful. FSDC expectations of double rice cropping appears a bit inflated considering the pattern of pragmatic conservatism of small scale farmers. The tradition of satisfying instead of maximizing in the attainment of a living also indicates that increases in cropping intensity may be modest. Although farmers certainly do recognize the potential to realize an increase in yields and thereby an increase in income, this increase is not necessarily equated with more intensive cropping in the farmers' mind.

Farmers reported increases of income through irrigation without intensifying cropping. Yield increases were possible with the combination of high yielding rice varieties and water or simply with the availability of water for the dry season crops grown before irrigation was provided.

The initial acceptability of ISA functions which are not directly related to the provision of water appear tenuous without a working irrigation system. Farmers join an ISA to obtain water. Financial, management and organizational training are all simply viewed as a means to acquire water. The ISA role of coordinating extension services to farmers also represents an activity complementary to the provision of water. The experience of irrigation systems begun under the National Irrigation Authority and the initial efforts of FSDC both illustrate quite graphically that when the water does not flow, farmers lose interest in irrigation associations. The training and extension services funneled through an irrigator organization do not fulfill a

generally recognized need among farmers--at least to a level sufficient to hold farmers together. Without water, an irrigator organization will fail.

Another aspect of rural society which has affected FSDC programs is the heavy focus farmers place on the immediate community. Loyalties and the values for cooperative interaction do not generally extend beyond one's own family and community. Early FSDC experience revealed that when an ISA incorporated several communities factions frequently developed to the extent that the very operational ability of the ISA was threatened. What was feasible from an engineering perspective became infeasible on the social level. Because of these early problems, FSDC is now making a conscious effort to plan an ISA around single communities in an attempt to avoid factionalism and difficulties in achieving a cooperative ISA membership. This policy represents a positive adaptation to the social environment in rural areas.

Another adaptation to this environment is the policy of the FSDC to have their field workers (Institutional Officers) actually live among the farmers in their areas of responsibility. The traditional value placed upon interpersonal relationships common among farmers can become active through the day-to-day contact with FSDC field workers. By regularly being in the community, farmers can begin to identify a commitment on the part of a person in their agricultural well-being. Communication becomes more effective between the farmers and the FSDC because the field worker is at least a titular member of the community. The chances of cooperation with a field worker increase dramatically with the intensity of contact with the farming community.

C. IRRIGATION AND SMALL FARMERS

Daniel W. Bromley
University of Wisconsin
Madison

There is an abundant literature highlighting the impacts of reliable water deliveries on agricultural practices.* There are two ways of discussing these impacts: (1) the effects on agricultural production; and (2) the effects on equity among farmers. First consider the production implications of reliable water receipts.

Many researchers in the arid parts of the world have found water receipts to be the single most important input in influencing the choice of which crops will be planted, which areas will be planted, the nature and extent of fertilizer application, and the nature of general agricultural practices such as seed-bed preparation. Where water receipts are insecure, rather more traditional methods are used; where water is reliably delivered the more "modern" methods are adopted.

While research in Southeast Asia is less abundant than for South Asia, there are studies which show the importance of secure water expectations. In brief, a secure expectation on the part of farmers as to water deliveries is generally shown to result in the increased adoption of modern agricultural practices, higher yields (even with traditional methods), higher cropping intensities, and thus improved farm income over those instances where water receipts are less dependable.

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*A review of much of this literature can be found in Daniel W. Bromley, Donald C. Taylor and Donald E. Parker The Economics of Water Reform: Institutional Design for Improved Water Management in the LDC's, University of Wisconsin, Madison, Center for Resource Policy Studies, October 1977.

The equity aspect of water receipts arises because farmers--who in theory are to have equal access to water--are often quite dissimilar in their actual water receipts. There are several explanations for this. One is that the irrigation system was "overdesigned" in terms of the area which could supposedly be served by the water source; the farmers at the end of the system rarely receive water for the simple reason that there is not enough to cover the design area. Another explanation might be that those farmers at the head of the system take more than their "share", leaving less for those at more distant points. Yet another explanation is that those farmers with political power--regardless of their position in the system--take more water than they are entitled to. It might also happen that the distribution system is so poorly designed that seepage and water losses deprive some farmers of their "share."

Whatever the cause, when some farmers on an irrigation system do not receive water, the system ceases to define a community of farmers sharing a valuable input. It becomes, instead, merely an engineering structure. If influential farmers dominate the operation of the system then we might imagine that it is the small farmers who will bear the brunt of "insufficient" water. And since most systems in the LDC's do not have measuring devices, who is to believe that any one farmer is getting more than his share? Who can prove it? Who would want to try when those being deprived of water are at the low end of the socio-economic scale, and those who might be receiving extra water are at the opposite end?

So the matter of equitable distribution within an irrigation system is of profound importance--particularly where water is, by law, allocated to each on the basis of land holdings in the system. If water were sold by volume to whomever wished to purchase it there would be one sort of problem,

but where it is supposedly allocated on the basis of land area it raises a different policy issue.

The very essence of an ISA is the sharing--in an equitable manner--of a valuable agricultural input. Without irrigation the ISA's would not exist; without reliable water deliveries to all farmers an otherwise "good" ISA will cease to function as an ISA. Farmers will not attend meetings, those not receiving water will not pay fees, and the cost burden will then, of necessity, be assumed by others.

Because most ISA farmers are small, there is usually not the disparity of socio-economic status referred to above. Hence, it is unlikely that there is quite the potential for a few powerful farmers to manipulate the system. And yet, if stringent efforts are not taken to assure that the irrigation system operates efficiently it may happen (because of seepage) that those near the head of the system get more water than they need, and those at the tail get less. Whether by design or by accident, the disparity in water receipts will have the same impact on the viability of the ISA.

The performance of the water distribution system is something that can be improved over time. In the early stages of ISA development the most important thing is to get the pump working in a reliable manner. Once that happens it is possible to commence work with ISA farmers on better agricultural practices--and on better water management. As that evolves it will become increasingly important to "fine tune" the water delivery system so that it keeps pace with the increasingly sophisticated agricultural practices--practices which are less forgiving of bad water delivery performance than are traditional agricultural methods. As this happens, all farmers can again upgrade their agricultural methods and continue to work to refine the water delivery system

at the same time. In that way neither aspect becomes out of syncronization, and all farmers remain interested in the viability of the ISA.

D. ROLE OF THE ISA IN RURAL DEVELOPMENT

William Merrill
AID
Washington, D.C.

The BISA Program works for the farm level institutionalization of advanced farm systems; technology, improved entrepreneurial methods, and increased marketing capacity of small farmers. This process is started by the farmers organizing an ISA. The ISA is the mechanism through which farmers learn to work together to solve their problems. Where the ISA's are successful, farmers can see the value of their joint efforts in the form of increased income.

Conceptually, the ISA serves to promote "integrated" rural development of a group of small farmers. The ISA essentially carries out the integration process by sequentially identifying and overcoming the most important constraints to increased production and incomes. To date, FSDC has focused primarily on overcoming the water constraint. There are several advantages to this. First, effective water control requires group cooperation. Second, this focus helps to distinguish FSDC from other government organizations and minimizes overlaps with programs of other agencies. Third, it provides FSDC with criteria for developing and allocating its staff. The principal disadvantage is that water is not always the "key" or first priority constraint limiting increased farm production. Where water is not the key constraint, the increased production resulting from better water control is insufficient to cover the increased costs of the new irrigation system. When this happens, the ISA tends to dissolve because of inadequate economic advantages to at least some members of the ISA.

The key objectives of the ISA are:

(1) To construct, own, and operate an irrigation system.

(2) To improve farmers' managerial capacities.

(3) To undertake continuing education and training activities with support from FSDC and other government agencies.

(4) To adopt a credit system to the members' needs.

(5) To acquire farm tools and machinery for the collective use of ISA members.

(6) To facilitate group buying of inputs and marketing of outputs.

(7) To promote more profitable farm production.

(8) To cooperate with similar organizations undertaking farm systems development activities.

The ISA's are designed around a few basic characteristics. These are:

(1) The ISA is a registered, nonstock, nonprofit service organization which can enter into contracts and other legal activities in behalf of its members.

This facilitates the acquiring of water rights, the contracting for the construction of irrigation systems, the negotiation of loans, and other economic activities.

(2) The ISA is organized around a contiguous land area for irrigation and rice production.

(3) Any farmer-tiller, whether an amortizing owner, farm manager, or owner-cultivator can become a member of the ISA if land is located within the ISA area.

(4) The ISA is to operate according to the cooperative concept of doing business. This implies the maximum participation of members based on the principles of equality and mutuality. Each member is entitled to one vote. Earnings are distributed to members in accordance with their participation.

(5) The ISA is to be self-reliant in that farmers make their own decisions. The FSDC Institutional Officer (IO) acts only as a catalyst and/or advisor.

Although the key objectives and basic characteristics are the same for all ISA's, each ISA is a different entity with different problems and different resources necessary to the achievement of their objectives. All of the ISA visited by the evaluation team were organized and operating consistent with the basic characteristics of ISA. Each of the ISA's had problems. Some of the ISA's were working better than others and seemed likely to progress more rapidly through the various stages of development. The success or failure of an ISA depends in part on the characteristics and attitudes of its members and in part on the technical possibilities for increasing farm production and incomes through better control of water. Of the two, the technical potential of increased production appeared to be the more important based on the ISA's visited. If working together doesn't increase incomes, then there is less reason to work together. Not all ISA's will work. FSDC's experience to date indicates that roughly 20-25 percent of the ISA's started have failed. The problem is <u>not</u> in the concept of the ISA as an instrument of rural development but in the reality of the area

in which the ISA is formed. Feasibility studies based on careful, on-site visits of proposed ISA's and incorporating appropriate modifications of standard assumptions would help reduce the number of failures.

E. LINKING THE ISA'S TO FSDC

William Merrill
AID
Washington, D.C.

The ISA's are linked to FSDC through Institutional Officers (IO's) who act as catalysts and/or advisors to the ISA's. The IO's live with the farmers. They help organize the ISA's, arrange for training of the ISA members, help farmers obtain assistance from other government agencies, and provide advice on alternative approaches to solving organizational and technical problems. The IO's usually have a fairly broad social science or business management background. Persons with highly specialized talents or responsibilities in areas such as engineering, financial analysis, auditing, and training are located in the Area and Central Offices. They serve to backstop the IO's.

During the Evaluation Team's visits with ISA members it was clear that the farmers made their own decisions in nearly all aspects of the ISA's operations. As examples, the farmers decided whether or not to accept FSDC's suggestions on the type of irrigation system, how the cost of operating and maintaining the system would be shared, who would obtain how much water and when, the actions to be taken against ISA members who did not obey ISA rules, etc. FSDC's policy of not making decisions for the farmers has the advantage of developing self-reliance among the farmers. Its disadvantage is that some aspects of development of an ISA may be delayed longer than FSDC feels appropriate. On one of the ISA's visited, as an example, the farmers recognized a need for more farm machinery but concluded that the ISA should not purchase such machinery until it had solved some of the problems associated

with the construction of its irrigation system. This decision may have delayed the development of the ISA during the next year or so but it would not have been appropriate for the IO to make a contrary decision simply to keep the ISA "on-schedule."

Training plays a very important role in the development of ISA's and in linking those ISA's to FSDC. The government of the Philippines and the citizens place a very high value on training and education. Thus, individuals are particularly receptive to participation in training programs. In addition to conveying technical and managerial information, the FSDC training program is designed to instill an understanding of and support for the ISA-cooperative concept in both FSDC staff and ISA farmers. In the process, close personal ties are built between FSDC Central and Area Offices and FSDC field staff and between FSDC personnel and individual farmers. These ties are important to building farmers' trust and the communication channels necessary for the solution of ISA problems.

In general, FSDC has an excellent staff. Its personnel are young (with an average age of approximately 24 years), bright, and aggressive. Personnel are carefully selected through a process of written examinations and personal interviews. New staff usually are placed on a six-month probation period before becoming permanent staff. This provides an opportunity to easily reconsider an appointment. FSDC members receive good short-term and on-the-job training and have the capacity to learn fast. All of the FSDC personnel interviewed by the Evaluation Team were strongly "in-tune" with the objectives of FSDC and very pleased to be part of the organization. The strength of FSDC's staff

support for the organization's objectives is reflected in the staff's feeling about the recent decision to shift personnel from the Central Office in Manila to the field. Everyone agreed that this shift would help to solve some of the problems associated with delays in getting ISA's started and in helping them solve some of their operating problems. Although there were personal hardships associated with the shift to the field, the Evaluation Team heard no complaints.

It is difficult to judge the degree of farmer support for FSDC on the basis of visiting only a few ISA's. Nevertheless, on the basis of the ISA's visited, there appears to be fairly broad support for the program with significant differences between ISA's. At several of the ISA's farmers estimated that their incomes had doubled since the formation of the ISA and they did not believe that amortization payments would be a problem. They were looking for ways to further increase their incomes through such things as crop diversification or marketing programs. They strongly supported their ISA and the program. In other cases, the increases in production were not as large as anticipated and some members were not fully supporting the ISA's. In these cases, it seemed unlikely that the ISA's would begin to repay their loans on schedule. Nevertheless, the active members of the ISA still appeared to appreciate the help of the IO and expected FSDC to continue to help the ISA solve irrigation, production, and marketing problems.

F. THE FSDC FARM SUPPORT SYSTEM

Marvin Parker
USAID
Manila

The FSDC Farm Support System is designed to bring the benefits of more effective farm power and machinery to the small farmers who cannot afford to own them individually.

FSDC requested assistance in implementing the program and USAID began providing this assistance in December, 1975. Assistance is being provided in these general areas: Farm Power and Machinery Management; Farm Machinery Development; Training Activities and other agricultural equipment-related assistance activities.

I. Farm Power and Machinery Management

A. Selection Criteria:

The need for guidelines describing minimum acceptable standards for quality of construction, field performance and after-sales service was recognized early in the program.

In early 1976 FSDC developed selection criteria covering machine design, materials of construction, after-sales service and field performance for the basic machines to be financed by FSDC.

The purpose of this was to provide assurance that farmers receive the best possible quality of machinery and service at reasonable cost. A secondary purpose was to assist fabricators to improve their products through a better understanding of FSDC requirements and closer contact with farmers.

The lists of criteria were published and made available to all interested fabricators. The requirements outlined in the criteria can be met by local fabricators without costly redesigning of their products. Assistance in meeting the requirements was offered by FSDC/USAID. Except for a brief period at the onset of this program, FSDC has been provided with acceptable specifications for support system components from a large number of fabricators of farm machinery.

An element of competition has been injected and enterprising fabricators are improving their products.

To assure favorable prices to farmers, FSDC requests that fabricators submit quotations along with specifications for study by the management staff.

B. A New Purchaing Policy is Implemented

A common procedure for government agencies in the Philippines is to negotiate farm machinery purchases at the macro level in large blocks of units for later distribution to farmers as loans-in-kind. With this system, it was often difficult to obtain close attention to the requirements and preferences of the farmer-owners for quality and performance.

In an effort to improve service to the farmer, FSDC initiated a plan to shift responsibility for selection of make and model of farm support system components to the ISA. Under this plan, which has been in operation since early 1976, the ISA indicates the make and model of machine they want to buy provided the equipment meets the criteria for quality, dealer service and fair price.

This move has had interesting and somewhat profound effects on the farm machinery industry. Although sales promotion at the macro level continues in some other agencies, fabricators have now taken their sales campaign to the farmers and the new policy has produced these clearly defined results:

(1) Farmers have become more selective in choosing equipment on the basis of quality and performance.

(2) Farmers, through the ISA leadership, are becoming more insistent on having a share of the decision-making in selecting the equipment they will use and pay for.

(3) The enterprising farm equipment fabricators are actively promoting their lines to the farmers by field demonstrations and assurances of good guarantees and after-sales service.

(4) The quality of equipment construction and design has significantly improved. Locally made power tillers, threshers, and other machines are meeting the farmers soil preparation, crop production, and harvest needs and at reduced costs compared to imported machines.

C. Introduction of the Adaptive Farm Technology Program by FSDC

To strengthen linkages between the research agencies, manufacturers, agricultural development agencies and the farmers, FSDC has undertaken a special effort which they designate the Adaptive Farm Technology Program.

The aim of this Program is to promote the development and introduction of farm machinery and equipment, farm production and management practices and credit facilities which best fit the economic resources, needs and preferences of the small farmers themselves.

The Program was inaugurated in January, 1977 by a two-day seminar in which national leaders in research, machinery manufacturers, farmers, FSDC and USAID were participants.

An immediate and significant benefit is the linkage which has been established between the IRRI Agricultural Engineering Department, The University of the Philippines at Los Banos, FSDC and USAID in development and promotion of improved farm power and machinery.

II. Farm Equipment Development

To bridge the gap in quality and performance of farm machines, a program was undertaken to design, construct, field test and introduce certain improved machinery prototypes. Machinery development is conducted according to these concepts:

A. The need for new items or improvements is indicated by FSDC Plans and Program Staff on the basis of farm production needs and the farmers' resources and preferences.

B. Development is carried out in the shops of cooperating manufacturers who frequently make substantial contributions in materials, machine work and engineering know-how to the finished product.

Although the farmers' needs and preferences are the primary consideration, attractiveness to manufacturers

is also a necessary feature, for to be available to the farmers, the item must be profitable to manufacture, sell, and service.

This program has produced some marked improvements in certain tillage and crop processing machinery which are being manufactured and sold on a countrywide basis.

III. Training Activities

Of special interest is the response of manufacturers to FSDC encouragement to participate in farmer training in operation and maintenance of the machines they sell to the ISA's. One fabricator conducts a three to four day training course in the village for each new ISA purchase of power tillers. The course includes classroom instruction on operation and maintenance with extensive use of visual aids and cutaway models, followed by field instruction in tillage operations. The distributor of the power unit regularly sends their training team to provide instruction on engine principles, operation, maintenance and minor repairs and adjustments which may be made in the field.

G. IMPROVED RICE GROWING FOR ISA MEMBERS

Reeshon Feuer
Crop Production Specialist
Cooperative IRRI-NFAC-USAID Rice Program

The 20,000 rice farmers who are members of the 400 ISA's with assured year-round irrigation have a unique opportunity for achieving profitable high yields of rice by utilizing a combination of the newest rice technology.

The continually updated "16-Step Masagana 99 Culture" outlines the available technology that has brought "rice self-reliance" to the Philippines since mid-1975. The 16 steps suggest the best varieties, optimum management, timing, fertilizer use and crop protection programming for high yields.

For example, the 110-day IR 36 "VEM" (very early maturity) variety--the highest yielding, most disease- and insect-resistant rice in all of Asia enables a rice farmer with assured irrigation to grow three crops a year from a single hectare. The minimum expected average yield in such a three-crop program is 300 cavans (44 kg) per hectare per year, but with good management timing a 350-400 cavan yield level is a reasonable expectation. This is ₱14,000 to ₱17,000 value of palay per hectare per year.

Essentially similar results could be expected from 2-1/2 crops a year from IR 32 (140 days), the new IR 42 (130 days), and from a highly promising new selection; IR 2863-38-1-2. IR 42 has the unique capability of extremely high yields at low nitrogen input.

As a result of conclusive research on rice farms the "sustained baiting" method of rat control (in reality rat population reduction

to negligible levels) is officially recommended by the Masagana 99 Program for all rice farmers. An individual rice farmer can adequately protect his crop at a cost of the value of one cavan of palay per hectare, if the baiting stations are established at the time of transplanting so that by the time the rice panicles are filling the rat population has been reduced to a very low level.

The Philippines have a half million hectares of rice lands deficient in available zinc for optimum yields of rice. The deficiency is becoming increasingly limiting on irrigated areas, because of the lime (calcium and magnesium) residues from the evapo-transpiration of irrigation waters. The lime residues raise the pH status of the soil causing chemical fixation of the zinc. In addition high yields of rice require more zinc than most soils can supply.

Correction of zinc deficiency is extremely low in cost. For ₱15 per hectare for one kg of zinc oxide for dipping the roots of rice seedlings before transplanting an increase in yield of 5 to 15 cavans can be expected. Dipping of roots of rice seedlings in zinc oxide, in zinc deficient areas, was made an official recommendation of the Masagana 99 Rice Program in June 1977.

Wet season 1977 zinc trials on hundreds of farmer's fields throughout the Philippines confirm increased yields of 10 to 20 cavans of palay for ₱15 worth of zinc oxide. Six hundred dry season 1978 trials are currently in farmers fields; 100 of these involve a new method of correcting zinc deficiency. The new method consists of a basal application of 5 kg of zinc sulfate (applied like basal fertilizer and harrowed in) costing approximately ₱25 per hectare. Preliminary results of one

Bureau of Soils, International Atomic Energy Commission trial in Pangasinan with IR 36 show equal results from zinc oxide seedling root dipping or harrowed in zinc sulfate. The harrowed in zinc sulfate is much easier to apply.

The newest and most exciting research finding is that soil incorporation (basal harrowed in) of the granular form of the systemic insecticide carbofuron (Furadan 3G) at 0.75 kg active ingredient per hectare (25 kg of Furadan 3G) will effectively control all insects for 50 days after transplanting.

The "Lorenzo Jose" method of row orientation and spacing is east-west 40 cm rows with single plants spaced 5 cm in the row. This can be expected to increase yields by 15-25 cavans over the conventional 20 cm by 20 cm, two plants per hill transplanting (same number of plants per hectare). The Jose spacing creates a double "border row effect" of every row, allows for easy spraying, and, the east-west row orientation enables the plants to receive maximum sunlight for increase photosynthesis resulting in increased yield.

A system pioneered by Mr. Lorenzo Jose of transplanting a small area everyday offers many advantages if modified to a monthly or semi-monthly planting and harvesting. The modified system means income 12 to 24 times a year, reduced risk from typhoons, small investment each time, increased use of family labor and greater production per unit area. Several rice farmers are trying the frequent transplanting and harvesting system. The Masagana 99 Program is encouraging selective adoption of the system.

Rice research scientists are finding new and/or improved management practices every year. The most promising of these are being tried

on farmers' fields for possible adoption if verified effective under farmers' conditions in Bureau of Agricultural Extension result-demonstration trials.

It is suggested that ISA farmer leaders consider having one trial of one or two new practices, or a new variety each season--a minimum of one trial per season. The standard result-demonstration trial, complete with all inputs and instructions, delivered to any province (airport) costs ₱40 to ₱50 for a 1/100 ha (100 sq. meters, 10 M by 10 M) size. Such a trial in an ISA could be observed by all farmer members, with the cooperating farmer expecting to harvest approximately a cavan or more, of seed of a new variety. If the yield were divided into one kg seed kits and distributed to ISA members then within one year, or less, after receiving the original trial in an ISA, 40-50 farmers could each have two or more cavans of seed of a new variety, in addition to learning better methods of growing the rice crop.

Currently 6 to 12 or more special informational releases are distributed by Masagana 99 rice extension technologists to farmer leaders. ISA farmer leaders, or all ISA members, may wish to avail themselves of this new information by arranging for special editions. The cost would be minimal.

If ISA member farmers wish to avail themselves of either or both of these proposals, it is suggested that with the approval of the Farm Systems Development Corporation (FSDC) and as part of the proposed loan/grant funds from the United States Agency for International Development (USAID) a grant be negotiated with the Department of Agriculture of the Philippines, to be placed at the International Rice Research Institute for implementation as part of the ongoing

Masagana 99 Rice Production Program during the next one to three years.

Rough estimates of probable costs per year are:

Two Result-Demonstration Trials @ ₱50, Delivered	₱ 100.00
Twelve Informational Releases, 10 Copies/ISA @ ₱4 (approximate) per Issue, Delivered	50.00
(Estimate) Total/ISA, per Year	₱ 150.00
(Estimate) Total for 400 ISA's, per Year	₱60,000.00

H. IMPACT OF FSDC'S PROGRAM ON SMALL FARMERS*

William Merrill
AID
Washington, D.C.

In March, 1977, interviewers with FSDC's Research and Evaluation Office (REO) visited a random sample of 1,367 ISA farmers. Of these, 751 had used the ISA irrigation service and 616 had not yet started. The conclusions drawn essentially contrast the members of ISA's being formed with those of ISA that had been in operation for a year or more. The purpose of the interviews were to determine if the BISA Program was reaching its target group and to measure the impact of the program as a result of the introduction of irrigation. Impact was measured in terms of cropping intensity, farm productivity, farm income, use of modern farming practices, farm employment, and the distribution of farm income.

In summary, the study indicated that generally the BISA Program was reaching its target group. A significant impact was produced on farm productivity, farm income, and adoption of modern farm practices. A small impact was realized on cropping intensity, and there is a very negligible impact on farm income distribution and farm employment.

The study showed that ISA farmers from the "with" and "without" irrigation groups came from a relatively homogeneous background in terms of socio-economic conditions. The ISA farmers were mostly in their forties and had been working on farms for almost half of their lives. Usually they were either share-tenants or lessees. Only

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*Summary of, and comments on, the FSDC Study on Impacts of the ISA Program.

one-third were landowners. The majority of the farmers had only an elementary level of education. Their farms averaged 1.33 hectares in size, and farming was their main source of income. Thirty percent of the farmers engaged in "off-farm" work (on other farms) and 20 percent also had nonfarm work such as carpentry to augment their incomes. On the average, the total annual gross income of the ISA farmer "without irrigation" was ₱2,844 while that in the "with irrigation" group was ₱3,822 or 34 percent higher.

The majority (50%) of household expenditures went for food. Even so, 70 percent of the household fell below estimated minimum food consumption levels. In general, 70 percent of the farmers were below the Philippine poverty threshold of ₱7,723.

The average rice cropping intensity of the "with irrigation" group was 1.46; not substantially higher than the 1.32 of the "without irrigation" group. The BISA Program's target for cropping intensity is two. The "with irrigation" group studied has achieved only 3/4 of this target. The actual rate of increase of cropping intensity was only 1/10th of the Program's projected rate of increase. There were significant differences in cropping intensities between regions. The Visayan and Mindanao regions had higher cropping intensity than did Northern, Central, and Southern Luzon. The results of the study indicate that the target cropping intensity of 2.0 used in the feasibility studies for ISA's should be revised downward and adjusted to reflect regional differences.

The BISA Program was quite effective in increasing the productivity of ISA farms. The average production per hectare of the "with irriga-

tion" group was 59.2 cavans during the 1976 wet season and 54.5 cavans for the dry season (1 cavan = 50 kgms). For the "without irrigation" group, the average production per hectare was 42.3 cavans for the wet season and 35.1 cavans for the dry season. Thus, with irrigation, a typical ISA farm was able to increase its yields 40 percent during the wet season cropping and by 55 percent during the dry season. On the average, the ISA's with irrigation increased their yields by roughly 18 cavans per hectare per cropping season. This is more than adequate to cover the increased costs of the irrigation system.

Not all of the increased production can be contributed to water alone. A regression analysis of the survey data indicated that irrigation alone had a considerable impact on rice production only during the dry season. Those farms which were provided irrigation services were receptive to the use of modern farm practices if the risks could be minimized by making water available. The regression analysis indicated that rice yields were significantly affected by fertilizer, use of chemicals, and high yielding varieties but not by tenure status, tractor services, or use of animals.

In terms of improving profitability, the BISA Program proved to be quite effective. Even so, the increased income of the "with irrigation" group was approximately ₱450 below the targeted increase in income. This short-fall would be more than overcome if the cropping intensity of the "with irrigation" group could be increased from 1.46 to the targeted 2.0. The BISA Program's target was a 100 percent increase in labor use, yet there has been no significant effect on labor utilization. The estimated workdays per hectare of rice were

54 for ISA's "with irrigation," and 56 for those "without irrigation." For a year period, ISA's "with irrigation" appear to use roughly 5 more workdays in rice production. The labor utilization conclusions drawn in the REO study need to be carefully qualified. Little attention appears to be given to changes in labor use on crops other than rice.

In general, it appears that the REO study of the BISA Program was carefully done and the data reasonably reliable. It would be useful, however, to do a follow-up study in a year or two which focused on the "without irrigation" group. The existing study would provide the baseline data. More accurate results on the impacts of the FSDC Program would be obtained by comparing the same farms "before" irrigation and "after" they had used irrigation for several cropping cycles.

The Evaluation Team's conclusions based on discussions with ISA members were generally consistent with the results of the REO study. In general, for the ISA's visited, cropping intensity increased somewhat but seldom by as much as the target intensity of 2.0. Rice yields usually increased by at least 30 to 50 percent. Incomes generally increased; sometimes very significantly. Employment on rice production did not appear to have changed much. The seasonality of employment seemed to be shifting where the irrigation systems opened up possibilities for increased production of "nontraditional" crops. Where land was scarce relative to labor, ISA members were usually more concerned with the marketing aspects of the FSDC Program. Where labor was scarce relative to land, ISA members were more concerned with obtaining farm equipment; particularly small tractors and threshers. The FSDC Program has not yet had a significant impact on the distri-

bution of farm incomes. Small farmers are benefitting but their cost and price structures have changed relatively little as a result of the FSDC Program.

I. FSDC's TRAINING ACTIVITIES

Sara K. Boyd
USDA
Washington, D.C.

The BISA program attempts to reach the small Filipino farmer improving individual agricultural productivity and quality of life. Training at all organizational levels is viewed as an integral mechanism for achieving these desired improvements. FSDC staff management training is conducted in the central office in Manila, FSDC field staff training occurs in the five area offices and in Manila, and farmer training occurs in the barangays. The farmer training is conducted by the institutional officer (IO).

IO Screening and Training

The institutional officer (IO) is the pivotal element in efforts to reach and train the farmer; therefore, he or she receives considerable screening. The competition for the IO position can be intense as sometimes 700 applications are received for approximately 175 positions yearly. The IO must pass intelligence, personality, and leader-group dynamics tests as well as a panel interview before obtaining a position. He or she must also have civil service eligibility.

The following elements comprise an IO's training:

1. Field Exposure: As apart of the recruitment process the IO will conduct a baseline survey of potential members of an ISA as an introduction to field conditions in which he or she will live. The survey may later be used in the area's feasibility study. Duration: 7-14 days.
2. Basic Institutional Development Training (BIDT): The IO's receive BIDT which enables them to undertake the organizational development

of the ISA and the construction of an irrigation system by ISA members.

Duration: 21 days

3. Basic Management Training (BMT): The IO's receive BMT which shows them how to train farmers to run the ISA as a farm system development unit. Duration: 26 days. The IO's also receive training in rice production and water management techniques in conjunction with IRRI at UP Los Baños following the BMT. Duration: 12 days.
4. Management Training for Innovation Packages (MTIP): Once the ISA is firmly established and irrigation has been used for a second crop within an agricultural year, the IO's receive MTIP which prepares them to offer farmers the necessary assistance in diversifying ISA activities. Areas of diversification include: institutional credit, organized buying, seed production, organized rice production, farm tools and equipment pools, organized selling and applied research. Duration: 13 days..

Training activities are normally conducted at a live-in training center in Valenzuela, Bulacan near Manila. However, the BMT and the MTIP will soon be conducted in the area offices which will each have two training officers and two training assistants. The training staff use a variety of methods to train IO's including group discussion, sensitivity training, role-playing, case studies, and interviews with ISA farmers and old IO's. A demonstration farm is now being established which will further allow training experience in actual farmer-ISA conditions.

Although it is the IO who receives training, the needs and organizational development of the ISA determine the nature and timing of IO coursework. The IO is first trained as a "generalist" to facilitate the establishment of the ISA. When the ISA is firmly in place and the water system is operational, the

IO receives "specialist" training in rice production, water management, and certain innovation packages sequentially. Further specialization is planned in the areas of organizational development, financial management, farm production, and irrigation and farm machinery. An IO will choose his or her area based upon past academic experience or interests.

The IO's are very similar to U.S. Peace Corps Volunteers in terms of the personal sacrifices and discomforts they are asked to experience. The success of their efforts can be attributed to the depth of their commitment to improving the living standards and increasing the opportunities for the small Filipino farmer. They are therefore willing to undergo certain inconveniences to live with the farmers in their ISA's establishing a trust and rapport from the start. The training materials, as well as the preliminary field exposure, ensure that the IO's begin their duties well-aware of the conditions they may encounter.

Farmer Training

The farmer training activities of the IO fall into the following categories:

Phase I - Preparation for Establishment of Irrigation System (1st Year)

a. Pre-organizational Training

b. Organizational Meeting

c. Training of Officers on Roles and Responsibilities

d. Training of ISA Members on Association Management

e. General Evaluation of all ISA Activities

As of September 30 over 2000 of Phase I classes had been undertaken for almost 40,000 farmers.

Phase II - Development of ISA Entrepreneurship (2nd-4th Year)

a. Trainings on Management Systems (officers and members)

   1. Administrative

   2. Production

   3. Financial

   4. Information

b. Apprenticeship Training for ISA Divisional (or Kaisahan) Leaders in Rice Production and Water Management

c. Apprenticeship Training for Kaisahan Leaders on ISA Accounting Systems and Procedures

d. Orientation and Introduction to the Innovation Packages for ISA Members

e. Regular Assessment of all ISA Activities

f. Formal Rice Production Training for ISA Members (2 x a year)

As of September 1977 over 600 classes reached over 6,000 participants.

The IO has some flexibility in the way he or she wished to impart these training activities. Certain neighborhoods (barangays) have been involved in other government programs such as Samahang Nayon and do not have the same training needs as a previously unorganized ISA. FSDC's recent reorganization has resulted in this less structured approach to ISA formation and development.

Recommendations

The training efforts of FSDC have been considerable and comprehensive to date, and the approach has been innovative and sensitive to changing farmer needs. As evidenced by the recent reorganization, FSDC is now proceeding less systematically in its procedural requirements for farmer training as well as fostering creativity in less theoretical IO training. One of the greatest

strengths of FSDC is its capability to effectively communicate not only the content of the coursework but the spirit of the development task. Through these means, FSDC further increases its ability to organize a workable ISA which will be managed effectively by farmer members alone.

The following points may improve the IO's capability to work with the farmers toward this self-management goal:

1. Each IO could be made aware of centralized relevant resources, such as books, individuals, government agencies, and seeds, and would keep an annotated bibliography of this information at the ISA's. The area offices could have certain of these reference materials on hand to provide easy accessibility for the IO's.
2. The farmers could evaluate IO activities on a monthly or bimonthly basis to ensure that his or her efforts are responsive to farmers needs. A questionnaire distributed by the ISA president might usefully serve this purpose.
3. Farmer training in rice production and other technical areas at the area offices could be increased so that all interested and qualified participants could eventually attend on a staggered basis, realizing the space and budget constraints of the offices. Additional budgetary allocations might be made to the area offices to allow them to expand beyond the present quota system for farmer training which excludes some eligible farmers.
4. The planned recruitment of increased numbers of IO technicians and further specialized IO training is recommended. Observation at the ISA level found that farmers express the desire for access to additional specialized information and assistance as ISA development advances.

5. Present plans to develop an ISA self-training capability could be developed. When the ISA presidency or any of the officers positions change, the new ISA officers do not always receive the organizational training which was available on an informal basis to the first officers. This could be accomplished by ensuring that each past ISA officer keep records of the activities during his or her tenure and pass on this information to the successor, even if a "formal" training groups is not established.
6. To facilitate the effectiveness of area office training, every effort should be made to tap the resources of state agricultural colleges. The faculty and available research could be utilized for specialized short-course training in technical areas.

While these suggestions may be of assistance, it should be reiterated that the FSDC training program is nonetheless commendable and it is fully anticipated that the organization will continue its good work in this area.

J. ISA SITE VISITS

Daniel W. Bromley
University of Wisconsin
Madison

The Evaluation Team visited seven Irrigator Service Association sites, two in La Union Province, one in Benguet Province, two in Pangasinan Province (all of the above in FSDC Area I), and two in Davao del Norte Province (FSDC Area IV).* Each will be discussed in turn.

Sta. Teresa ISA

This ISA is located in La Union Province southeast of the village of Aringay near Tubao. The water source is the Aringay River, with a designated service area of 70 hectares. The area actually irrigated is only 20-30 ha, with 22 members in the ISA.

The pump set has been recently upgraded to a direct drive system employing an ASEA electric pump rated at 60 HP. The lift from foot valve to discharge is approximately 40 feet. Based on these parameters, there is an approximate pumping capacity for 80-90 ha. The canal system near the stilling pool is in quite good condition, though it gets worse about 50 meters into the system.

This area is one of traditional vegetable/tobacco production and rice is grown during the May/June to October/November period. Then in early January vegetables are planted with little use of irrigation.

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*In August, 1977, Dr. Bromley visited three ISA's in Capiz Province, and three in Iloilo Province. While the specifics of these ISA's will not be reported in the detail for those visited by the Evaluation Team, general observation will be incorporated into the evaluation of the program.

The typical yield for rice appears to be approximately 70 cavans per hectare with four sacks per ha of 21-0-0 fertilizer being common. The amortization payment for 1977 was ₱7,000 of which ₱4,000 has been paid.

We visited for approximately 30 minutes with the president, the treasurer, the former president, and several members. The FSDC Institutional Officer was present and--along with several FSDC Area Staff--acted as translator. It seems that the mayor (or former mayor) of the barangay encouraged the National Irrigation Administration (NIA) to develop the system without a great deal of enthusiasm from the farmers. When it didn't work out the system was taken over by the BISA Program and then FSDC.

The IO seems to be very competent and she appears to have the confidence of the farmers. In talking with the members, the current debt of the ISA was frequently mentioned as an important and serious problem. To the extent that the success of the ISA Program is predicated upon the growing of two crops of rice then this ISA may prove to be a "disappointment." We observed only moderate interest in moving away from the rice-vegetable rotation now being practiced. We are not prepared--however--to condemn the ISA for what, on the surface, seems to be a rational economic decision. Vegetables appear to be a quite profitably enterprise and if the availability of irrigation permits a more predictable rice season, as well as improved yields of both rice and vegetables then it is a success in one important sense.

Bineng ISA

Bineng ISA is located approximately 5 km northwest of the capital city of Benguet Province (La Trinidad) and is a gravity system. There are approximately 40 farmers located on 60 ha of land scattered along the very steep slopes of a major canyon. As with Sta. Teresa this is a traditional vegetable area and rice culture is only now being actively encouraged. The main advantage of irrigation is that it removes the uncertainty of the rice season and allows the farmers to schedule early plantings to avoid typhoon losses at or near harvest time.

The construction of the canal was only completed in 1977 and hence there is scant history on which to base a comprehensive evaluation. The rice varieties are traditional and it will likely be sometime before a significant change in cultural practices evolves. It seems safe to conclude that double-cropping rice will be unlikely to replace the current rice-vegetable sequencing. With beans being a very profitable crop the FSDC Program target of two rice crops on every ISA would appear to conflict with the target of increasing farmer income.

Cataquintingan ISA

This ISA is located in La Union Province in the municipality of Rosario. The design area is 60 ha, although there are 50-60 more hectares considered irrigable. At this time there are approximately 37 ha actually irrigated with 48-50 farmers active in the ISA.

Water is lifted approximately 40 feet from the Linanguyan River using a 40 HP electric motor (TECO) directly driving a 1200 GPM Filipinas pump. With this pump set and lift we would calculate that

60-65 ha represents the maximum capacity at present; if they wish to incorporate the additional 50-60 ha it will require another pump set.

There have been five rice croppings since the inception of the ISA, with the first planted around September, the second around January, and the third around May. Yields seem to have averaged 45-50 cavans/ha for the first crop, 70-80 cavans/ha for the second crop and the same for the third crop. The traditional rice crop was apparently planted in June and harvested in December; yields were said to be in the neighborhood of 30-35 cavans/ha.

The farmers have been using the HYV's for sometime, with IR 30 and 36 the current varieties. There seems to be a fair vegetable market in the vicinity and hence some grow vegetables for part of the year. This project was an early NIA undertaking but the barangay captain was an advocate for FSDC and hence the irrigation system came under FSDC supervision. Prior to the project all farmers were tenants to approximately six landlords but it is now said that some own (or are buying) their land.

On the day of our visit there were approximately 30 farmers installing a culvert crossing for the main canal. We visited with approximately 10 of them for over one hour, most of the officers and the three pump operators were present. With the exception of minor repairs the pump had been quite reliable. The operators had received training and seemed reasonably competent. The ISA has one thresher (₱14,500), six sprayers (₱2,700), and ₱2,410 in working capital. One amortization payment of ₱5,500 has been made against a loan agreement of ₱36,591.

The evidence would seem to indicate that this is a reasonably successful ISA.

Balingueo ISA

This ISA is located in Pangasinan Province in the municipality of Sta. Barbara and consists of 70 ha--60 of which are currently receiving irrigation. There are 42 farmers involved in the ISA, and approximately 25-30 of them attended our discussion session.

There is one three-cylinder diesel engine driving the pump via four V-belts approximately 12-15 feet down the bank from the engine house. The lift is approximately 30-33 feet. The irrigation system has replaced an older--and much larger--NIA system which formerly served a few landowners. The majority of the farmers are now tenants and pay about 25 percent of the harvest to the landowner.

The traditional cropping pattern has been rice-vegetables and that seems likely to prevail. The HYV's of rice were tried prior to irrigation but it was not until water reliability was established (as part of the ISA) that they were able to fully utilize the new seeds. Prior to this time yields were in the neighborhood of 40-45 cavans/ha while current rice yields are approximately 80-85 cavans/ha using IR 36.

Water has, therefore, allowed them to effectively double their rice yields, as well as to double their yield of eggplant. While they have had little if any training for vegetable production, the president has had management training, rice production training, and auditing training.

Prior to the takeover by FSDC the system was not operational and the large NIA canals still pass through the area. Now that irrigation is reliable the farmers consider transportation for their harvest as the most important problem (constraint). They also mentioned that

the canal needs lining. Additionally, it often happens that the river is too low for pumping during March and April.

In general this would seem to be an excellent ISA. The vegetables (primarily eggplant) appear to be quite good, there was exceptional attendance at our meeting, and the IO was greatly respected (and appeared competent).

Balangobong ISA

This ISA is located in Pangasinan Province in the municipality of Binolonan. It has a design area of 54 ha, although only 45 ha are now irrigated. There are approximately 37 members who grow primarily rice with some vegetables (corn and beans).

There is a two-cylinder diesel engine which is directly connected to the pump; the lift is approximately 15-18 feet.

The project was initiated in October 1976, and has permitted double cropping of rice. The average yield before irrigation was 60 cavans/ha, while it is now 35-40 cavans/ha. The reduction is said to be due to disease problems which--according to the president--FSDC is unable to help with.

Although the main canal is quite good, the team considers this a marginal ISA.

Esperanza ISA

This ISA is located in Davao del Norte Province in the municipality of St. Thomas. The design capacity for the system is 490 ha, although only 200 ha are now irrigated. There are approximately 30 members in residence, although eventually they plan on approximately 75-80.

The system was taken over from NIA in 1976 and it would appear to be highly overcapitalized. There are five 70 HP diesel engines lifting water about 20-25 feet. The pumps are driven by flat belts of about 15-20 feet in length, and are located only about 5-6 feet above the river level on the day of our visit. The usual pattern is to run two pumps at one time, and only rarely are three pumps operated.

Our visit coincided with a major ditch maintenance project and hence our meeting was attended by approximately 40-50 individuals. The farmers were most willing to talk about a variety of issues and the session lasted approximately 90 minutes. Modern rice varieties (IR 23, 36, 38) are used and yields average approximately 100 cavans/ha. Fertilizer application is close to recommended quantities and consists of 16-20-0 or 16-0-0.

There were several rather serious problems aired at the meeting. One problem pertains to flooding of the pumps; the river is very large and it fluctuates significantly. The pumps were flooded the day before our visit, and they said this happens quite frequently. A second major problem concerns the marketing of their products. Although there is a road into the area, it is much shorter to come in the other way and cross the river in a small (4-5 person) outrigger canoe. This is the way we reached the ISA and would infer that going by road would be quite inconvenient.

The charge to cross the river was ₱1 per person and it is easy to see how difficult it must be to transport sacks of rice this way. A third problem of some moment to the farmers is equipment to clear the land. This area is second-growth forest which has been settled

by farmers from other parts of the country and the bulk of the unirrigated land requires substantial effort in clearing.

In spite of the apparent problems, the team was impressed with the large number of farmers at the meeting. There was a clear sense of community in the meeting, and all seemed at ease in voicing their concerns--as well as their faith in the ISA concept.

Datu Abdul Dadia ISA

This ISA is located in Davao del Norte Province near Panabo. The design capacity is for ultimate irrigation of 90 ha, although only 16 ha are now irrigated. There are currently 19 members, but a potential membership of 36 farmers.

There is a five-cylinder diesel driving (via a 15-18 foot flat belt) a single pump--the lift is approximately 25-30 feet. Prior to irrigation this was primarily a mixed rice-vegetables area, but now more rice is grown.

We met with a fairly small group of farmers, and were told that the major problem was that the consulting engineer to FSDC had put the canal in the wrong place. If this could be corrected, it would be possible to irrigate all of the 90 ha. One farmer--"not a member of the ISA"-- was rather angry and indignant about this mistake, but seemed contented when assured that it would be corrected. Even with proper canal alignment it was still the concern of some that adequate labor would be impossible to find. This area is very near to a large banana plantation and packing house and apparently there are ample nonfarm employment opportunities.

This ISA is too new and too limited in scope to be able to pass definitive judgment.

Issue 410 - Role of Provincial Health Officer vis-a-vis project.

Conclusion

Although the Provincial Health Officer is at present administratively responsible for BHC's in his area, his main interest is and will probably continue to be the provision of curative services. The PHO has little direct personal involvement with the BHS program. The role planned for a Regional Health Officer remains ill-defined. There is a potential conflict of understanding between MOPH and MSH on the role of the RHO.

Reasons

Undoubtedly a great deal of planning will be required for the establisment of the Regional Health Officer system. The MOPH has indicated that Regional Health Officers will be entrusted with planning and supervising the BHC's in one of several planned regions. However, the BHC chief, in each Province will still rely on the PHO for day-to-day administrative and budget support. The MSH has visualized the role of RHO as having supra-provincial authority over all health matters in his region.

Recommendations

1. The functions of the RHO must be carefully designed to complement, rather than compete with the role of the PHO.