

RP
633.18
BS27

Copy 21 of 40

PN- AAB-625

MARCH 1975

REPORT

OAD-A-CR-100

492

FINAL REPORT
of an Evaluation of

Philippine Accelerated Rice Production Program

by

Richard V. Bernhart
Raymond L. Borton
Arturo Dancil
Manuel de Leon
David Delgado
Mario Tombong

* A.I.D.
Reference Center
Room 1656 NS

PERFORMED FOR
.S. A.I.D. MISSION TO PHILIPPINES
AS A WORK ORDER OF
Contract AID/CM-otr-C-73-198



AMERICAN TECHNICAL ASSISTANCE CORPORATION

A SUBSIDIARY OF

GENERAL
RESEARCH



CORPORATION

WESTGATE RESEARCH PARK, MCLEAN, VIRGINIA 22101

Bernhart, Richard V.; Raymond L. Borton; Arturo Dancil and others

Final Report of an Evaluation of Philippine Accelerated Rice
Production Program

General Research Corporation

McLean, Virginia

March 1975

71 pages

11 appendices

AID Contract Number: AID/CM-otr-C-73-198

AID Project Number: Not identified

Source: ARC RP 633.18 B527

This project is a complex of indigenous institutions (rural banks, extension system, grain marketing agency); national media; tested high yielding rice varieties and technology for their use; and an active agrarian reform program; all being interacted upon by a farm population ready to move from a traditional acceptance of risk aversion to becoming economic partners in their country's development. The evaluators believe that while some aspects of this program could serve as a guide to other countries, it is not replicable in its Philippine format and they caution against over-publicizing Philippine results as a possible cure-all for other countries' rural development and food production dilemmas. The project is achieving its goals. The initial programs accomplished the two purposes set for them: alleviate the situation caused by flood and drought; and, increase production of rough rice. The delivery system set up is working quite well. Many of the program's early problems have been overcome or diminished. The evaluators made 14 recommendations including: (1) the Government of the Philippines and USAID continue and support the program with particular emphasis on high repayment rates for loans and continued development of the agricultural technologists capabilities; and (2) research studies of the credit system and its uses should be initiated.

Bernhart, Richard V.; Raymond L. Borton; Arturo Dancil and others

Final Report of an Evaluation of Philippine Accelerated Rice
Production Program

General Research Corporation

McLean, Virginia

March 1975

71 pages

11 appendices

AID Contract Number: AID/CM-otr-C-73-198

AID Project Number: Not identified

Source: ARC RP 633.18 B527

This project is a complex of indigenous institutions (rural banks, extension system, grain marketing agency); national media; tested high yielding rice varieties and technology for their use; and an active agrarian reform program; all being interacted upon by a farm population ready to move from a traditional acceptance of risk aversion to becoming economic partners in their country's development. The evaluators believe that while some aspects of this program could serve as a guide to other countries, it is not replicable in its Philippine format and they caution against over-publicizing Philippine results as a possible cure-all for other countries' rural development and food production dilemmas. The project is achieving its goals. The initial programs accomplished the two purposes set for them: alleviate the situation caused by flood and drought; and, increase production of rough rice. The delivery system set up is working quite well. Many of the program's early problems have been overcome or diminished. The evaluators made 14 recommendations including: (1) the Government of the Philippines and USAID continue and support the program with particular emphasis on high repayment rates for loans and continued development of the agricultural technologists capabilities; and (2) research studies of the credit system and its uses should be initiated.

FINAL REPORT
of an Evaluation of
Philippine Accelerated
Rice Production Program

by

Richard V. Bernhart
Raymond L. Borton
Arturo Dancil
Manuel de Leon
David Delgado
Mario Tombong

A.I.D.
Reference Center
Room 1656 NS



AMERICAN TECHNICAL ASSISTANCE CORPORATION

A SUBSIDIARY OF

**GENERAL
RESEARCH**



CORPORATION

WESTGATE RESEARCH PARK, McLEAN, VIRGINIA 22101

CONTENTS

Section	Page
ACKNOWLEDGEMENTS	i
Section I	
Introduction	1
Summary	4
Issues and Recommendations	10
Section II	
A. Masagana 99 - Delivery System	17
Program Initiation	17
Provincial Organization	20
Current Operation	21
Comprehensiveness of the Total Program	27
Future Implications	28
B. Credit - The Key to the Masagana 99 System	30
Farmers Participation	32
Bank's Involvement	38
Profitability for Banks	40
Repayment Problems	41
Future Implications	43
C. Farmers and the Masagana 99 Program	45
Program Area	46
Tenure	47
Inputs	48
Seldas	49
Farmer Use of Profits	50
Farmer Assessment of the Program	51
Media Use	54
Section III	
A. Pampanga and Masagana 99	57
Introduction	57
I. Organization	58
II. Loaning Operation	59
III. Production	
IV. Components of the Program that Tend to Increase Production	59
V. Information Given By	60
VI. Recommendations	63
B. Panagasinan and Masagana	64
C. Nueva Ecija	67
Farmers	67
Increased Income of Farmers	68
Problems/Recommendations of Farmers	68
Marketing of Produce	69
Production Technicians	69
Banks	70

CONTENTS (continued)

Section	Page
Section IV	
Appendix	
1. Contacts	73
2. Bibliography	75
3. Glossary	80
4. Agencies and Their Responsibilities	83
5. Interview Guides	88
6. Rural Bank Profitability	90
7. Loans by Tenure	96
8. Interest Paid by Tenure	97
9. Average Use of Increased Incomes	98
10. Appliances Etc. Purchased	99
11. Economics of Fertilizer Usage	100

ACKNOWLEDGEMENTS

The assistance provided to the evaluation team by U.S.A.I.D. Director Thomas Niblock and his staff especially Donald Mitchell, Norman Ulsaker, Kenneth Smith, Reeshon Feuer and Richard Delaney is gratefully acknowledged. The full and complete cooperation of Secretary of Agriculture Arturo Tanco and his staff in the development of the study and review of findings were essential to the completion of the task. The discussions of "next steps" for continued improvement of the accelerated rice production program were the most significant parts of the reviews. Special thanks for their participation is extended to Domingo Panaganiban, Director of the National Food and Agriculture Council, and to his Deputy, Dr. Eduardo Quisumbing. Many others assisted including Dr. Orlando Sacay and Rosendo Marquez, Under Secretaries of the Department of Local Government and County Development; Zosimo Q. Topaceio of the Central Bank; Manuel V. Soliven of the Philippine National Bank; and others cited in the appendix to the report.

The extent of the study and some of its most useful insights were gained through the assignment to the team of three senior staff members of the Agriculture Program Evaluation Service: Arturo Dancil, Manuel de Leon and Mario Tombong by Director Mauro Amultan. The collaboration with Raymond L. Borton and David Delgado is noted with sincere appreciation.

Richard V. Bernhart
for the Evaluation team
March 26, 1975

Section I

INTRODUCTION

Rice is a necessity, a staple and a luxury for many of the world's people. The Philippines is one of those places. The consumption of rice remains high through changes in the availability of supplies and purchasing power. Needless to add, rice is also good (and bad) politics in this kind of an environment. Self-sufficiency in rice has been a political rallying cry since the beginning of the republic. It can be grown year round and it can be laid low year round by a fractious series of typhoons and floods and stunted and killed in its bed by protracted droughts. Crops can fail in one province and be in abundance in another, and a neighboring one at that.

Given its importance in the nation's diet and its significance to the nation's politics, it is no small wonder that a series of campaigns have been launched to achieve self-sufficiency in rice production for a country with other urgent requirements for its foreign exchange resources.

And the latest of these efforts to increase production is Masagana 99 - a bountiful harvest of 99 cavans per hectare. It is easy to write of this program and use superlatives. It is difficult to write and use precise statistical data. Another paradox, the data is so good that one suspects how error-prone it is. Operational problems abound. The managers of the program are the first to tell you what the problems are and what they are trying to do about them - or what efforts they have tried up to now which have not yet resolved the problem.

The scope of this evaluation study was to establish the validity of the Masagana 99 approach to increasing rice production with special emphasis on the original nine emergency rehabilitation provinces. Were the effects of the flood in 1972 and drought of 1972-1973 alleviated? Other items to be clarified included the efficacy of the overall delivery

delivery system, the effect on the farmer and the effect on the rural credit system. Was the program sufficiently useful to encourage the farmers and the banks to continue with it?

The evaluation team was organized to include a senior evaluator from American Technical Assistance Corporation, assisted by an agricultural economist consultant, a USAID agricultural credit specialist, and three evaluators from the staff of the Agricultural Program Evaluation Service of the National Food and Agriculture Council (NFAC).

Based upon interviews in AID/Washington, USAID and NFAC, the task was focused on several areas: the delivery system as a whole; the credit system; the farmer; and, national production implications. A compendium of current and relevant research was developed, materials accumulated, reviewed and analysed and interviews scheduled. Interviews were conducted with some fifteen departments or agencies having an interest in rice production.

- National Food and Agriculture Council (NFAC)
- Department of Agriculture (DA)
- Bureau of Agricultural Economics (BAECON)
- Bureau of Plant Industry (BPI)
- Bureau of Agricultural Extension (BAE)
- National Grains Authority (NGA)
- Philippine National Bank (PNB)
- Central Bank - Department of Rural Banks (CB-DRB)
- Department of Local Government and Community Development (DLGCD)
- Department of Agrarian Reform (DAR)
- University of the Philippines at Los Banos (UPLB)
- Institute of Philippine Culture (IPC)
- International Rice Research Institute (IRRI)
- International Institute for Rural Reconstruction (IIRR)

In addition, Municipal Action Teams, Provincial Action Committees, Mayors, Governors, Production Technicians, farmers, Rural Bank Managers, Philippine National Bank branches, dealers and suppliers of fertilizer, appliances, farm equipment, grain buyers and millers were all visited and interviewed.

Special emphasis was given to scheduling interviews with farmers, production technicians and rural bankers located at random. Three of the original nine rehabilitation provinces were selected for intensive review: Pampanga, Pangasinan, and Nueva Ecija. Briefer visits were made in

Bulacan, Laguna, Tarlac, Zambales, and Bataan. Simple check lists were developed to guide the interviewers as the team split into three groups of two each to spread coverage and assure representative and comparable data collection. (See Appendix #5)

The report includes a summary and recommendations, major sections devoted to the delivery system, the credit system, the farmer, and comments on Pampanga, Panagasinan and Nueva Ecija.

One of the values of the undertaking will have been the discussions between the managers of the program and the study group, ventilating issues and approaches being developed to deal with those issues. A full frank exchange of information occurred in contexts not amenable to the written report form. This is the written record, summing up interviews, research and policy discussions for use of those concerned with the continued operation of the program.

SUMMARY

Masagana 99 is achieving its goals. The initial programs accomplished the two purposes set for them: alleviate the situation caused by flood and drought; and, increase production of palay (rough rice). The first programs were financed by AID in the emergency flood rehabilitation program. The long range goal of producing 99 cavans of palay per hectare is still in the future, but the increases reported are significant.

The delivery system set up to accomplish this is working quite well. Many of the early problems have been overcome or diminished. These included fertilizer distribution, shortages of quality high yielding variety seeds (HYVs), reluctance of rural banks to participate, slow release of funds, inadequate information system, and shortages of production technologists to advise and assist the farmers. Fertilizer supplies are generally satisfactory now (although its price is not). Quality HYV seeds are apparently available and being distributed more equitably. Credit is flowing with an increasing number of rural banks actively participating. The price support system is working. And, the farmers purchasing power is greatly improved over a few years ago before the start-up of the program.

It would be inaccurate to attribute all of the foregoing to just the Masagana 99 program. There are a number of dynamic forces interacting in the rural Philippines. These include: the real progress of the agrarian reform program in transferring share tenants to amortising owners or into leaseholders, the addition and improvement of gravity and pump irrigation systems, the repair and building of new farm to market roads, the maintenance of peace and order and the continuing strong

demand for rice and corn buttressed by increased commodity floor prices. In addition, the development of improved high yielding varieties (HYVs) of rice seed and the technology required to produce them were available at this time. None of this detracts from the significance of the contribution of Masagana 99 in developing a program which packaged the inputs: HYV seeds, fertilizer, agrichemicals, technology and credit, and delivered them! None of the foregoing could have been effective alone. The provision of non-collateral credit must be accorded special significance as the fuel which permitted this complex apparatus to operate and accelerate.

The Management Information System (MIS) being developed to monitor and guide this national effort is in place and being improved. An evaluation capability is being developed within the National Food and Agriculture Council.

The farmers (and the banks) say they need still more production technologists (PTs) in the field. The number of farmers per PT is still running 150 to more than 250 per technician in the wet season and 40-75 or more during the dry season. There is little question of the need for more of them and continuous training to update and improve their skills.

Fertilizer allocations and subsidies tend to lead to anomalies. These have been rumored and are now being surfaced in the press and in a number of cases being readied for prosecution in the court system. Given the magnitudes of the program, those cases brought to light thus far do not yet seem extreme, however, none can be officially tolerated and efforts are maintained to minimize and eliminate such anomalies. A resumption of the role played by the audit firm of Sycip, Gorres and Velayo (SGV) to assist in the development of program auditor capabilities in NFAC is needed. The continuation project, Small Farmer Income and Production may be helpful in this task. Farmers making double applications for loans are being dropped from the program through Municipal Action Team coordination with Barrio Captains.

The problem of accurate data is still very much with the program. the Management Information System (MIS) is in place and improving. However, the Philippines is still some way off from having accurate, reliable information at hand about a crop that bulks so large in its economy and its national psyche. The improvement and development of

the MIS with a cross-check from a continuing national sample using crop-cutting techniques will eliminate some of the uncertainties that have contributed to problems of the past surrounding the hoarding and importation of rice. The Bureau of Agricultural Economics will start the crop cutting sampling system in March 1975.

The credit system has responded well to the needs of the program. Whereas at first some Rural Banks were reluctant to venture into the uncharted waters of providing farmers non-secured loans for production credit, they now sound generally pleased with the effort. Of course, most maintain an official posture that the business is not really profitable and that they are in it and remain in it for the national interest. However, it is difficult to believe that these profit motivated business people are significantly different from others and that the ever-increasing volume of these kinds of loans which now range from as little as 4% to 75% of their total business is unprofitable. If one can read responses, the 38 rural bankers interviewed appeared on the average quite interested in this business. The presence of numbers of farmers sitting at ease in each of the banks visited, and the way they were being dealt with by the bank staffs, would suggest that this was not unwelcome business. The concern of the banks for territorial advantage and complaints about incursions would also suggest the possibility of profit. Perhaps the rural bankers are really saying that there is more profit in other lines of credit than in Masagana 99 loans. Or are they more interested in business opportunities outside of loans, e.g., input supply and marketing which the loans lead to. The Philippine National Bank's role as a government bank is different but again, the volume of business has continued to grow at a rapid rate. (See Appendix No. 6, 9 and 10).

Repayments for the Rural Banks and PNB branches have been excellent for the first programs. The typhoons in late 1974 have hurt repayment for Phase III and there is a reported slackening of effort on collections. Restructuring (refinancing) was being provided in many cases when typhoon or other force majeure factors were the cause. Farmers expressed real concern about the need to keep their good credit standing with the banks for fear they would be forced back to conventional moneylenders

with high rates of interest. Rural bankers have expressed preference for farmers to pay directly, rather than to the Production Technician (PT). A few cases of robbery have caused PTs to go more slowly in collecting loans. PTs are now being bonded and this may help resolve the current slowdown in repayments beyond those caused by calamities.

The Filipino farmer is a marginally economic man. He is more concerned with the aversion of risk than the maximizing of returns through risk taking. With non-collateral low interest funds available, he has begun to take the risks associated with a shift to modern rice production technology at a rapid rate. New seed varieties have been tried and adopted. Application of high cost fertilizers and agri-chemicals have been accepted. The results have been gratifying to the farmer and to the Philippine Government. A casual observer of the barrio scene cannot fail to be impressed with the changes in recent years. Statistics are meagre, but from the few studies available, there is a reported upsurge of buying power in the barrio.^{1/} This is supported by visual observation and visits to appliance and equipment dealers in the provinces. Farmers are buying radios, TV sets, electric fans, stoves and refrigerators as well as hand tractors and irrigation pumps. The total volume is unknown, but the indications abound that the farmer has money and is spending it. He is also spending for home improvements, new roofs and furniture and even foam rubber mattresses! One appliance dealer reported that whereas no farmers came into her store a few years ago, three out of ten sales are now being made to farmers. The rural bankers report (with some evidence of satisfaction), "See, farmers are in our banks now." So, in addition to an apparent economic change occurring in the barrio, there is social change, the farmer is becoming more important in his own eyes, venturing into places he previously felt he could not, and finding himself accepted. The implications of this are worthy of further notice.

^{1/}Mr. R. Laforteza and T. M. Reyes "How Some Rice Farmers Used Their Increased Incomes", Sept. 1974. Special Studies Division of the Department of Agriculture.

The several forces impinging upon the Filipino farmer have brought changes which will not be readily or easily reversed. M99 and agrarian reform will be sustained or there are likely to be unpleasant repercussions. To conclude, production of palay is increasing. A most complex organization involving cooperative interactions between more than a dozen agencies is working to assist the farmer to increase production. Problems of this complex organizational effort are recognized at all levels. And, the farmer's income is visibly increasing! He is using this program to help minimize risk and is becoming an economic man.

The following information encapsulates the emergency program for the nine rehab provinces (statistics are from the MIS reports except as noted.)

	<u>OPAL '73</u>	<u>MASAGNA 99</u>
Average Loan	₱742	₱1,082
Average Ha/Farmer	1.97	1.76
Average Loan/Ha	₱377	₱615
Previous Average Per Ha Yield	51* cavans	51**
New Average Per Ha Yield	60 cavans	74
Incremental Average Per Ha Yield	9	23
Support Price/Cavan	₱25	₱30
Average Incremental Income Per Ha	₱225	₱690
Average Incremental Income Per Farmer	₱443	₱1,214

The recommendations that follow were generated during interviews with responsible officials of the Philippine Government. During the early discussions and the closing sessions with NFAC, these ideas were well ventilated. As set forth here, they represent the writer's views and are primarily concerned with the GOP role. Matters concerning the continuing role of AID support are specifically identified.

* Estimate by MFAC Rice Division.

** For want of better data, the previous yield is assumed to be the same as that prior to OPAL '73.

MASAGANA 99 TOTAL COUNTRY PROGRAM

(As of December 31, 1974)*

	<u>Phase I</u> (May - Oct '74)	<u>Phase II</u> (Nov '73 Apr '74)	<u>Phase III</u> (May Oct '74)	<u>Phase IV</u> (Nov '74 Apr '75)
Loans Granted (PM)	370.1	231.3	694.6	124.1
Area Financed (ha.)	640,933	366,937	827,932	146,102
Farmers Served (No.)	406,509	236,236	533,651	75,894
Average Loan/Ha (P)	577.32	630.45	838.97	849.41
Average Loan Borrower (P)	910.33	979.25	1,301.62	1,633.24
% Collections	84	83	17	---
Average Production/Ha. <u>1/</u>	76	74	79	---

- NOTES:
- a) Phases I and III are main season crops;
 - b) Phases II and IV are smaller dry season crops;
 - c) Phase III is still being harvested in many areas;
 - d) Phase IV is still being planted in many areas.
 - e) Data on Phases III and IV are incomplete in that they incorporate only those from the PNB and the rural banks and do not include corresponding data from the Agricultural Credit Administration which is still not available.
 - f) The average yields realized in the Masagana 99 compares with an average of 64 cavans per hectare in the same areas prior to the start of the Masagana 99 program.
 - g) The national average yield is 45 cavans per hectare. The Masagana 99 program covers roughly one-third of the total area planted to rice.

* Philippine National Bank Report, January 20, 1975.

1/ From MIS Reports.

ISSUES AND RECOMMENDATIONS

The continuance of the program is not at issue. Several of the issues and recommendations which follow are of major importance and are cited here for emphasis:

*Repayments - collections (# 3);

*Production technician training (# 9);

*Interest Rates (# 4);

*Fertilizer subsidies (# 6).

- (1) Does the Masagana 99 system have the capability to continue and reach its goal of 99 cavans per hectare?

With support, the system can continue. It is working well, has developed a capacity for analyzing and resolving its own problems as they occur and calling for outside assistance as needed. Certain components need strengthening and are being readied for additional assistance.

Recommendation: GOP and USAID continue and support the Masagana 99 program with particular emphasis on high repayment rates for M99 loans and continued development of the agricultural technologists capabilities.

- (2) Is the provision of non-collateral supervised credit necessary?

There is no question of the essentiality of the continuance of this service. There is a need to determine cost/benefit to farmers, actual use of loans, clear picture of recipients, program viability; e.g., why banks participated, benefits to banks, credit subsidy, etc.

- Recommendation;
1. Continue this program indefinitely as a regular function of the rural banks, the Philippine National Bank and the Agricultural Credit Administration.
 2. Provide an alternative to "selda" system for farmers who have established good credit rating - they should be able to deal directly with banks.
 3. Research studies of the credit system and its uses should be initiated.

* (3) Why were repayments high in the first phases of the program but falling rapidly into arrears now?

The enthusiasm of the early phases of the program had all persons concerned focusing on all of its functions including the collection of loans. The M99 Phase III crop season experienced a series of severe typhoons which set collections back. Along with this, PTs had experienced hold-ups and were required to stand good for the lost amounts by the banks. The Land Bank guarantee system is improving but is still far short of timely and complete service.

- Recommendation:
- a. Proceed to bond all PTs if they will be involved in collections;
 - b. Reinvigorate national media campaign on collections and utilize all help to effect repayments;
 - c. Reduce collection workload of PTs by "graduating" farmers to deal directly with banks;
 - d. Revise the PTs incentive pay system to reduce the monthly fee of one peso by one-half and paying it on collection of the farmers loan;

- e. An additional incentive could be given to the PTs if the loan is paid at maturity with a decrease in the increment over the next few months if he does not pay;
- f. Establish procedures and regulations for restructure of loans where crops are damaged or destroyed; and,
- g. Expedite handling of bank claims for Land Bank guarantees.

* (4) Can present interest rates sustain program?

Current interest rate of 1% per month is a bargain - is it enough to continue support of the program? Other interest rates for farm production range from 30 to 300%. Masagana 99 rates are only 1% per month plus 1% service charge or an effective 13% per year. Rural Banks could take on more of the supervisory work load. A sinking fund could be established with an additional 1/2% per month charge to cover expected losses. Increased profitability for the Rural Banks would permit increased interest on deposits and stimulate savings.

Recommendation: GOP policy level study to review interest rates and feasibility of setting up sinking fund to insure losses.

(5) How should the program be audited?

The NFAC audit unit is now finding and investigating anomalies. Its work would be greatly facilitated by the supplemental assistance of a private, outside, highly creditable, agency. This audit program would operate as a continuous training model, helping to lift up standards of program monitoring. The initial training was reportedly good, but too short. It takes several years on-the-job work experience to train bank examiners.

Recommendation: 1. Augment NFAC audit unit with services of an organization, e.g., Sycip, Gorres and Velayo (SGV).^{1/}

^{1/} Sycip, Gorres, Velayo & Co. Report on Operations Audit of the Masagana 99 Accelerated Rice Production Program. Dec. 1973.

2. Continue training work carried out during
OPAL and Masagana 99 Phase I by SGV.

* (6) Could fertilizer subsidies be less troublesome as a source of potential anomalies?

It is difficult to see how the program could have been undertaken without subsidizing fertilizer costs. Is the maintenance of this subsidy necessary for the immediate future or for the next several years? An option being considered is to subsidize and sell all fertilizer at one price, the difference to be met through a premium tax on agricultural exports. Another option suggested, drop the fertilizer subsidy at once and raise the support price for palay to compensate the farmer. Either option would reduce the opportunities for profiting from unauthorized trafficking in fertilizers.

Recommendation: GOP policy level study and action to determine need for, and appropriate levels of, fertilizer subsidy.

(7) Are farmers using quality certified varieties of HYVs!?

Distribution problems still occur and quality certified HYV seeds are not always available. Farmers and PTs are reported to have acceded to non-recommended substitutions which are impeding the achievement of Masagana 99 goals.

Recommendation: 1. Field investigation unit of NFAC to verify and take necessary action.
2. Reinform all PTs and farmers of value of new varieties, seed sources and best suited varieties for each locality.

(8) Are the production technicians spread too thin to be effective?

The size of the program has increased in required hectares covered plus the addition of other crops. The number of farmers to be supervised has grown and instances were observed of PTs servicing more than 250 farmers, too many for effective supervision.

Recommendation: a. Provide a system for "graduating" successful farmers so that they can deal directly with the banks without the intervention of the PT unless he is requested for a special problem;

- b. Carry out the plan to train and use "master farmers" as aides to the PT to provide for the more rapid dissemination of technical expertise.
- c. Special assignment of PTs to work with and through "master farmers" to provide continuous training; and
- d. Continue to recruit and train new production technologists (PTs).

* (9) How can the production technicians keep professionally relevant?

Rice technology is changing rapidly and at an accelerating rate because of the intensive research and development programs underway. PTs have been hastily recruited and trained to assist farmers in the M99 program. The regular PT meetings do not permit sufficient time or provide qualified trainers to keep them up with current developments. A major effort is required to train and retrain PTs to ensure professional support of the farmers.

Recommendation: Initiate a continuing series of regional rice production seminars to upgrade capacity of PTs to deal with the dynamics of rice production.

(10) Could greater mobility help PTs service farmers?

Although all PTs were eligible for the easy-credit purchase of motorbikes at discount prices, some provinces did not actively participate in this program. Other PTs had the use of official transport which is no longer available. Hence, significant numbers of PTs are without transport.

Recommendation: Reinvigorate the motorbike purchase program to ensure 100% participation for all.

(11) Could the supervision and control of the PTs be improved?

It is unlikely that there will be sufficient PTs in the foreseeable future to do all of the things required of them or to do them well enough to meet the emergent needs of the farmers. A rationalization of their roles is required.

Recommendation: Separate farm technology role from credit administration and place PTs in either the

technical agencies or the banks consistent with their roles, continuing to add PTs as farm production advisors. (Pay and incentive adjustments would have to be taken into consideration.)

(12) Should research and evaluation of the program continue?

The Agricultural Program Evaluation Service is making a good start on the development of an evaluation capability and is producing some initially interesting reports. The Special studies Unit of the National Food and Agriculture Council is also carrying out useful research. Other outside groups such as the International Rice Research Institute, the Philippine Council for Agricultural Research and the Institute of Philippine Culture are all delving into programs related to rice production: economic, social and technical.

- Recommendation:
1. Encourage continuance of ongoing research activities;
 2. Provide forum for sharing of information as studies are developed;
 3. Regular quarterly seminars for PT training; and,
 4. Prepare materials for specially targetted audiences: technologists or farmers.

(13) What are the data analysis problems?

These include the usual reporting difficulties, standardization of the kilo/cavan rate etc. This series of problems is being addressed through the upgrading of services in the Bureau of Agricultural Economics and the continued improvement of the Management Information System. The use of earth satellite data is being considered.

- Recommendation:
1. GOP with USAID assistance should continue to support improvements in MIS and proceed with the Bureau of Agricultural Economics crop cutting sample program; and,
 2. Use of earth satellite surveys should be investigated.

(14) Can the M99 Program be replicated?

Certainly not in its Philippine format. However, it is and can be useful in the development of food production and equity models for the development of small farmers in other countries. The analysis of the opportunities and constraints of the M99 model could serve as a guide in assaying institutional capabilities, legal constraints and market opportunities. M99 is: a complex of indigenous institutions (rural banks, extension system, grain marketing agency); national media; tested high yielding rice varieties and technology for their use; an active agrarian reform program; and all of this being interacted upon by a farm population ready to move from a traditional acceptance of risk aversion to becoming economic partners in their country's development.

Recommendation: Caution in over-publicising Philippine results as possible cure-all for other countries rural development and food production dilemmas.

Section II

A. MASAGANA 99 DELIVERY SYSTEM

Program Initiation

Masagana 99 is the label for the present effort in the Philippines to accelerate rice production. It was initiated with Operation Palagad (Dec 1972-May 1973) and relabeled Masagana 99 (May 1973-October 1973). Masagana means bountiful harvest while the 99 refers to the targeted 99 cavans of rice per hectare. The OPAL and M99 effort has proceeded through two dry seasons and is now into its third, and two intervening wet seasons. The program was developed as a result of the devastating typhoons and floods of 1972 which were then followed by severe drought conditions affecting vast areas of rice lands in Central Luzon plus drought in Mindanao. The purposes of the program were to relieve the flood drought calamity situation in Central Luzon and to increase total rice production to gain self sufficiency for the Philippines.

USAID provided fertilizer supplies as emergency relief in late 1972. Distributed at no cost to the farmers, this enabled them to recover some of their losses especially on late replanted crops. Experience with this program suggested that emergency funds be used on a more systematic program to stimulate adoption of new high yield varieties of rice, together with tested and approved packages of inputs including fertilizer, insecticides and herbicides. These inputs were to be financed through USAID funds granted to the banking system and passed through the Rural Banks to the farmers. Initial loans were for a total of ₱700 per hectare with approximately half from the dollar grant for cost of inputs and the balance from U.S. PL480 proceeds for the costs of labor. (See Table)

PROGRAM DATA FOR FLOOD REHAB PROVINCES*

	TARGET		PARTICIPATION		PRODUCTION		(\$000's)	%
	<u>Ha's</u>	<u>#Farmer</u>	<u>Has</u>	<u>#Farmer</u>	<u>Tot</u>	<u>x̄/Ha</u>	LOANS	REPAYMENT
OPAL	100,000	40,000	26,400	13,400	1.6m. cav.	60	9.943m	99
PHASE I	215,000	90,000	324,800	184,344	20.6m cav.	74	163.5m	85

* Bataan
 Bulacan
 Laguna
 Nueva Ecija
 Pampanga
 Pangasinan
 Rizal
 Tarlac
 Zambales

Source: Kenneth Smith, Program Advisor, USAID Philippines, Ded., '74 from MIS Reports.

The accelerated rice program, "bountiful harvest" Masagana 99, is but the most recent of a series of efforts over the past twenty years to help the Philippines avoid the high costs of importing rice and to enable them to achieve self-sufficiency in rice production. The immediate past history includes the development of high yielding varieties by the International Rice Research Institute (IRRI), the Bureau of Plant Industry and the University of the Philippines at Los Banos and a series of production experiments carried out in the Province of Bulacan which demonstrated increases in production which could be achieved through the use of a set of operational practices geared to the average production capability of the local farmers as distinguished from the optimum conditions which were obtained at the research stations. This and other demonstrations encouraged the National Food and Agriculture Council to proceed with a large scale program, first in the critically damaged provinces of Central Luzon and then later throughout the remainder of the rice growing areas of the Philippines.

Thus, Operation Palagad and Masagana 99 were attempted out of the necessities of the flood and drought and the practical experiences in Bulacan and elsewhere. The system designed to spread these practices through the Central Luzon provinces of Laguna, Rizal, Bulacan, Bataan, Zambales, Pangasinan, Pampanga, Tarlac and Nueva Ecija was apparently a simple, straight line delivery system. However, it involved a set of highly inter-related institutional arrangements to make it operate effectively.

These arrangements included: (1) the allocation and subsidy of fertilizers and chemicals which were in short supply, (2) development and distribution of adequate supplies of high yielding seed varieties, (3) the provision of adequate supplies of credit to finance the purchase of these inputs at reasonable rates of interest, (4) presence of technical advisers to provide guidance and monitoring of the program from the technical planning through to the harvesting and collection of the loans, (5) a price support system that would ensure the farmer a decent price for his efforts, (6) transportation, milling and storage facilities that would ensure the viability of the price support system, and provision of credit. (This is such a critical part of the system

that it deserves a full-scale discussion. See Chapter B).

Provincial Organization

The system was reviewed in some detail in three provinces: Pampanga, Pangasinan, and Neuva Ecija and more fleetingly in Bulacan, Tarlac, Zambales and Laguna. The intensive review was concentrated in the heavier rice producing areas. Using these provinces as models, the whole system can be exemplified and one is free to assume that with greater or less emphasis the parts of the system described here will function in the nine original rehab program provinces and most of the others as well.

In Pampanga, for example, Governor Brigido Valencia serves as the overall in-charge of the accelerated rice program in his province, chairing the Provincial Action Committee (PAC). He is assisted by the Provincial agriculturist, Segundo Serrano, the Provincial Program Officer who is in-charge of the program on a day-to-day basis, supervising the program technicians, monitoring the other elements of the system including the movement of fertilizers and seeds, operations of the rural banks and all contributing elements. The next level in the system is the Municipality. For illustration, in the Municipality of Lubao, Mayor Salvador Dimson, serves as the head of the Municipal Action Team (MAT) and is assisted by his Municipal Development Officer from the Department of Local Government and Community Development. Mayor Dimson is completely knowledgeable about the progress of the Masagana 99 program in each of his barrios, the assignment of the five production technicians to the Rural Bank and those working for the Philippine National Bank, status of loan collections and repayments at the Rural Bank and other matters affecting the program. The PAC meets on a regular monthly schedule while the MAT meets weekly. Both are subject to emergency calling for special problems. It is through these meetings that the Governors and Mayors maintain contact with and supervision over the program. The Rural Banks and the Philippine National Bank are the instruments for ensuring that the system works through the provision of credit. Seventeen, out of a possible twenty, of Pampanga's Rural Banks are fully active in the program. The three branches of the Philippine National Bank are heavily

engaged in the program. The Agricultural Credit Administration is likewise active in the province but to a much more limited extent than the other two agencies.

The MATs and PACs operate with varying degrees of effectiveness, some being active operational forces while others have been relegated to nominal roles.

Current Operation

Farmers participating in Masagana 99 are required to have a farm plan certified by the production technician (PT) assigned to cover their barrio. Given the span of coverage of these PT's, 100-300 farmers, the supervision and care given to development of these plans varies widely. However, the workload is greatly reduced to 40-75 farmers during the dry season. The farm plans are presented to the bank as part of the loan application. Upon acceptance of the loan, chits are issued for the input portion, and cash for the labor portion. Chits are then presented to the fertilizer and chemical dealers for the release of those inputs. Fertilizer and other chemicals are allocated to the province for distribution by the dealers.

Production Technicians are supplied by the Bureau of Plant Industry, Bureau of Agricultural Extension, Department of Agrarian Reform or employed directly by the Rural Banks. NFAC has been authorized 3400 PTs to be assigned by other agencies. However, they have a current vacancy rate of one-third.

The shortage of PTs is aggravated by the Government Order No. 47 calling on all large (over 500) employees to produce rice for them. Many of the better PTs have been recruited by private industry to the detriment of the Masagana 99 program. NFAC continues an intensive recruitment program and has been forced to begin lowering entry requirements.

The numbers of qualified agriculturists available to the program poses one kind of problem. Another major problem, keeping pace with the fast-moving technology of rice production, places real strains on this part of the system. Training and retraining requirements to keep the PTs up to their job needs calls for a special training effort beyond that now going on. Apart from the initial short course in rice production

techniques, the PTs now receive regular information and briefings, bi-monthly. These latter tend to be crowded with administrative needs of the program at the expense of informational inputs. It is anticipated that NFAC will establish a full-scale training and retraining program for PTs using its own staff or borrowing from the skilled training cadre of the Department of Local Government and Community Development.

The PNB employs farm credit supervisors but not its own technologists. The differences in remuneration between the technicians was a subject of some comment but appeared to be of more concern to the rural bankers. Of the several bankers who commented, preference was expressed for employing all technicians and thus being completely responsible for their actions. The issue of who should control the technicians deserves consideration. There are two distinct functions required of them: imparting technology to the rice farmer while helping prepare the farm plan; and, serving the banks as an agricultural credit agent by monitoring the loans and collections. It would seem that these functions might be better served by separating the technicians and letting the agricultural technologists do their jobs on the farm while permitting the agricultural credit people operating from the bank to do theirs. However, local customs indicate that the farm technician who helps the farmer increase his yield is most likely to be a successful collector of the loan because of the loyalty relationship developed.

The National Grains Authority was reported as slow in getting organized for Operation Palagad and Masagana Phase I. It has overcome earlier deficiencies and is now prepared to buy grain, store it and fulfill its role as a price moderator and support mechanism for the benefit of the farmer. Judicious increases in the support price from the original ₱25 a cavan to the present ₱55 have kept pace with the realities of the market place. However, the price support mechanism is yet to be tested. Market prices have generally continued stronger and, except in short term isolated instances, have not fallen below the support price.

Other programs outside the scope of this study have impact on the production of rice and well being of the rice farmer. These are the emergency programs to rehabilitate and build new irrigation schemes, road systems, the ongoing program to transform the tenancy situation in

the Philippines, and the continuance of peace and order. In the case of roads and irrigation, the presence of new and rebuilt facilities were much in evidence through Central Luzon. The tenancy situation varied between provinces. Pampanga and Nueva Ecija have an overwhelming majority of their farmers now on negotiated leasehold arrangements with their landlords, while in Pangasinan the original share tenancy patterns seem to remain. It would seem that the Department of Agrarian Reform had yet much to do in some provinces. Martial Law is reported by all to have restored "quiet" to the country-side and peace and order is established.

The Philippine Constabulary was reportedly used in some cases to help "inspire" borrowers to repay their loans. This inspiration ranged from threats to resort to the P.C., a letter from the P.C. or the actual presence of P.C. with the technicians attempting to effect collections, and finally, rare reports of arrests of delinquents.

The private sector, in addition to the Rural Banks, has been actively engaged in the program. The fertilizer and chemical dealers and the rice millers and dealers have participated largely as planned. An unexpected set of participants (beneficiaries) have been the appliance and farm equipment dealers and other merchants in the rural areas who have benefited from the radical upsurge in rural buying power. This increase in purchasing power of the rice farmer cannot be attributed to Masagana 99 alone, but to the interaction of a dynamic set of forces. These include the Masagana 99 package of technology, HYV seeds, fertilizer, chemicals and credit plus the greater equity brought about through the farmers improved sharing arrangements of the agrarian reform program, the development and rehabilitation of irrigation and roads, an improved management information system, and very important, good prices!

The Management Information System (MIS) which was developed to monitor and guide the program has been extremely useful to it but has had a most difficult time being established and developed. Its potential was demonstrated in the emergency fertilizer program providing data for the control of the release and distribution of fertilizers ensuring successful accomplishment. The MIS was then upgraded, refined and adapted for Operation Palagad and further refined and formally established for Phase I of Masagana 99. The MIS is still plagued with

problems of prompt and accurate reporting. As the problems are identified they are being resolved. But let the designer of the information system speak for himself. 1/

"Masagana 99 statistics are the only data on rice production that are available by province in a standardized format on a regular monthly basis. However, the Management Information System which was developed to gather and report them, is still in its infancy, and these data cannot yet be taken at face value."

"There is as yet no regular effective process for verifying the reported data, and preliminary screening and spot checks indicate a number of deficiencies, with underreporting, overreporting, late reporting, double counting, poor estimating, failure to account for all data, inconsistencies between time series balances, etc. etc. The technician in the field charged with recording and reporting the data in the first instance has not yet been made fully aware of the importance of good record keeping, or trained in the intricacies of maintaining time series and cumulative data. Intermediate supervisory levels also need training in monitoring and analyzing reports from their technicians. The farmer often has a vested interest in underreporting his yields, while the technician seems to equate high productivity of the farmers he supervises with his own personal success. Thus without proper monitoring, objectivity is difficult to maintain. For instance, an independent NFAC survey of last year's crop data indicated that while Masagana 99 reports from technicians claimed an average of 77 cavans/hectare for program participants, the figure reported to survey interviewers was closer to 54."

"The major emphasis in the MIS to date has been the development of the system structure. This is now almost complete. The next step will concentrate on the training of GOP staff at all levels in reporting system fundamentals and establishing an effective working group to monitor, analyze and follow up on the data reported to reduce subjectivity."

"In the meantime, the official source for agricultural data is the BAECON Integrated Surveys. This is a quarterly stratified random sample of palay production, by region. As such, provincial level detail is not available. Furthermore, the survey is not stratified to reflect Masagana 99 participants performance compared with non-programmed areas."

"A major weakness of this system is that interviews with farmers is still the primary source of data. No standardized objective means such as randomized crop cutting techniques is utilized for measuring of forecasting yields."

1/ Memorandum from Kenneth F. Smith, Advisor to Thomas C. Niblock, USAID Director, November 29, 1974.

The newly created MIS unit in NFAC is receiving an intensive one week seminar in statistical methods at the Development Academy of the Philippines, and the staff of the Agricultural Program Evaluation Service is also participating.

The MIS reports can now be streamlined in their preparation and handling. In addition, the reports from Rural Banks could be more complete. There is a need to know what has actually been collected for each program and what has been restructured. PNB records show this. Similarly, we have evidence that there is a significant difference of about 15% between approved loans and releases. PNB reports show this, Rural Banks do not.

A description of the Masagana 99 system would be incomplete without mention of the two village level organizations, the Samahang Nayon and the Selda or Damayan. The Selda is a band of five to fifteen coinsurers with a variety of other organizational constraints depending upon locale. This is the local unit which guarantees repayment to the Rural Bank for the local borrower in lieu of collateral. The Samahang Nayon is the pre-cooperative, or farmers association which is being developed throughout the Philippines and will become an instrument for the transmission of technology and other services as it matures. It is to function in tandem but apart from the local village political organization, the Village Council. Five percent of all Masagana 99 loans disbursed to Samahang Nayon members are deposited to Samahang Nayon accounts to begin this capitalization.

The continuing studies of rice farmers in the Bicol by S. J. Lynch provide insights to what is happening to the farmer and what his opinions of the program are.

" In mid-October 1973, 600 rice farmers of Camarines Sur were interviewed regarding their organization membership, farm areas harvests, and farming practices. Analysis of the data indicates that with relatively few exceptions, farmers have no organizational attachments other than the Samahang Nayon (SN) or a compact farm (CF). Since the SN is such a new creation (half of those who belong to it had joined the SN less than four months before being interviewed), it is not surprising that neither improved yields nor better farming practices are associated with membership in it. Belonging to a CF, however, and receiving Masagana 99

assistance are associated with these advances, especially where the borrower is farming rainfed riceland."*

"In mid-October 1973, 600 rice farmers in Camarines Sur were interviewed regarding their awareness and practice of modern farming techniques, and the amount of cash they invested in various inputs for the current rice crop. At the same time, Municipal Development Officers (MDOs) and Production Technicians (PTs) were interviewed regarding their perceptions of the Masagana 99 rice-production program, the Samahang Nayon, compact farming, and agrarian reform in general. Four additional studies were done about the same time, asking questions which had not been asked in the two earlier surveys. On grounds of all six researches, it was found that although agrarian reform was seen as a shared responsibility, perceived involvement in other government programs differed by the employee's official position. M99 PTs were rated by two measures other than the efficiency rating scales of their own agencies. The former ratings were generally low and did not correlate with the uniformly high ratings given by the technicians' agencies. Especially notable was the general failure of PTs to involve their farmer-advisees in the making of the farm plans and budgets. Loans were generally received on time by M99 borrowers, but there is evidence that many farmers did not spend all their cash loans for the corresponding inputs. As of August 31, 1974, the payment of Phase I loans stood at 72 percent of the amount borrowed. Farmers working irrigated land were repaying faster than those with rainfed parcels."**

* Frank Lynch, S. J. Rice-Farm Harvests and Practices in Camarines Sur, SSRU Research Report Series, No. 2, January 1974.

** Frank Lynch, S.J., and Jose V. Barrameda, Jr., The M99 Delivery System, SSRU Research Report Series, No. 3, February 1974.

Comprehensiveness of the Total Program

Throughout the rice growing areas one becomes aware that several government programs are simultaneously very active in the development of the combinations of factors needed for marked improvement in the rice production situation.

1. Operation Land Transfer has given many tenants a land ownership certificate and has determined an amortization payment price which is less than the share which used to go to the landlord. Gains in production are now going to the amortizing owner or leasee. Only in a bad typhoon year is this system not to the advantage of the amortizing owner or leasee and only one complained to us about not being able to pay the lease fee. At the same time this has taken away one source that the tenant used for credit and the bank now becomes the substitute for the landlord in supplying production inputs and credit.

2. The National Grains Authority set a floor price for palay and bought when the market price fell below the support level. Although it was not necessary for the NGA to buy large quantities in Central Luzon it was evident from comments of the farmers that the NGA floor price was given credit for keeping the traders paying a price above that level.

3. Improved rice technology has been developed through the government work and the International Rice Research Institute. Many of the agricultural technologists assigned to Masagana 99 were given a two-week intensive rice production course at IRRI or at the Maligaya Rice Research Station of the Bureau of Plant Industry. One year before the beginning of Masagana 99 there had been a pilot project in Bulacan for the demonstration of the package of technology which later became part of the recommended practices for Masagana 99. There had also been other tests and demonstration of new varieties and technology through the Mini-Kit demonstration program and the fertilizer and chemical test which followed it.

4. Water from the new Upper Pampanga River Project is about to arrive in sections of Nueva Ecija and earlier programs of several government agencies have encouraged the use of pumps for an assured water supply and helped with the rehabilitation of communal water systems.

5. The peace and order situation has improved so that farmers are willing to invest in inputs and improvements which will increase their income. Fear of loss due to banditry and political intrigue is greatly reduced since 1972 and compliance in meeting debt obligations to the banks is regarded seriously.

In his book called "Getting Agriculture Moving," Arthur Mosher lists five essentials for agricultural development: (1) improved technology, (2) available supplies of seeds, fertilizers, chemicals, etc...., (3) adequate incentives for farmers to produce, (4) transportation for supplies coming in and products going out, (5) markets for sale of all products the farmers can produce. When these requirements have been met the acceleration of agricultural development can begin through improved education and extension, supervised credit, improved land development and farmer organizations.

All of the essentials have been met in some of the areas of the Philippines, especially the Central Luzon area of rice production. Through the simultaneous programs farmers there have access to better rice technology, supplies of fertilizers and chemicals, transportation and markets. The Masagana 99 credit and extension program have made possible accelerated rice production in a short period of time.

Future Implications

The Masagana 99 program has been spectacularly successful in reaching large numbers of small rice farmers in an extremely short time. However, it must be pointed out that emphasis has been on farmers with irrigation facilities and not on the smallest farmers. The farmers with only rainfed land may still be in need of assistance in

some places. No attempt has been made to deal with the small minority of upland rice growing farmers.

These facts point out that the most difficult work of the program may still be ahead, since the smallest farmers with the poorest land are the most difficult to reach and assist. Programs of credit for integrated crop and livestock financing may help in some cases. Improved irrigation facilities are greatly needed in many areas. In other cases complete shifts to alternative crops or to other wage earning jobs may be recommended. Some of these are already in progress—the Masagana Maisan program assists corn and feedgrains growers, integrated financing is being tested in several banks and there are special programs for vegetable production and for bringing new riceland under water control. Several river basin programs are planned or are in progress. All of these will be increasingly necessary to help keep low income farmers from being left behind.

B. CREDIT - THE KEY TO THE MASAGANA 99 SYSTEM

Introduction

The credit portion of the Masagana 99 program has been a key factor in the mobilization of resources of the government and of the farmers in a joint effort to boost rice production. The complete campaign included innovations in credit distribution such as:

1. Large numbers of farmers could borrow without collateral for the first time.
2. Joint liability with four or more other farmers in a "selda" group was introduced.
3. More than 3,000 government agricultural technicians were assigned to rural banks and PNB branches to handle farm plans and give technical advice on use of fertilizers, chemicals and herbicides.
4. Distribution of fertilizer and chemicals was controlled through a purchase order (chit) system so that farmers did not handle part of the actual loan fund.
5. All of the government agricultural technicians assigned to the program received incentive pay increases per farmer supervised. They could also purchase motorcycles on attractive credit terms.

The above innovations were superimposed on an operating system of 680 rural banks. When it became clear that more channels were needed, almost half of the 162 branches of the Philippine National Bank

were mobilized as well. Special discount rates for Masagana 99 loans were made available at the Central Bank. While the banks were hardly given a chance to refuse the program, at the same time the incentives were enough to encourage participation. Full rediscounting was available at what eventually was a one percent interest rate. Technical assistance in the form of more than 3,000 government agricultural technologists from the Bureau of Agricultural Extension, the Bureau of Plant Industry and the Department of Agrarian Reform were assigned to the banks at a small cost to the banks since their basic salaries were still paid by their parent organizations.

These innovations in agricultural credit arrived at a time when the proportion of all institutional credit granted to agriculture, fisheries and forestry had been declining. (See Table) Even though the proportion of all credit going into the agricultural sector had been declining, the importance of the Rural Banks in providing this credit was gaining. The percentage of total bank credit going to agriculture handled by the Rural Banks or a group increased from 72 percent in 1960 to 90.3 percent in 1972.

PROPORTION OF ALL INSTITUTIONAL CREDIT GRANTED TO AGRICULTURE,
FISHERIES AND FORESTRY

Year	Proportion (%)
1960	17.9
1964	16.6
1968	12.9
1972	9.9

Source: Dr. Claudio Gonzales-Vega, Stanford University, unpublished material.

Although the rural bank system has played a substantial role in the dispersal of economic activity throughout the Philippines, the lack of innovation and generally conservative banking policies were slowing the expansion of agricultural credit, especially to new borrowers who lack the land ownership collateral requirement of regular bank lending programs.

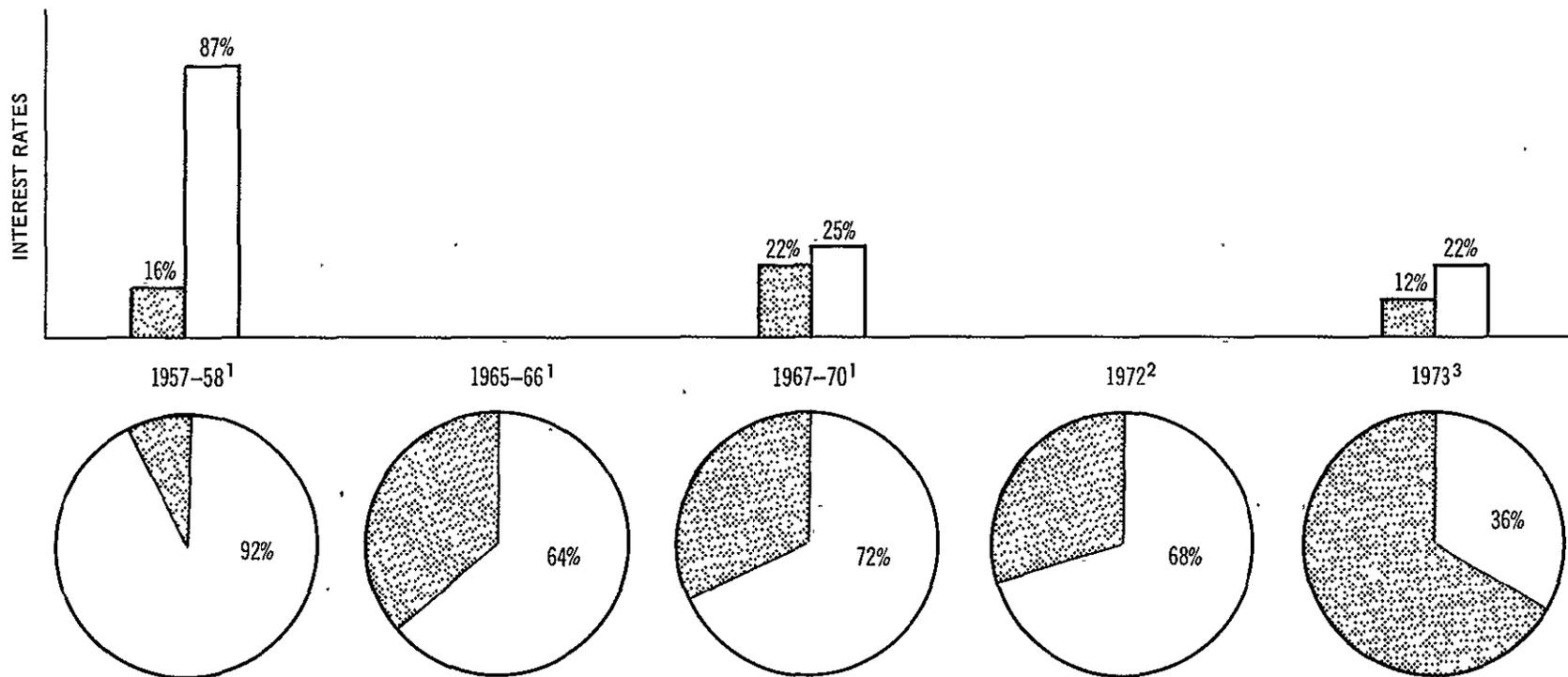
The timing of the innovative credit program was given greater urgency by the loss of rice in the 1972 floods and a world market where imports were becoming prohibitively expensive and nearly impossible to procure. There was an all out effort to increase rice production and the Masagana 99 program became the focus of attention.

The following findings are presented with evidence from a variety of surveys and reports dealing with the program. Comments from rural bankers, agricultural technologists and farmers are added to illustrate the points. Some problems and their implications will be discussed in the section following the findings.

Farmers Participation

The total volume of credit extended to rice farmers under the Masagana 99 program grew from 370 million pesos in Phase I to 694.6 million in Phase III. The number of farmers served reached 533,651 in Phase III with 827,932 hectares of rice planted with loans from the banking system under the new program. This is a truly phenomenal accomplishment and has made it possible for farmers in the rice growing areas to get low interest credit (1 percent per month) at the banks rather than going to moneylenders who charge rates up to 300 percent per annum. A typical arrangement of a farmer with "rich person" is to borrow two sacks of rice and repay with three after his harvest.

The change in dependence on institutional sources is illustrated by the following chart which contrasts the results of farmer surveys in 1957-58 when they reported 92 percent dependence on private lending sources to a 1973 report from Central Luzon which shows that this reliance on private lenders had dropped to 36 percent. A new survey



**Percentage Distribution of Institutional and Non-Institutional Credit and Interest Rates
1957-58 through 1973**

¹Sacay, Orlando, "Small Farmer Credit in the Philippines," *Spring Review of Small Farmer Credit*, Vol. XIII, 1972.

²IPC Study, "View from the Paddy," Institute of Philippine Culture, Jan-Apr 1972, F. Lynch, editor.

³Manto-Torres, NFAC Marketing Res. Unit, Department of Agriculture, 1974.

 Institutional (banks, etc.)

 Non-institutional (private money lenders)

in 1975 would probably show a continued decline in this dependence. Some farmers interviewed were quick to point out that the greatest benefit they had from Masagana 99 was that they were out of debt for the first time in their lives. The cash portion of the loans granted in Phase I was often reportedly used to pay off old high interest debts rather than for land preparation as the farm plan indicated. Many farmers have traded work with their neighbors and used borrowed carabaos to prepare the land instead of hiring tractors as the farm budget indicates.

One Nueva Ecija farmer reported that he now goes directly to the rural bank for his loans where he used to go to his landlord. He is a bit doubtful about whether he could go back to the landlord for money if the program is not available. Anyway, he thinks the interest at the bank is so low that he would much prefer the bank loan. Another farmer in the same province was sure that he could not return to his landlord for credit since he had shifted to leasehold on the land reform program. Under leasehold arrangements, the landlord no longer had legal responsibility for providing inputs or support. The farmer was so fearful of losing his bank credit rating that he sold one of his three carabaos to pay the bank loan. He considers the Masagana 99 program as the only good source of fertilizer and wants to insure his supply.

The manager of a rural bank in Cabanatuan City estimates that they handle 85 percent of the credit needs of the farmers in the 45 barrios that they serve. The small farmer loan program at the bank has grown from virtually nothing in 1970 to 680,000 under OPAL to 6,000,000 under Phase III. The manager was convinced that the repayment rates had been good in Phases I and II because the farmers had put their complete reliance on the bank for their credit needs.

For non-production credit needs the farmers may still have to go to the moneylenders but several farmers mentioned that subsistence needs should be included in the farm budgets and several banks have added this to the budgets already.

The Masagana 99 program is geared to service large numbers of farmers with relatively small loans. The following table gives the recorded numbers of farmers reached with loans and the average size.

FARMERS SERVED AND SIZE OF LOANS

	OPAL	Phase I	Phase II	Phase III
Farmers Served (No.)	13,400	406,509	236,236	533,651
Average Loan Per Borrower	₱742.69	₱910.33	₱979.25	₱1,201.62

Source: Dr. Claudio Gonzales Vega

It has been pointed out in a study of rice farmers in Cavite by Mr. M. Van Der Veen that the program has helped the farmers who received loans directly. In addition, it has assisted others who are not in the program through information supplied through various media and even in some cases the fertilizer and chemicals which were shared by the farmers with loans with others who did not have access to the program. Assistant Secretary of Agriculture J. D. Drilon estimates that more than a million rice farmers have actually benefited.

The amount of increase in agricultural loans being given to rice farmers by the participating agencies is given in Table on page 37.

AGRICULTURAL LOANS TO RICE FARMERS

Credit Agency	Pre-M99 (May '72-73)	M99	% Increase
Rural Banks	87 million	256 million	193
Phil. National Bank	17 million	298 million	1,163
Ag. Credit Adm.	32 million	33 million	3

Source: P. Villegas

Measurement of the Masagana 99 program was gauged against targets established at the national and provincial levels based on the provincial capabilities in terms of technologists available, operating banks and rice hectareage. Table below shows that in one case the target was 95 percent of the total hectareage of rice.

PROVINCIAL PARTICIPATION IN M99

Province	Hectareage 000 ha.	M99 target as % of total has.	M99 planting as a % of target
Pampanga	69.0	95	111 ^a
Laguna	28.7	77	130
Nueva Ecija	184.0	43	159
Pangasinan	153.0	38	93

Source: P. Villegas

^aIncludes replanting after typhoon.

Another illustration of the fact that bankers are now reaching a large number of farmers came from one bank manager who said that 90 percent of the bank's farm customers are on the M99 program. Another PNB bank manager reported that 80-90 percent of the farmers residing in the six municipalities served by his bank are now in the M99 program. This bank now serves 6,150 farmers where it had few farmer customers before.

"Without the M99 program the Land Reform would have failed!" says another rural bank manager. He went on to explain that the land transfer certificates given to the tenants converting to leasehold are extremely questionable as legal documents and are not accepted as collateral for regular bank loans. He sometimes is able to get the landlords to co-sign the leaseholders loan where the relations are still good. He prefers this to the M99 "selda" system since the farmers don't like to have to get the signatures of the group partly because it is difficult to get them all together with the technologist.

For those areas where the land reform has been administered on a wide scale it is indeed fortunate that the M99 program came at the same time in order to provide credit and supplies to the farmers who had formerly depended on their landlord.

Bank's Involvement

The following is a listing of rural banks and PNB branches selected for interview and their estimates of the proportion of their loan business which is now in the Masagana program. These are rough estimates and might reflect some variation in the interpretation of the question but nevertheless show the approximate extent of dependence upon the program.

<u>Bank</u>	<u>Total Loans</u>	<u>Proportion in M-99 (%)</u>
A	12 million	75
B	8 million	75
C	2 million	75
D	N.A.	70

<u>Bank</u>	<u>Total Loans</u>	<u>Proportion in M-99 (%)</u>
E	N.A.	50
F	7 million	50
G	5 million	50
H	3 million	48
I	55 million	33
J	9 million	33
K	N.A.	30
L	10 million	30
M	8 million	25
N	8 million	25
O	5 million	12
P	28 million	10
Q	35 million	4

From a study of the rural banking system by Professor Claudio Gonzales-Vega in 1974, the amount of total rural bank commitment to the Masagana 99 program was calculated. In 1973, the national total was 29 percent of total loans which averages the non-participating banks with the participating ones.

In the same study, Professor Gonzales-Vega calculated the number of loans that were secured with and without collateral and found that 51 percent of the total number of loans made by the rural banks in 1973 were secured with real estate collateral. As recently as 1971, this percentage had been 71 percent and the difference is directly attributable to the Masagana 99 program. This percentage is an approximation and 1974 figures will probably show an increase.

The Philippine Government's projections for rural lending for agricultural production (in thousands of pesos) are:

<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>
₱ 885	₱ 984 est.	₱ 1,096 est.	₱ 1,220 est.

It is expected that the number of rural banks will increase from 622 at present to 1,015 during this period.

Profitability For Banks

One rural banker declared that the profits of the bank had declined by one-half since the beginning of the M99 program. Although this is almost impossible to check, there is reason to believe that the increased volume of business will be extremely valuable to the banks in the longer run. The number of loans and their size may not be conducive to profitable banking at the present time or on the scale previously considered the "norm." As these farmers gain in income and savings are accumulated, there will be considerable room for expansion of business by the banks with a large number of customers who have learned to use the bank facilities through the M99 program.

Professor Gonzalez-Vega's study of the Rural Banks shows that, according to their listed income and expenses, they are apparently less profitable than most other lending institutions, and they have been declining. Between 1965 and 1973, the average profit per bank (measured in constant pesos of 1965) declined from ₱29,500 to ₱17,500. This decline is in part due to the increase in the number of banks—some now in marginal areas. Original banks were started in the better areas. The rate of return on the private capital in the rural banks declined from 11.8 percent in 1965 to 10.4 percent in 1973. Because of inflation this decline would be greater in constant peso terms.

However, he went on to analyze the increases in separate costs and incomes and found that although financial costs have increased, administrative costs have declined in importance, thus reducing average rural bank costs. Also, the expense item labeled "other expenses" on rural bank financial reports has grown 25 percent of total administrative costs in 1960 to 50 percent in 1973. It is hypothesized that this item might be considered "profits" since extra amenities and earnings for the owners of the banks are reported to have been included in this item.

When the simple average of implicit rates of profit on private capital for all rural banks over the 1953-1973 period was calculated, it stood at 9.5 percent. The rate for the period 1960-73 including the "other expenses" item as part of the returns was 15.7 percent. This is directly comparable to other credit institutions according to Professor Gonzalez-Vega. In 1973 the profit rate on private capital for all rural banks was 10.4 percent when calculated directly from the balance sheets. When "other expenses" are included in returns, the rate increases to 17.7 percent and the real rate is probably midway between these. It must be remembered that this is an average for 680 banks among whom the variation is extremely high. (For additional information, see Draft Memo D. L. Tinsler, USAID, to H. Francisco, CB/DRB of 2/14/75 in the Appendix #6.)

The question of profitability of the rural banks also involves the special tax exemptions that they receive, the various subsidized discount rates and the non-interest bearing stocks which the government holds. Several proposals have been made recently regarding changes in these forms of assistance, but it is not within the scope of this report to add either light or confusion to this discussion.

Repayment Problems

The total national repayment rate for Phase III Masagana 99 loans as of December 31, 1974 is 17 percent. Although some of the crop was still being harvested in some areas, this rate reflects the inability to repay at the time of harvest by large numbers of farmers, especially in Central Luzon where a series of typhoons ravaged the area during October 1974.

A large bank with a record of 95 percent repayment in Phase I and 88 percent in Phase II now has only 30 percent collection on Phase III illustrating the plight of an area hit by five typhoons. Some farmers in the area reported losing 100 percent of the crop.

Another rural bank with 98 percent repayment rates in both Phase I and II is now up to 60 percent collection on Phase III and has begun restructuring the remainder. They are integrating the repayment of rice loans with loans for vegetables, pig and dairy production. Although the manager felt that the bank could continue its current lending programs even without the M99 program in a good year, there is need for special help from the Central Bank when calamities strike.

Some banks availed themselves of the Land Bank guarantee for a 1 percent charge. Now they are having difficulties in getting claims paid. For example, a rural bank which has only a 15 percent repayment rate in Phase III has ₱3 million in loans guaranteed at the Land Bank. To date they have claimed ₱1.2 million but have received only ₱390,000.

The highest repayment rate in Phase III encountered by the interviewing team was 72 percent and the manager of the bank expects the final collection to reach 90 percent by the end of February. The reasons given for good collection in spite of the typhoons which hit the area were the constant contact of the manager with the technologists and the farmers. The manager talks to all farmers personally and to barrio captains, mayors and businessmen. The farmers who had harvested their rice early were not damaged by the typhoons and repaid their loans immediately. Others are paying out of income from vegetables and pigs. The manager also keeps weekly records of the repayment rates of every technologist, farmer, gave extra bonuses for repayment, and treated the technologists like members of the bank staff at Christmas. He also recommends setting up schedules of contacts with farmers so that all of those working with a certain technologist are coming to the bank on the same day for releases of funds. This way he keeps the technologists free on other days to visit the farmers at home and avoids crowds of farmers waiting for papers to be signed by the technologists and the bank manager himself.

Future Implications

Rural banks vary greatly in their ability to handle the innovative features of the Masagana 99 program. This implies that the need for continued education and training for the rural banks should be met. Successive groups are now being given special training at the Development Academy of the Philippines and this kind of effort must be pursued. The experience of the most successful rural banks should be recorded and distributed to all the banks. Bankers need continual opportunities to meet and learn from each other.

The special drawing and discount programs for Masagana 99 loans at the Central Bank make possible the participation of the banks without jeopardizing their financial position. It also creates a dependence which may make the rural banks less competitive in the longer run. Provisions for shifting the banks to a less pampered position might be given consideration now while the banks are still in an innovative mood. There is already a pattern of dependence on direct contacts with the Central Bank in Manila and the paperwork for all the separate special loan funds is growing each time a new program is launched. The efforts for each may be diluted until each loses their effectiveness unless some consolidation is made.

The assigning of government technologists to the banks to supervise loans has marshalled a great deal of manpower for loan surveillance. It has also created some new problems which may be minor but which could be diminished through foresight in program planning, assignment of personnel and cooperation among agencies and banks. Some bankers prefer to hire their own technologists so they have complete control and allegiance. Bankers express dissatisfaction with the demands put upon the technologists by their parent agencies for attendance at meetings and seminars, writing reports, etc. A change of assignment for a technologist during a crop growing period is particularly difficult for a bank which is relying on the personal contacts of its technologist with the farmers in his area of assignment. Changes should be made only with the concurrence of the bank. Some bankers also voiced reservations about assignment of women as farm loan supervisors since they usually do not ride motorcycles and need to be quite careful until they are well acquainted in the community.

In the future the savings function of the rural banks will need to become stronger so they can continue the agricultural loan programs without special assistance. At present the Masagana 99 program assists this development only when it is combined with the Samahang Nasyon program which requires that 5 percent of the loan to any members be retained in the bank as savings. The Samahang Nasyon organization also collects one cavan of rice per hectare per season for savings. These accounts will be gaining momentum in a short time and future programs of the rural banks and Masagana 99 may be greatly influenced by these "forced" savings from which local loans and development projects can be funded. The banks and the government programs will need to accommodate themselves to the importance of this expanding resource.

The long-run implications of a subsidized interest rate need to be considered while the program is being expanded and modified. Masagana 99 has wisely combined technical aid for farmers at government expense with bank loan operations at restricted low interest rates. Excellent rediscount rates make the program attractive to many rural banks. The high costs of making small loans are being supported in several ways so that banks can develop a thriving business with small rice farmers. There are rumors that rural banks are taking advantage of the low discount rate to channel funds (especially the unutilized portion of the farmers cash outlay) into high interest rate areas such as short term commercial credit and urban real estate. Keeping the interest rate artificially low encourages diversion of funds to other uses and if adequate subsidies such as the free technologists and low rediscount rates are not provided the banks would compensate by lending only to low cost high volume borrowers. Policy makers need to keep a constant watch on the program to adjust the balance between interest rates, subsidies and achievement of the distribution goal: aid to large numbers of small farmer borrowers. (See Appendix 7 & 8 for study of 335 rice farmer loans, interest rates, etc.)

C. FARMERS AND THE MASAGANA 99 PROGRAM

The OPAL and M-99 programs in Central Luzon were able to reach the small farmer and his per hectare production was significantly increased. As a result of production incentive systems (low interest production credit, subsidies and support prices) many farmers realized profits which are fueling an economic boom in the rural areas. The prevalence of 50-50 share tenancy limited net income benefits of many farmers in some provinces, yet farmer interest in the program remains very high. Loan repayment in the early phases were remarkably satisfactory by any measure. M-99 signalled a major breakthrough in delivering production technology and farm credit to a large number of small farmers with no collateral requirements.

In spite of initial successes, the Masagana program will be measured by its ability to make a crash campaign a viable, institutionalized*, long term production program and it appears to be doing just that.

The objectives of the OPAL 73 were to increase production to offset crop losses from the disastrous Central Luzon floods and to increase the income of the farmers who had been affected by three seasons of low production. The OPAL programs' target of 100,000 hectares was not attained. Production credit reached only 1/3 of the intended farmer recipients. Prior to the OPAL program average dry season production was estimated at 51 cavans/hectare. Due to a severe drought, the OPAL farmer averaged only 60 cavans/hectare so that expected larger production increments did not materialize. Efforts were doubled to regain lost production through an intensive wet season follow-on campaign, Masagana 99 (Phase I).

* Institutionalized in this context refers to the process of farmers being able to go directly to the banks and the production technicians and his enhanced capability to use the new technology.

The official production (per BAECON) for crop year 1972-73 was 100 million cavans of palay. Faced with a critical shortage of rice, Masagana 99 - "A program for National Survival" was launched in May 1973. The program during its initial season reached 184,000 farmers tilling 324,800 hectares in the 9 flood rehab provinces. It loaned 163.5 million pesos. Let us examine briefly several factors that contributed to the issue of increased production and credit.

Program Area

The total hectarage under rice cultivation in the flood rehabilitation provinces ^{1/} is 797.7 thousand. These provinces have targeted various percentages of their provincial rice hectarage under the Masagana 99 program, with from 19% in the case of Pangasinan to 77% in Pampanga. The targeted area for the nine provinces represents nearly 38% of the total Masagana 99 program area. ^{2/}

While the latest BAECON data show that less than half of the rice land in the Philippines is irrigated, the ratio of irrigated to rainfed hectarage under M99 in these provinces ranged from a low of 2 to 1 to as high as 28 to 1 with a mean ratio of nearly 8 irrigated to each rainfed hectare.

In terms of incremental yield what happened to irrigated and rainfed farmer participants? The Crop Year 1973-74 had generally very favorable weather conditions and though an October flood affected the yield of irrigated farmers (those with low lying rice lands) the crop loss was offset by favorable rainfall in the upland and rainfed areas. Averaging the yields from these farms shows 76 cavans/hectare for irrigated and 64 cavans/hectare for rainfed land. Although yield/hectare and size of land tilled data reported by farmers is not very accurate for a variety of reasons ^{3/} it is evident that Phase I farmers significantly increased their yields.

^{1/} The "Flood Rehab" provinces are: Pangasinan, Tarlac, Pampanga, Bulacan, Nueva Ecija, Bataan, Zambales, Laguna and Rizal.

^{2/} Provincial hectarage figures from the Rice Situation Report #11, May 16, 1974, covering Phases I and II.

^{3/} For a complete study of reporting errors see Approaches to Problems of Data Collection, Guinio, Labado, Barker, Agric. Ec. Dept., IRRI.

	IRRIGATED (Cav/ha)	RAINFED (Cav/ha)
Pre-Opal	51	40*
OPAL	60	**
Phase I M99	76	64

* No accurate estimate of rainfed yields for these provinces exist, however, the national average for rainfed is less than 30 cav/ha.

** OPAL, Operation Palagad was the dry season forerunner of the M99 program in these nine provinces.

It is important to note that in a recent study of rainfed vs. irrigated paddies in Camarines Sur by Frank Lynch, that in a short run, greater increases in production come from M99 on rainfed rice lands than on irrigated. This study should be replicated in other areas for validation.*

Masagana 99 farmers generally tilled larger parcels of land than did non-participants, both during the OPAL and Phase I of Masagana. The evaluation focuses on the nine Luzon provinces affected by the flood. SGV (Sycip, Gorres and Velayo) interviewed 304 farmers during OPAL and Phase I and found 74% tilling areas less than three hectares in size and 17% tilling land between three and four hectares. It is perfectly clear that the target small farmer group was reached through the program.

Given that the small farmer was indeed reached, did land size affect production or income? The yield data bears out the fact that the Phase I farmers did increase their yields. It follows that farmers tilling larger parcels benefitted most in terms of gross harvests. Assuming family subsistence needs varied little by land size, the farmer with a larger share of the pie benefitted the most. That a farmer with better land resources benefitted most should not be viewed as a failure of the program, since its primary goal was to increase production.

Tenure

Implications of recent studies on Agrarian Reform in the Philippines are that "change in tenure is unlikely to result in increased production

* Frank Lynch, S.J. "Rice Harvests and Practices in Camrines Sur", SSRU Report Series #2, September 1974.

incentives, but removal of landlord participation will probably result in loss of production if his functions are not supplanted by institutional credit extension." ^{4/}

Given the evidence that no correlation exists between change in tenure and productivity, the equity issue alone is sufficient to justify the agrarian reform movement. Did the agrarian reform program mean an increase in net harvests (and income) of the M99 farmer? Although some 52,000 tenants had received Land Transfer Certificates as of January 25, 1974, E.P. Mariano's study of M99 farmers found some 59% of Luzon's farmers under a 50-50 sharing basis in the majority of farm interviews in Bangasinan though in Nueva Ecija and Pampanga the number of farmers under this arrangement was insignificant. That most M99 farmers increased their yields is a matter of record. Yet many farmers are still under crop-sharing arrangements which limit the benefits enjoyed from increased production. No clear picture of farmer income and incentives can be drawn without first considering tenure status.

Inputs

M99 promoted a "package of technology" which relied heavily on increased fertilizer applications and use of herbicides and pesticides to increase per hectare production. The prices of these fertilizers and chemicals were subsidized and allocations were made to provinces according to their degree of involvement in the program. Fertilizer supplies were in great demand during this period but rice farmer participants had priority on the available stock. However, the price spread between the Food Crop and Export Crop fertilizers made black marketing a lucrative practice for some farmers not "sold" on the use of fertilizers. Fertilizer acquisition sometimes was "tied" to the purchase of chemicals. Farmers resented this practice since it resulted in higher costs to them but proved profitable for PT's allegedly receiving "kickbacks" from dealers for approving certain brands. Distribution problems made it difficult for farmers to get the recommended amount or types of fertilizers. Some farmers complained of delay

^{4/} "Harkin A. Duncan, "Some Distributional Consideration in the Philippine Land Reform", January 1975.

in getting fertilizer chits.^{5/}

Van der Veen's study of M99 in Cavite Province indicates that 33% of those farmers receiving loans increased the amount of fertilizer used per hectare over previous year's levels by more than two bags.^{6/} Only 9% of those without loans increased usage this much.

Seldas

The Masagana 99 lending scheme pioneered the widespread use of the selda (or damayan) concept where groups of five or more farmers act as co-signers of promissory notes. Although some farmers reported difficulty in organizing seldas ^{7/}(a requisite for non-collateral lending) the concept seems to have gained acceptance by the bankers. The selda substituted the element of social pressure for property collateral as a guarantee of repayment. Additionally, this joint liability encouraged mutual assistance among farmers and, in effect, increased loan supervision. Although many bankers expressed skepticism about the success of this particular aspect of the program the repayment of Phase I loans and the increase in loan volume of succeeding phases testifies to the impact of the selda group as a security for the loan.

In a relatively few cases did bankers ask members to pay for outstanding loans of their co-members. In these cases, however, and even until now, farmers are re-grouping into new seldas seeking the more successful farmers as co-guarantors. Selda membership varied in size but most are at the minimum five members. Farmers often had nothing else in common except proximity of farms or the mutual need for guarantors.

Farmers who had irrigated land under the Phase I operation repaid their loans promptly to qualify for financing and fertilizer for the dry season crop. In many of these cases, bankers were unsure as to whether it

^{5/} Chits were purchase orders given in lieu of cash. These chits were signed by both the PT and the bank management. Dealers submitted these chits to the bank for reimbursement but reimbursement was not always timely which delayed the dealers purchase of additional stock.

^{6/} Van der Veen, the Philippine Masagana 99 Rice Production Program of 1973, a cursory view from Cavite Rice Paddies, July, 1974.

^{7/} E.P. Mariano, Masagana 99, Special Studies Division, Department of Agriculture, Quezon City, Philippines.

was permissible to grant additional financing until the other members had harvested their crop and settled their accounts. However, the issue was settled by the PT or the banker himself observing the standing crop of the other members. If the harvest appeared good, he then granted the loan to the fully repaid farmers in order that planting not be delayed.

Farmer Use of Profits

It is impossible to draw a statistically definitive picture of the small farmer participants, including exact income or production increases. The evidence of profit is clear, however, through farmer interviews, barrio visits and interviews with appliance and equipment dealers.

The Laforteza-Reyes study ^{8/} of three Luzon provinces gives perhaps the best idea of the increase in income and uses of this income among 94 rice farmers. This evidence must be qualified by the fact that no break down was given as to M99 participants or non-participants. The study points out that the average gross income increased some 118% in 1973-1974 from ₱4,555 to ₱9,940. Of this increase 46% went to items classified as regular living expenses, 34% went to production costs. (See Appendix #9 and #10.)

Regular living items included a 31% increase in food expenditures which represented 14% of the total increased income realized by these farmers. An increase in family savings represented 9% of the total increase. 63% of these respondents indicated the increased use of their income for their children's educational expenses.

Of income used for production costs 45% went for fertilizer purchases. Other major production expenses included chemicals and fuel purchases.

Home improvements and repayments of old debts each used 10% of the total increased income reported by these farmers. Thirty nine percent of the farmers reported purchases of home appliances, radios being the most frequently purchased item with gas stoves and refrigerators ranking second and third.

^{8/} M.R. Laforteza, T.M. Reyes, "How Some Rice Farmers Used their Increased Incomes", Special Studies Division, Dept. of Agriculture Quezon City, Philippines. 1974.

The responses of farmers interviewed during provincial visits indicates that there was of course, a slight difference in farmers priority purchases from one area to another. After farmers had assured themselves of their families' subsistence needs they repaid their production loans, increased expenditures for education, made home repairs and then purchased appliances such as radio and television sets. Three farmers interviewed had purchased vehicles. Two farmers interviewed had jeeps and were making payments on four wheel tractors. A study by the Bureau of Agricultural Extension in Pampanga indicated an average sales increase of 111% among dealers of home appliances, clothing and shoes stores, furniture manufacturers and farm machinery dealers. One appliance dealer interviewed in Pampanga said that 33% of her sales were made to farmers, who paid cash except for major items such as television sets and refrigerators in which cases they chose short term financing arrangements.

Bankers reported that the volume of their short-term lending to merchants and traders had more than doubled since the implementation of the program.

Farmer Assessment of the Program

Members of the evaluation team interviewed farmer participants in the flood rehab provinces. The farmers were selected at random from each municipality where bank interviews were conducted. The size of the sample was not large enough for any statistical significance. Interviews were conducted to get a better feel for what actually happened to the participating farmer. Farmers were asked what they planned to do in the future, did they plan to participate, what input levels would they use, what would they do with any increased income? It was felt that through this approach the farmer would provide insights into the program's successes as well as failures.

Did M99 make a difference to you? All farmers responded with a loud yes. Yes, production had been increased, or would have were it not for the typhoons that struck. Yes, income was increased though, of course, not all shared equitably in the distribution of this income. Farmers were asked whether the statements they made held true for other farmer participants or no participants as well. Again, they replied yes,

though they felt that the M99 farmer gained more than those who did not join. Farmers already using "modern farming" methods, the respondents said, had gained more in terms of production than those whose membership in the M99 movement was their first exposure to the improved farming techniques.

Farmers cited the fact that as a result of participation they would be able in many cases to repay old debts. Home improvements were in evidence everywhere in the barrios visited from hollow block houses to TV antennae or in some cases new galvanized steel roofs. The interviews made it clear from both farmers and others that school enrollment at all levels had increases substantially. Some farmers reported sending their children to Manila to attend semi-exclusive schools.

It must be pointed out that many farmers, even those without loans, were reported as having been supervised by government production technologists. All farmers shared higher support prices, favorable weather conditions, and a profitable fertilizer-palay price ratio.

Will you join the M99 program again? Many of the farmers were surprised at the question. They would like to continue to participate as long as they were extended loans from the banks. Some farmers replied that their participation was only due to the high demand (and cost) of fertilizers since they had adequate capital resources to operate their farms. The major attraction of the program, they reported, was the low interest loan extended to them. Farmers expressed the wish that loans for other enterprises, particularly broiler production or hog fattening, be made available as easily as the M99 loan. They complained of the fact that the rural banks did not have adequate resources to grant them loans for diversified enterprises.

Those farmers with outstanding loans expressed concern that they would be ineligible to participate in future phases. In cases where they made partial payment they were optimistic that bankers would re-loan to them or re-structure the old debt. Though they were indebted they felt that the liberal terms of the bank loans were the only means of getting out of debt.

What are your farming plans for the next season, what will you plant, what inputs will you use? The answer to this question brought many different responses by province but answers were generally consistent within provinces. In Pangasinan, farmers planned to use less of the costly fertilizers and responded that many were planning to return to traditional varieties of rice (BE-3, Raminad) whose long vegetative growth stage, they felt would better resist the typhoon wind and rain. Of those who favored a return to traditional varieties, farmers with irrigation indicated that they would plant a modern variety in the dry season when the risks from typhoon damages were lessened. When asked to explain their reasoning, these farmers mentioned that the traditional varieties yielded as much without fertilizers, as they had harvested this past season with the recommended input levels. The fact that these farmers were indebted to the bank made them extremely conscious of risk-aversion and the price of fertilizer strengthened this position.

Nueva Ecija farmers replied that they planned to increase their fertilizer applications. There was also some mention that these farmers planned to return to traditional varieties in order to cut down on fertilizer requirements (costs).

It is my impression that most farmers did not use the full recommended amounts and there is no reason to believe that this practice would change given the present higher price of fertilizers. On the other hand, the price of fertilizer will probably dictate more expeditious use of fertilizers (better timing of application, especially) by those farmers who have experienced good results. Use of inputs will probably remain at previous use levels or decrease slightly among farmers facing high risk or those not convinced of the efficacy of fertilizer use. A few Nueva Ecija farmers on poor soils complained that they needed more fertilizers than the M99 program recommended, especially in the dry season.

Chemical use still rates high among farmers although the majority do not practice a preventive application system

What changes should be made to improve the system? Farmers interviewed were acutely aware of the price of fertilizer and the ratio

of fertilizer to palay prices. The two obvious recommendations were 1) reduce the fertilizer prices to the "old" level, and 2) increase the palay support price. Many farmers felt that only by making both the changes would they increase their production and income.

Other farmers asked that loans for other enterprises be made available to them and that an allowance for subsistence costs be included in the production loan. The rainfed farmers cited lack of water (or water control) as their principal constraint. Farmers on irrigation canals complained of planned increases in irrigation fees though their particular system needed repair to improve the service.

Some farmers complained of the technical supervision. They saw their technicians only when making loan releases. They felt that the technical force should be augmented sufficiently to permit the farmer more time and individual attention in the preparation of the farm plan as well as field supervision during planting season.

Farmers insisted that fertilizer-chemical tie-ups hindered the program in terms of their profit and suggested fertilizer stocks should be adequate so that there would be no delay in getting fertilizers. Marketing palay caused no particular problem for farmers and in most cases prices remained above government support levels.

The Bicol studies of Dr. Lynch indicates a rank-ordering of choices by farmers. (Table follows on page 55.)

Media Use

During the Masagana 99 Phase I and II the Filipino farmer could not escape the Masagana campaign. A network of rural broadcasters were on hand at 5:30 with half hour radio shows devoted to the M99 effort. In the first five months of the program some 9 million pesos of free air time had been donated to the production program. Up to 35 spots per day of M99 songs and jingles were aired over all major radio stations. Prominent billboards identified participating banks. Model farms were dotted with signboards or neatly marked by yellow plastic flags—Member of M99—. In some areas a new variety of rice was being sold in the retailer's bin... Masagana 99. Everywhere the saturation was complete. Although the media's

Development Program	Rank Order	Proportion of positive choices ^a	Number of respondents
Build more irrigation and flood control projects	1	.79	600
Help more farmers become landowners	2	.66	600
More daily-wage jobs for farmers when they are not fully occupied with farm work	3	.61	600
More free high schools	4	.53	600
Credit for more farmers	5	.49	600
Form more Samahang Nayon	6	.47	300 ^b
Build more roads	8	.43	600
More regular bus service	8	.43	600
Form more compact farms	8	.43	263 ^b
Electricity for more towns and barrios	10	.33	600
More family-planning clinics	11	.28	600

^aThe proportion of positive choices is defined as the actual number of times a particular program was chosen over another, divided by the maximum possible number of times it could have been so chosen.

^bRespondents who could not pass a test calling for basic understanding of the Samahang Nayon and ^{*}a compact farm were not asked to compare these programs with the others. (For details see No. 15 in Appendix A.)

*F. J. Lynch, S. J., What Rice Farmers Say they Want from the Government. SRO Report Series #1, Dec 73.

direct effect on production would be hard to measure, the feeling of belonging to a unique production effort was contagious. (See Appendix #11 for sample material.)

Whereas optimum use has been made of media for promotional purposes, it is not clear that all resources of the government have yet been tapped for information and education.

The Samahang Nasyon is a case in point where a beginning effort is underway which should have great implications for the modernization of Filipino agriculture. As now planned it could become a formidable force in the mobilization of local savings and the dissemination of agricultural technology. The Samahang Nasyon's farmer training program is proceeding with a mass adult education program for all members. The Samahang Mayon, farmer association program, is developing skills of members to prepare them for effective participation in and management of production and service cooperatives as well as better, more productive farmers and citizens.

Section III

A, PAMPANGA And MASAGANA 99*

Introduction:

U.S.A.I.D. and NFAC staff conducted a follow-up study of the Masagana 99 program in the province of Pampanga. The main objectives of the study were:

1. To determine the effects of the program towards increased rice production;
2. To identify program components which would be effective in the attainment of its goal;
3. To determine the weak spots and constraints in the program;
4. To assess farmer's response and acceptance of the program.

The respondents of the study were those persons and personnel who were directly and indirectly involved in the program, such as the Provincial Program Officer, Technicians, Farmers, Rural Banks and Philippine National Bank, Input Dealers, Municipal Development Workers of DLGCD, Mayors of different Municipalities, the Governor of Pampanga, the Provincial Manager of the National Grains Authority, appliance dealers and farms equipment dealers.

Nine out of the twenty-two municipalities in Pampanga which were included in the program were visited. These are as follows: Bacolor, Candaba, Guagua, Lubao, Magalang, Porac, San Fernando, Sta. Ana and Santo Tomas.

* By Arturo Dancil, Agricultural Planning and Evaluation Service, National Food and Agriculture Council of the Philippines.

I. Organization

There is a strong network of organization of Masagana 99 program implementation in the province of Pampanga. The Provincial Action Committee (PAC) headed by the Governor meets every last working day of the month wherein progress as well as problems and constraints encountered in the program are discussed and possible solutions to the problem are recommended at the meeting.

Technicians were required to organize their own Municipal Action Team wherein the Mayor acts as the Chairman and Technician Team Leader assigned in the area as the Vice-Chairman. Problems encountered at the field level should be solved right there and if the problems could not be solved, the Provincial Action Committee is notified. If it is still unsolved, the advice of the National Management Committee is sought for.

The financing institutions participating in the program are required to submit their report every 15th and 30th of the month for the purpose of not delaying reports which the Management Information Services of NFAC-BAECON-USAID is requiring the province to submit.

The input dealers are also required to submit fertilizer stock position for the month. The report includes the total withdrawal of fertilizer for the month, distributions made, numbers of farmers served, and hectareage. This helps in counter-checking the diversion of fertilizer inasmuch as Pampanga is also a sugar export crop producer.

Every 30th of the month is designated as Production Technician's meeting. At this time, they have to submit accomplishment report, discuss with the groups the problems which they have encountered and possible solutions and opinions from the group and the Provincial Program Officer. It is also at this juncture where memoranda, instructions and circulars coming from the Central Office as well as the Provincial office are discussed thoroughly by the PPO and the Rice Supervisors. In case there is an urgent instruction or visitor coming from the Central Office, a special meeting can be held with all the technicians because they can be easily contacted through a two-way radio connecting all Municipalities of the province.

The efficient management of the Provincial Program Officer and his

personnel is something to be noted. The PPO and the Rice Supervisor are always on the lookout. Spot inspection of the technicians, Farmer-cooperators, input dealers, banking institutions is always done. The Rice Supervisor acts like "little PPO's" on matters and problems within the area.

II. Loaning Operation

- A. Eighteen (18) rural banks and Four (4) Philippine National Banks and one (1) Agricultural Credit Administration participating in the program.
- B. Data as of October, 1974 showed that ₱81,403,544 has been released for the three (3) phases of the program. Phase I release is ₱26,127,010.00; second phase is ₱12,824,493.00 Phase III is ₱42,452,041.
- C. October 1974 loan repayments showed a 96% for Phase I and 91% for the second phase and a very low repayment for Phase III which is a typhoon damage cropping season.
- D. Due to different calamities that hit the province, a total of ₱8,647,265.00 has been restructured which includes the three phases of the program.

III. Production

The rate of production increased from 35 before Masagana 99 to 65 to 69 cavans per hectare, or an increase of 30 to 34 cavans per hectare. The production Phase I of the program was 5.5 million cavans, Phase II 6.5 and Phase III 7.5 million cavans.

IV. Components of the Program that Tend to Increase Production

- A. Farmers have learned to avail themselves of liberalized credit schemes of the program, wherein before they had a hard time getting capital for their field operation.
- B. They have learned to use the improved cultural practices imparted to them by the Production Technicians.
- C. They have learned to apply fertilizer and control of pest diseases through the use of recommended chemicals for insecticides.

D. Due to the use of early maturing varieties, it is now possible for them to grow two and sometimes three crops in one year of operation on irrigated areas. This was learned through the extension services that the technicians are doing. Other supplementary factors are through reading materials distributed by the different bureaus.

V. Information Given By

A. The Provincial Program Officer reported that:

1. The Province of Pampanga was badly hit by typhoons almost seven times in one year reduced the rate of yield during Phase III, but in spite of these series of typhoons, an increase in production was noted.
2. Due to flood that carries sand, siltation occurs on some ricefields. An overflow of the Abacan-Kitangil and the Pasig-Potrero River which affects around seven municipalities in Pampanga made rice production impossible on this area at present.
3. On this silted areas, multi-cropping patterns are recommended. Fruits, Legumes, and melon are planted on the silted areas. Some farmers realized that they profit more from this secondary crop.
4. Some farmers have shifted to feedgrain production such as corn and sorghum since there is also a financing program for these crops.

Action Taken by the Provincial Government:

1. There is an urgent need to construct dikes and drainage facilities on these flood stricken areas. Seven million pesos was appropriated and released to carry out the project. This needs to be finished before the onset of the rainy season.
2. There is a decrease in the number of fertilizer bags that farmers are withdrawing. This decrease is brought about by the increased price of fertilizer and the support price of palay which remains at ₱1.00 a kilo. The increased

price of fertilizer is almost 100%.

3. A total of 2,600 units of irrigation pumps have been installed in the province of Pampanga since the start of the program. This coming June, 95 units of ten-inch pumps will be installed, which can irrigate more than 3,000 hectares. This is a joint project of the National Electrification Administration-National Irrigation Administration-Development Academy of the Philippines and the Provincial Government.
4. Four Rural Banks have been tapped to implement the Integrated Financing Program which will partly solve the non-repayment of rice loans since farmers will have other sources of income.
5. The tenant Emancipation Act has helped a lot of tenant farmers. Ten thousand land certificates have been distributed. At present, the average landholding is 2.6 hectares.
6. Strengthening the farmers activities by asking them to join the Samahang Nayon which is one of the requirements before a land could be granted to them and one of the medium where improved cultural practices could be imparted.

All the above-mentioned information in one way or another brought an effect on the production performance of our rice program. There is now improvement in the standard of living of our farmers as seen in the following evidences:

- a. Farmers now can afford to send their children to school, most of them pursue collegiate courses.
- b. Some can now afford to buy appliances such as radio, television and refrigerators.
- c. Some farmers now own their (hand) tractor, while others own irrigation pumps.
- d. Farmers are not ashamed to transact business with the bank whereas before they had to go to loan sharks and usurers.

A survey conducted by the Provincial Office last January 8, 1974 with business establishment purchasing power of farmers on household

appliance, clothing, shoes, farm machinery and furniture have gone to 100%.

B. Financing Institutions

The following are the recommendations given by the different Rural Banks and Philippine National Bank branches participating in the program;

1. Use of the same Farm Plan and Budget for those regular bank borrowers and good creditors.
2. Addition of more government technicians to fully supervise their farmer-cooperators.
3. Some rural banks want to hire their own technicians and will be working with the bank on a full-time basis which the government technicians cannot do.

Masagana 99 is a good drive on increased rice production. Farmers have learned how to use the banks and its good business for them.

C. Farmers

Masagana 99 has done a lot by changing the old systems of rice production. Changes are noticed in the use of High Yielding Varieties, fertilizer application, use of chemical and insecticides. Loans are always available at a very low interest rate.

If Masagana 99 will be phased out, the tendency of farmers is to go back to the old system of:

1. Getting loans from usurers and loan sharks at a very high interest rate.
2. Getting production loans from landlord, which greatly affect the sharing basis.
3. Going back to the old system of rice production.

D. Technician's Suggestions:

1. That the service fee deduction of 1 to 2% for every loan of the farmer be removed inasmuch as there is already a 5% deduction for every loan released to the farmer for the Samahang Nayan.
2. That their area coverage be reduced to 75 to 100 farmer-Cooperators.

3. That for every loan granted to farmers by the bank a subsistence of ₱100 to ₱200 in cash or in kind be included.
4. That all farm credit supervisors of the Philippine National Bank be agriculture graduates.

VI. Recommendations:

1. That there is a need to increase the degree of farmers application of the knowledge gained on improved cultural practices.
2. More effort should be utilized in collecting loans repayment for Phase III because records of loan repayments of Phase III indicate that there is still a big balance to be collected.
3. To those farmers that are really damaged by typhoon, there is a need to restructure their loans so that they can pay their previous loans.
4. Masagana 99 needs to be continued inasmuch as farmers are not yet prepared to stand on their own feet without the assistance from the government, especially on the credit aspect of the program.
5. A massive flood control system be implemented to avoid heavy damage on crops and human lives.

B, PANGASINAN and MASAGANA '99*

The Masagana '99 Rice Production Program in the province of Pangasinan represents 3.45% of the target area of the whole program. The program during the Phases I and II was fairly successful in terms of increased rice production. Farmers experienced better net income and banks financing the program had fairly good loan repayments. However, the advent of several destructive typhoons during Phase III have caused considerable crop damage so that farmer-borrowers at most are able to make partial payment of their loans and in extreme cases are unable to pay at all.

As the Program progress towards Phase IV, fertilizer prices increased as much as 75% while palay prices increased only from ₱45.00 to ₱50.00 per cavan. With this as background what are the prospects of this program in developing an institution wherein it becomes self-sustaining without full government support and prompting? Were linkages which developed between farmer-borrower, financing institutions, and government technicians developed during Phases I and II firm enough to withstand present apparent difficulties due to low repayment? Was enough goodwill, confidence and trust generated between segments in the program which still manage to keep the program moving?

The development of a favorable relationship between the different segments in the program, particularly between the farmer and the banks, depends on several factors. These factors include: Social values in the community, potentialities of the area, efficiency and production capacity of the farmers in the area and the attitude of the bank and the farmers towards each other.

The rice producing areas in the province may be grouped into those areas which are well irrigated both during the wet and dry months. These are represented by the areas financed by the Rural Banks of Mangatarem, Asingan, Binalonan and Lingayen P.N.B. The other portions are those with intermittent irrigation and rainfed areas that can grow rice only during

* By Manuel de Leon - Agricultural Program Evaluation Service, National Food and Agriculture Council of the Philippines.

the wet season. These areas are represented by those financed by the Rural Banks of Galasiao, Kaluyagan, Lingayen and P.N.B. Dagupan.

Banks in the first group (financing irrigated areas) are optimistic in spite of the setbacks experienced. They are slowly phasing out their collateral-oriented loaning towards supervised credit financing. Barring force majeure, with the continued goodwill they have tried to develop with the farmers, and by increasing of savings deposit in their banks they feel that they may be able to continue on their own in the near future. The increased income brought about by Phase I and II has also increased the volume of short term loans of small traders thus also increasing their bank income from these sources.

Farmers in fully irrigated areas because of good yields in Phases I and II were able to improve their living conditions. This is indicated by their being able to afford to send their children to school and through college, improve their dwellings and enable them to buy some furniture, radios and other appliances. A farmer interviewed in Mangatarem stated that inspite of having a very poor production he is still paying part of his loan in order to maintain the confidence of the bank. That by partial payment of his loan the Bank will still extend him loans so that these will be sufficient for fertilizers and insecticides and other farm chemicals. He further stated without the Masagana program he will still be in debt to "loan sharks" and "would not be able to send his son to college in Manila". He said that because of these circumstances he will now do his own plowing and his children who are in school can help him in other routine farm work during weekends. Because of crop failure during Phase III a group of farmers interviewed in Asingan and Binalonan reported they were thinking of planting local varieties which need less fertilizers and have longer vegetative growth stages so that they flower during the months free from typhoons. However, during the dry season they plan to stick to the high yielding varieties because of their better yield potential. Many of the farmers in these areas are now on lease basis so that they are enjoying results of their efforts to increase production.

Banks financing intermittently irrigated and rainfed areas, where

only a single crop of rice can be grown are still not very truly convinced of the merits of "supervised credit" system. They feel that the farmers in their areas are not yet prepared for this credit scheme. One bank manager stated that in their area it will still take time for farmers to change their attitudes towards proper loan utilization and prompt repayment. Some bank managers feel that farmer's attitudes on loans will be conditioned by his productivity. To insure better income for farmers in their areas so they can recover more quickly from the setbacks experienced in Phase III, some banks are extending production loans for peanut and mungo production. These crops are also "supervised credit." They are also extending loans on hog fattening and poultry production.

Interviews with farmers in these partially irrigated and rainfed areas revealed that most of them are still share tenants. This sharing system is split 50-50 after subtracting the cost of inputs and other expenses. Agrarian reform has not yet been implemented in these areas because landownership is well below 7 hectares. Farmers cultivating above one hectare usually have two or even three landlords. With this sharing system it seems that the farmers are not yet able to enjoy the better part of the increased production brought about by the M99 program. However, with the banks trying their best to reorient farmers attitudes, helping them to be more productive by expanding loans, and the zeal shown by production technicians in improving farm technology, it is hoped that the farmers may be able to increase their income and may soon enjoy the increased benefits due to the Masagana Rice Production Program.

C. NUEVA ECILJA*

Some Observations Relating to the Masagana 99 Program

Farmers

Reasons for Joining the Program

The Masagana rice production program has provided farmer-cooperators production loans without collateral at low interest rates (12% per annum). This was primarily one of the reasons farmers joined the program. Other reasons included: acquiring fertilizer at subsidized prices and availing of production technicians advice on new methods of improved cultural practices on rice production.

Nueva Ecija was one of the pilot provinces for land reform. Most of the farmers have been awarded land transfer certificates and if not, tenure status has at least been changed from the tenancy system to the leasehold system. Most farmers in Nueva Ecija are leasee and the rest are share-tenant, owner-operator, part owner or lease/tenant.

With the change of tenure status, farmers were weaned from the financial support of the landlords and were left on their own to finance their farms operations. At an average of 2.5 hectares per farmer, the cost of production involves considerable amounts of money that a farmer of Nueva Ecija with his present status could not afford.

Before Masagana 99, the usual sources of credit for farmers were the landlords, relative, millers, input dealers, or other private money lending individuals who usually extend credit at very high rates of interest. That is why most of the farmers interviewed have shown deep regard for the loans extended to them by the Masagana 99 system. Farmers of Nueva Ecija who have suffered crop failures, for fear of losing credibility with the bank, even go to the extent of selling some animals or livestock just to pay M-99 loans. If M-99 loans were stopped, they said, they will try to revert to borrowing from the usual money

* By Mario Tombong, Agricultural Program Evaluation Service, National Food and Agricultural Council of the Philippines.

lenders or plant traditional varieties which do not require the use of fertilizers and chemicals. They would probably not go back to their landlord.

Increased Income of Farmers

Increased production was noted among farmers who joined the M-99 program. Yields almost doubled or tripled from previous harvests before Masagana 99 under normal conditions. This was attributed to increased use of fertilizers, chemicals, use of high yielding varieties and application of the new method of agricultural practices.

Increased income of farmers was indicated by increased expenditures for food, clothing and education. Special items such as appliances, furniture, farm equipments, repayments of old loans and home improvements were noted.

However, as regards to production costs, only a few farmers were noted to have enough savings for such purpose. The majority of the farmers are totally dependent on the production loans extended by the lending institutions under the Masagana 99 program.

Problems/Recommendations of Farmers

1. Subsistence. Farmers who depend totally on rice farming have been encountering problems on subsistence. Though farmers have acquired loans from M-99, some still go to outside money lenders for subsistence. Farmers have suggested including cost of subsistence in the farm plan and budget.

2. Increased prices of fertilizer and low buying price of palay. Farmers have indicated some complaints on this. Net income of farmers were reduced due to high cost of fertilizers, chemicals, labor and other cost of production. This was suggested to more or less lessen the gap of the prices of fertilizers and other costs of inputs and the cost of palay.

3. Inadequate fertilizer allocation. The six (6) bags of fertilizer per hectare allocation is inadequate, they said. Farmers through their own experience still need at least 8 or 9 bags per hectare during the palagad (dry season) cropping.

Marketing of Produce

Farmers have not indicated problems regarding marketing of palay. They usually bring their palay to private traders or private traders go to the farm to purchase palay. It was further noted that the ex-farm prices of palay rarely goes below the price support of the government. However, farmers still complain of the palay price as compared to the new price of fertilizer.

Production Technicians

Coverage

The average number of farmers supervised ranges from 150-300 farmers per production technician. This workload is rather too much for efficient supervision of farmer-cooperators. This does not include non-participants (farmers without loans) who also need supervision.

Assistance extended to farmers

The most important type of assistance given by production technicians under the M-99 program was the preparation of the farm plans and budgets for loan acquisition. Other assistance included the expediting of the acquisition of needed inputs such as fertilizers and chemicals and recommended high yielding variety seeds.

Farmers have noted that production technicians were indispensable to the program. Advice on the new/improved practices of rice culture was primarily provided by production technicians and secondly from other neighbor farmers. These practices included the proper identification of plant pests, diseases and their control, proper use of plant protection chemicals and fertilizers and advice on the marketing of palay.

Production Technicians Preparations/Background

Basically, production technicians are agriculture graduates and have undergone some type of training. Training was mostly on rice production, plant pest and disease control, supervised credit and technicians development.

Production Technicians Mobility

Since the area of supervision/coverage of production technicians

is very wide, mobility of technicians is still considered the foremost problem to be solved. Some technicians have availed of transportation facilities such as the motorcycle extended by NFAC thru the Special Vehicle Loan Fund. This mobility should be encouraged among RB technicians also.

Recommended Changes by Production Technicians

Reports have indicated that production technicians have some recommendations to improve the Masagana 99 system. Above all the following were:

1. Making inputs available on time at rather lower rates.
2. Transportation facilities for technicians should be provided.
3. Irrigation facilities to be tied up with the planning and programming of planting cycles.

Banks

Credit Agencies Involvement in M-99

1. Rural Banks (RB)
2. Philippine National Bank (PNB)
3. Agricultural Credit Administration (ACA)

To reach as many farmer-cooperators as possible the Rural Bank, PNB and the ACA were tapped for financing the program. Special Time Deposits (STD) were provided to the RB by the Central Bank. These two (2) lending institution was supplemented by the Philippine National Bank.

Bank Extent of Participation in the Program

It was gathered from banks visited that the extent of participation in M-99 as against banks total investment were:

Rural Bank - ranges from 4.4% to 75%

Philippine National Bank branches - ranges up to 75%

No inquiries were made of the ACA.

Repayments

Rural Banks and Philippine National Banks have registered good repayment rates in the OPAL, Phase I and Phase II operation. Phase III however has a very low repayment rates. This is due to series of calamities that hit the province.

The rural banks of Gapan and Cabiao, however, have good repayments

for Phase III, 72% and 65% respectively. (As of Jan, 27, 1975). No information gathered indicated earlier harvest among these farmers who thus avoided heavy crop losses.

Reasons for good repayment rates

Some of the good reasons were:

1. Good coordination and cooperation of the municipal mayors, barrio captains and production technicians;
2. Established good rapport of bankers and technicians with the farmer;
3. Good management by bankers. Internal evaluation of reports/situations are being done by some managers and this makes it easy to take necessary actions.

Problems encountered by Lending institutions:

1. In the first phase of M-99, difficulty in the formation of seldas was due to the reluctance of farmers to joint liability (farmers generally don't trust each other).
2. Lack of personnel to manage the program, since technicians had too much paper work.
3. Rotating assignments of production technician's brought about problems of collections.
4. Payments of guaranteed loans from the Land Bank is very slow.

Suggestions/Recommendations from Banks

1. Increase number of production technicians and lessen paper work.
2. Avoid rotation of technician's assignments.
3. Closer coordination between technicians and lending institution.
4. Additional loans for subsistence and other related expenses during the cropping season.
5. Banks to extend integrated financing with only one (1) loan document.
6. That Central Bank give more lee-way regarding rediscounting.
7. For banks who have established close rapport among farmers to do away with selda system to facilitate loaning operation.
8. The management committee to meet with rural bank managers to discuss matters related to field operations of the banks in order for some policies to be more flexible.

SECTION IV

APPENDIX

1. Contacts
2. Bibliography
3. Glossary
4. Agencies and Their Responsibilities
5. Interview Guides
6. Rural Bank Profitability
7. Loans by Tenure
8. Interest Paid by Tenure
9. Average Use of Increased Incomes
10. Appliances Etc Purchased
11. Economics of Fertilizer Usage

Appendix 1

PRIMARY CONTACTS

Arturo Tanco, Secretary of Agriculture
Jose Drilon, Under Secretary of Agriculture
Domingo Panganiban Director, National Food and Agriculture Council
Eduardo Quisumbing, Deputy Director, National Food and Agriculture Council
Virgillo Carangal, Assistant Director, National Food and Agriculture Council
H. V. Castillo, Acting Director, Bureau of Agricultural Economics
Honesto Jimenes, Director, Central Bank Dept. of Rural Banks
Zosimo Q. Topacio, Deputy Director, Central Bank Dept. of Rural Banks
Manuel V. Soliven, Vice President, Philippine National Bank
Mauro Amutan, Director, Evaluation, NFAC
Dr. J. Pecsí, Director Plans NFAC
Rosendo Marquez, Under Secretary, Dept. of Local Government & Community
Development
Orlay Sacay, Under Secretary, Dept. of Local Government & Community Development
Marcelino Cosio, Director Plans, Department of Local Government and Community
Development
R. P. Binamira, President, Green Revolution
Sixto Roxas, President, Bancom
Ben Villavicencio, Director External Office, National Economic Development
Agency
Ida Librero, Director, Philippine Council on Agricultural Research
Gelia Castillo, University Philippine, Los Banos
Ernesto Barientos Univ. Philippine, Los Banos
R. M. Torres, Univ. Philippine, Los Banos
Mary Hollensteiner, Institute of Philippine Culture
Frank Lynch, S. J., Institute of Philippine Culture
Thomas Niblock, Director USAID
John Hummon, Deputy Director USAID
Frank Sheppard, Ag Chief, USAID
Don Mitchell, Acting Ag Chief, USAID
Norm Ulsaker, Agr. USAID
Ken Smith, Agr USAID

PRIMARY CONTACTS (Continued)

Keith Sherper, Agr USAID

Reeshon Feuer, Agr USAID

Louis Gleek, Agr USAID

Ray Cohen, Prog. Off. USAID

Paul Groves, Asst Prog Off USAID

Dick Delaney, Asst Prog Off USAID

Dennis Chandler, AID/W

Dave Christianson, AID/W

Robert Morrow, AID/W

Glenn Samson, Agriculture Attache

G. E. Deariso, Asst. Agriculture Attache

Randolph Barker, International Rice Research Institute

Robert Herdt, International Rice Research Institute

Eugene Ross, International Rice Research Institute

Lawrence Darrah, Special Studies, Dept. of Agriculture

Harry Oshima, Rockefeller Foundation

Brent Ashabrenner, Ford Foundation

Theodore Chobanian, Asian Development Bank

R. W. Rosskelly, International Institute for Rural Reconstruction

Claudio Gonzalez-Vega, Stanford University

Dale Adams, Stanford University

Appendix 2

BIBLIOGRAPHY

- Abarientos, Ernesto. DECISION MAKING ON 200 LAGUNA FARMS, 1975. Dept. of Agricultural Economics, U.P. Los Banos. Unpublished report.
- Amutan, Mauro E. AGRICULTURAL PROGRAM EVALUATION SERVICES ANNUAL REPORT FROM JULY 1973 to JUNE 1974. 1974. Agricultural Program Evaluation Services, National Food and Agriculture Council (NFAC), Dept. of Agriculture, Quezon City, Philippines.
- Amutan, Mauro E. CASE STUDY ON MASAGANA 99 RICE PRODUCTION PROGRAM. 1975. Agricultural Program Evaluation Services, NFAC, Dept. of Agriculture, Quezon City, Philippines.
- Amutan, Mauro E. PERFORMANCE EVALUATION ON PROGRAM IMPLEMENTATION OF MASAGANA 99 RICE PRODUCTION PROGRAM (PHASE I). 1974. Agricultural Program Evaluation Services, NFAC, Dept. of Agriculture, Quezon City, Philippines.
- Amutan, Mauro E. PERFORMANCE EVALUATION ON PROGRAM IMPLEMENTATION OF MASAGANA 99 RICE PRODUCTION PROGRAM (PHASE III). Agricultural Program Evaluation Services, NFAC, Dept. of Agriculture, Quezon City, Philippines.
- Asian Research Organization. DISASTER FERTILIZER PROJECT. 1974.
- Barker, R. and R. Herdt. SOME ECONOMIC ISSUES TO CONSIDER FOR WOULD-BE PRODUCERS OF RICE UNDER GENERAL ORDER 417. Nov. 6, 1974. Agricultural Economics Dept., International Rice Research Institute, Los Banos.
- Castillo, Gelia T. ALL IN A GRAIN OF RICE: A REVIEW OF PHILIPPINE STUDIES ON THE SOCIAL AND ECONOMIC IMPLICATIONS ON THE NEW RICE TECHNOLOGY. 1973. U.P. Los Banos.
- DIVERSITY IN UNITY: THE SOCIAL COMPONENT OF CHANGES IN RICE FARMING IN ASIAN VILLAGES. 1975. U.P. Los Banos.

- Central Bank of the Philippines/Dept. of Rural Banks and Savings and Loans Association. MONTHLY STATUS REPORTS ON MASAGANA 99 LENDING.
- Cuyno, Rogelio V. ORGANIZING FOR CHANGE: A TEMPORARY COOPERATIVE SYSTEMS STRATEGY FOR GENERATING AND DIFFUSING AGRICULTURAL KNOWLEDGE. 1975. U.P. Los Baños.
- Delgado, David A. and Kenneth F. Smith. PROGRESS REPORTING ON SUPERVISED CREDIT PROGRAMS - THE MASAGANA 99 EXPERIENCE, PHASES I and II. Sept. 1974. USAID/Manila.
- Dosayla, E.D. and L. B. Darrah. HOUSEHOLD INVENTORIES OF RICE AND CORN. 1973. Marketing Research Unit, NFAC, Dept. of Agriculture, Quezon City, Philippines.
- Dosayla, E. D. INCOME AND FOOD CONSUMPTION. 1973. Marketing Research Unit, NFAC, Dept. of Agriculture, Quezon City, Philippines.
- Feuer, Reeshon. RICE PRODUCTION SITUATION. 1975. USAID/Manila.
- Feuer, Reeshon. THE INTERNATIONAL RICE RESEARCH INSTITUTE OUTREACH TO THE PHILIPPINES. 1975. USAID/Manila
- Gonzales-Vega, C. A STUDY OF PHILIPPINE RURAL BANK LENDING, unpublished manuscript. 1974.
- Guino, Ricardo A., Eloisa A. Labadan and Randolph Barker. APPROACHES TO PROBLEMS OF DATA COLLECTION. 1974. Agricultural Economics Dept., IRRI, Los Baños.
- Hankins, Allen C. and Frank W. Sheppard, Jr. PHILIPPINE RICE PRODUCTION PROGRAM - MASAGANA 99. July 5, 1973. Airgram to AID/Washington, No. 221.
- Hankins, Allen C. PROGRESS REPORT ON OPERATION PALAGAN AND MASAGANA 99 - PHASE I, Nos. 1-6. Jan. 1973-1974. USAID/Manila.
- Harkin, Duncan A. SOME DISTRIBUTIONAL CONSIDERATIONS IN THE PHILIPPINE LAND REFORM. USAID/Manila. Nov., 1974.

Hayami, Yujiro and Robert W. Herdt, THE IMPACT OF TECHNOLOGICAL CHANGE
IN SUBSISTENCE AGRICULTURE ON INCOME DISTRIBUTION, 1974.
Agricultural Economics Dept., IRRI Los Banos,

Herdt, Robert W. and Thomas H. Wickham, MAJOR CONSTRAINTS TO RICE
PRODUCTION WITH EMPHASIS ON YIELDS IN THE PHILIPPINES, 1974.
Agricultural Economics Dept., IRRI Los Banos.

Institute of Philippine Culture, VIEW FROM THE PADDY, an empirical
study of Philippine Rice Farming and Tenancy. Jan-April, 1972.
Frank Lynch, S.J., editor. p. 274.

International Institute for Rural Reconstruction. THE FARMER SCHOLAR
APPROACH, 1975. Silang, Cavite.

International Rice Research Institute. ANNUAL REPORT 1973. Agricultural
Economics Dept., IRRI, Los Banos.

La Forteza, M. R. - Reyes, T. M. HOW SOME RICE FARMERS USED THEIR
INCREASED INCOME, NFAC - 1974. Special Studies Division,
Office of the Secretary, Dept. of Agriculture., Quezon City.

Lynch, Frank. SSRU Report Series #1, WHAT RICE FARMERS OF CAMARINES
SUR SAY THEY WANT FROM THE PHILIPPINE GOVERNMENT. Dec. 1973.
Social Survey Research Unit (SSRU), Ateneo de Naga, Naga City.
G-324 IPC, P.O. Box 154, Manila.

Lynch, Frank. SSRU Report Series #, RICE FARM HARVESTS AND PRACTICES
IN CAMARINES SUR: DO COMPACT FARMS, MASAGANA 99 AND THE
SAMAHANG NAYON MAKE A DIFFERENCE? Sept. 1974. Ateneo de Naga,
Naga City.

Lynch, Frank & Barrameda, Jose V. Jr. SSRU Report Series #3, THE
MASAGANA 99 DELIVERY SYSTEM: HOW WELL DOES IT WORK IN
CAMARINES SUR? Oct. 1974. Ateneo de Naga, Naga City.

Lynch, Frank. VIEW FROM THE PADDY. Institute of Philippines Culture. 1973.

Management Information System. RICE SITUATION PROGRESS REPORTS #1-19,
NFAC-BAECON-USAID reviews of planting, harvesting, and credit
information for the Masagana 99 program. NFAC, Dept. of
Agriculture, Quezon City.

Mangahas, M., V. Miralao and R. de los Reyes. TENANTS, LESSEES, OWNERS: WELFARE IMPLICATIONS OF TENURE CHANGE. July 1974
Institute of Philippine Culture, Ateneo de Manila, Quezon City.

Manto, J. M. and R. D. Torres. SOURCES AND COST OF CREDIT TO RICE FARMERS ON CENTRAL LUZON. June 1974. Marketing Research Unit, NFAC, Dept. of Agriculture, Quezon City. (A Study of 335 rice farmers, the amount of capital they borrowed and interest paid to both institutional and non-institutional financing sources.)

Mariano, E. P. MASAGANA 99. Oct. 1974. Special Studies Division, Office of the Secretary, Dept. of Agriculture, Quezon City.
(The performance of 1,422 Masagana 99 and non-Masagana 99 farmers and bankers was measured to gauge program success.)

National Credit Workshop Papers:

- a. Abarientos, E. Commentary Paper Workshop #1.
- b. Central Bank of the Philippines/Dept. of Rural Banks and Savings and Loans Association (CB/DRBSLA). THE SMALL FARMERS' CREDIT PROGRAM OF CB/DRBSLA AND THE RURAL BANKING SYSTEM - AN EVALUATION.
- c. Philippine National Bank. EVALUATION OF SMALL FARMER CREDIT PROGRAMS.
- d. Philippine National Bank. MONTHLY LOAN STATUS REPORTS ON MASAGANA 99.
- e. Villega, P. Discussion Paper Workshop #1.

(The National Credit Workshop was sponsored by the Dept. of Agriculture on Sept. 25, 1974 at the Development Academy of the Philippines. There were 5 workshops dealing with the Agricultural Credit Sector: Workshop #1 - The Small Farmer Credit Program; #2 - Needs and Sources of Agricultural Credit; #3 - The Collection Problem; #4 - Coordination Among Agencies; #5 - Agrarian Reform.)

Project Agreement No. 492-11-995-255 and Revision No. 5. Accelerated Rice Production. U.S. Agency for International Development. Dec. 1972

Project Agreement No. 492-55-130-259. Small Farmer Income and Production Project. U.S. Agency for International Development. Oct. 1974.

Ravenhold, A. SO MANY MAKE FOR MALNUTRITION, Field Staff Reports Vol. XXII No. 5. American University Field Staff.

Robinson, D. and D. Delgado. FOLLOW-UP SURVEY, OPERATION PALAGAD (OPAL). July, August, October 1973. USAID/Philippines, Nov. 1973.

Sacay, Orlando, SMALL FARMER CREDIT IN THE PHILIPPINES, SPRING REVIEW OF SMALL FARMER CREDIT.

Santos, C. L. and E. Aniquetero, HOUSEHOLD STORAGE STOCKS OF RICE AND CORN FOR FOOD, SALE, FREED AND SEED. Aug 1974. Special Studies Division, Office of the Secretary, Dept. of Agriculture, Quezon City.

Santos, C. L. and L. B. Darrah. STORAGE STOCKS OF RICE AND CORN FOR HOME USE. March 1974. Marketing Research Unit, NFAC, Dept. of Agriculture, Quezon City.

Smith, Kenneth F. Fertilizer Distribution Project, August-December 1974, "The Anatomy of a USAID Project" January 1973. USAID/Manila.

_____ Project Appraisal Report (draft), Operation Palagad '73 Oct. 1974. USAID/Manila.

_____ Memo to AID Mission Director. "Philippine Rice Production for Crop Year 1974-75". Nov. 29, 1974. USAID/Manila.

_____ MANAGEMENT INFORMATION SYSTEM PROGRESS REPORT #1. 1975. USAID/Manila.

Soliven, M. CUMULATIVE PICTURE OF THE MASAGANA 99. Sept. 1974. Philippine National Bank, Escolta, Manila.

Sycip, Gorres, Velayo & Co. REPORT ON OPERATIONS AUDIT OF THE MASAGANA 99 ACCELERATED RICE PRODUCTION PROGRAM. 1973, Manila.

Van Der Veen, Marlin. THE PHILIPPINE MASAGANA 99 RICE PRODUCTION PROGRAM OF 1973: A CURSORY VIEW FROM CAVITE RICE PADDIES, July 1974. IIRR, Silang, Cavite.

GLOSSARY*

Participating Agencies/Parties

- USAID - United States Agency For International Development
NEDA - National Economic Development Authority
NFAC - National Food and Agricultural Council
BPI - Bureau of Plant Industry
BAE - Bureau of Agricultural Extension
CB - Central Bank of the Philippines
 a. DRBSLA - Department of Rural Banks and Savings and
 Loan Associations
 b. DLC - Department of Loans and Credit
RBAP - Rural Bankers Association of the Philippines
PNB - Philippine National Bank
ACA - Agricultural Credit Administration
NIA - National Irrigation Administration
NGA - National Grains Authority
NGA - AWM - National Grains Authority Agent Warehouse - Miller
FIP - Fertilizer Institute of the Philippines
FIA - Fertilizer Industry Authority
APIP - Agricultural Pesticide Institute of the Philippines
UPCA - College of Agriculture, University of the Philippines
IRRI - International Rice Research Institute
Dealers - fertilizer and pesticides dealers designated by FIP
 and APIP to serve the farmer-borrowers.
PO - Provincial Program Officer - the chief executive officer of the
 NFAC at the provincial level.
PT - Production Technician - the field representative of the NFAC
 assigned to the participating rural bank to give technical
 guidance to rice farmers throughout the duration of the
 program.
PAC - Provincial Action Committee - the implementing committee at
 the provincial level.
MAT - Municipal Action Team - the implementing arm at the municipal
 level.

Terms

1. Supervised Farm Credit - A system of lending that includes the provision of technical services to farmer-borrowers to ensure that the borrower adopts, with the help of the loan granted to him, recommended practices designed to increase his productivity and income.
2. Central Luzon - The area composed of the provinces of Bataan, Bulacan, Nueva Ecija, Pampanga, Pangasinan, Tarlac and Zambales.

*Sycip, Gorres, Velayo. Report on Masagana 99, Dec. 73

GLOSSARY (Continued)

3. Farmer-cooperator - A rice farmer who meets the following requirements:
 - a. He is engaged in rice production.
 - b. He is ready to commit to (1) use certified HYV seeds, (2) follow the practices prescribed by the production technician (PT), (3) obtain the chits from the attending PT/RB technician and procure the inputs at the dealer on outlet indicated, and transport same to his farm, (4) apply the inputs at the time and in the manner specified by the PT/RB technician, (5) deposit agreed quantity of palay-produce at the warehouse indicated in the promissory note, and (6) pay prescribed irrigation fees.
4. Farmer-borrower - A qualified farmer-cooperator who avails of loans under the Program and is willing to abide by its rules and regulations.
5. "Damayan" or "Selda" - A group of 5 to 15 farmer-borrowers who cultivate a compact farm area and are usually related by blood or marriage. The members of the group are jointly and severally liable for any loan or loans obtained by any member from the rural bank under the Program.
6. HYVs - High Yielding Variety Seeds - Any of the following variety of seeds: IR20, C-4-63, C-4-63G, C-4-137, C-12 and BPI-76-1.
7. "Certified" Seeds - Registered HYV seeds produced under full supervision from planting to harvesting by the seed inspectors of the Bureau of Plant Industry (BPI). Such seeds are 98% pure.
8. "Good" or "Emergency" Seeds - These are second generation "certified" seeds and are about 92% pure.
9. Special Time Deposit (STD) - The form in which funds are released by Central Bank Department of Rural Banks and Savings and Loan Associations to participating rural banks for their loaning operations under the Program.
10. Production Loans - Loans granted to farmers under the Program amounting to a maximum of ₱700 per hectare (₱900 per hectare in Laguna). A production loan consists of a "cash portion" not exceeding ₱320 per hectare and an "input portion" of not over ₱ per hectare, consisting of fertilizer, herbicides and pesticides.

GLOSSARY (Continued)

11. Chit - A purchase order used to request dealers to issue indicated input items, consisting of fertilizer, herbicides and pesticides, to farmer-borrowers at "socialized" or reduced prices. Chits are good only for five days unless they are revalidated by PT and RB or PNB.
12. FPB - Farm Plan and Budget -- A budget prepared by the PT together with the farmer-cooperator to recommend the improved farm practices and plan the application of inputs.

Appendix 4

AGENCIES AND THEIR RESPONSIBILITIES*

The various implementing agencies/entities and their principal responsibilities as detailed in the implementing guidelines for the "Masagana 99" Accelerated Rice Production Program are as follows:

A. National Food and Agricultural Council (NFAC)

1. Deposit funds with the Central Bank-Department of Rural Banks and Savings and Loans Association (CBDRBSLA) to be utilized for Special Time Deposits (STDs) with the rural banks and the PNB.
2. Prepare plans for the Program jointly with the participating agencies.
3. Execute and coordinate the Program through its existing field organizations.
4. Plan and lead the information drive of the Program.
5. Provide portion of the operating cost.
6. Provide some of the key supervisory personnel.
7. Provide technicians coming from the Bureau of Agricultural Extension (BAE) and the Bureau of Plant Industry (BPI).
8. Facilitate the acquisition by the production technicians of motorcycles under the Special Vehicle Loan Fund to improve their mobility.
9. Assist PNB and rural banks in the collection of loans.

B. Central Bank of the Philippines (CB)

a. Department of Rural Banks and Savings and Loans Association (DRBSLA)

- 1) Administer the funds intended for loaning by participating rural banks and the PNB under the Program and continue and abide by the reimbursement and reporting procedures embodied under "Operation Palagad 1973 ng Bagong Lipunam".
- 2) Provide key supervisory personnel.

* Sycip, Gorres, Velayo. Report on Masagana 99, Dec '73.

- 3) Participate actively in the information drive of the Program.
 - 4) Participate actively in the implementation of the Program through a representative to the Program Management Committee (PMC).
 - 5) Simplify loaning procedures aimed at the smooth and speedy operation of the supervised credit scheme.
 - 6) Encourage more rural banks to participate in the Program.
- b. Department of Loans and Credit (DLC)
- 1) Rediscount at 100% of outstanding balance all eligible papers under supervised credit at a preferential rate of not more than 3% interest per annum for PNB and RB loans granted under the Program. A maximum rebate of 2% per annum shall be allowed for rediscounted loans.
- c. Rural Bankers Association of the Philippines (RBAP)
1. Encourage more rural banks to participate in the Program.
 2. Assist in informing rural banks on the operating procedures of the Program.
 3. Assist in simplifying and expediting procedures aimed at the smooth and speedy operation of the supervised credit scheme.
 4. Participate actively in the implementation of the Program through its representative to the PMC.
- d. Rural Banks
1. Provide production loans to farmer-cooperators and abide by the reimbursement and reporting procedures embodied under the "Operation Palagad 1973 ng Bagong Lipunah".
 2. Arrange, whenever feasible, credit and marketing tie-ups with NGA Agent Warehouse-Millers (NGA-AWMs) or bonded warehouses of their choice.
 3. Supply NGA-AWMs and bonded warehouses in their areas with a list of farmer-borrowers under the Program.
 4. Undertake the principal responsibility in the collection of the loans with the help of the production technicians.

E. Philippine National Bank (PNB)

1. Set up the counterpart funds for STDs provided by CDBRBSLA.
2. Provide production loans to farmer-cooperators to complement loaning operations of the rural banks and abide by the reimbursement and reporting procedures embodied under the "Operation Palagad 1973 ng Bagong Libunam".
3. Participate actively in the information drive of the Program.
4. Participate actively in the implementation of the Program through its representative to the PMC.
5. Arrange, whenever feasible, credit and marketing tie-ups with NGA-AWMs or bonded warehouses of its choice.
6. Supply NGA-AWMs and bonded warehouses in their areas with a list of farmer-borrowers under the Program.
7. Undertake the principal responsibility in the collection of loans with the help of the production technicians.

F. Agricultural Credit Administration (ACA)

1. Provide production loans either to organized groups of farmer-cooperators or through operating Farmers Cooperatives (FCs) and abide by the reimbursement and reporting procedures embodied under the "Operation Palagad 1973 ng Bagong Lipunan".
2. Participate actively in the information drive of the Program.
3. Participate actively in the implementation of the Program through its representative to the PMC.
4. Arrange, whenever feasible, credit and marketing tie-ups with NGA-AWMs.
5. Undertake the principal responsibility in the collection of the loans with the help of the production technicians.

G. United States Agency for International Development (USAID)

1. Extend the period covered by the Accelerated Rice Production Program under Project No. 492-11-995-255 Project Agreement DR-73-010 (popularly known as "Operation Palagad 1973 ng Bagong Lipunan") to cover the original nine(9) calamity-stricken provinces in Central Luzon, including Rizal and Laguna, all in accordance with the aforementioned agreement, as may be amended.

2. Provide funds to defray part of the necessary operational cost, including that for the printing of supervised credit loan forms, chits (Purchase Order and "Masagana 99" informative materials.
3. Participate actively in the implementation of the Program through its representative to the PMC.
4. Provide services for independent auditing of procurement and application of inputs by farmers, as well as inspection and sampling for technical and chemical analysis of the commodity inputs.
5. Provide a Project Officer to assist the designated chairman of the PMC and such other necessary technical assistance as is available.

H. National Irrigation Administration (NIA)

1. Pinpoint the exact areas which could be supplied irrigation water during the program period.
2. Provide the necessary fieldmen to work with the NFAC production technician in selecting the prospective farmer-cooperators.
3. Supply the list of farmers in the areas expected to be irrigated, from among whom the prospective farmer-cooperators (farmer-recipients) will be selected.
4. Supply irrigation water to the farmers' fields on pre-arranged schedules of water releases.

I. National Grains Authority (NGA)

1. Within the limits of financial capabilities of the NGA, provide marketing support to farmer-cooperators through its price support program (including establishing storage facilities and/or buying stations in areas where NGA-AWMs or bonded warehouses are not available).
2. Supply Management Committee with a list of NGA-AWMs and bonded warehouses for distribution to the rural banks and PNB branches/agencies and to the PAC and MAT.
3. Participate actively in the information drive of the Program.
4. Participate actively in the implementation of the Program through its representative to the PMC.

J. Participating Members of the Fertilizer Institute of the Philippines (FIP) and the Agricultural Pesticide Institute of the Philippines (APIP)

1. Supply the fertilizers, pesticides and herbicides through their dealers/outlets in the municipalities and barrios at standardized prices and in the amounts required at the time and place indicated (socialized prices in case of fertilizers and reduced prices for pesticides and herbicides). Allocation of commodities for member-firms/suppliers will be an internal matter with them.
2. Supply a list of all their dealers/outlets (complete with addresses), who will serve the farmer-cooperators, indicating the available commodities, together with three specimen signatures of each dealer (one copy to the PMC-USAID CBDRBSLA). Existing dealers/outlets presently servicing the locality shall be allowed to participate under the Program if they sell their products at the socialized prices prevailing in the locality and if they submit their products for analysis.
3. Provide their dealers with a written designation certifying to their being accredited dealers in the Program.
4. Supply a list of grade standardization for quantity and quality on all commodities (one copy each to USAID and PMC; see to it that bags and containers of inputs are properly labeled as to their chemical composition).
5. Assist in the information drive of the Program.
6. Participate actively in the implementation of the Program through its representative to the PMC.

K. National Economic and Development Authority (NEDA)

Provide the necessary funds support.

L. College Agriculture, U.P. and International Rice Research Institute (UPCA and IRRI).

1. Assist in the preparation of informative materials.
2. Assist in providing technical guidance in the application of the package of technology in the field.
3. Assist in providing the necessary seed materials of HYVs.
4. Put up micro-kits for demonstration to selected farmer-cooperators and serve as source of seeds of the newer varieties.
5. Conduct cooperative trial with BPI and Bureau of Soils.

Appendix 5

INTERVIEW GUIDES

A. TECHNICIAN CHECKLIST

Objective: Can he cover ground? Is he adequately prepared? (his views of other agencies, Mas. 99, banks, etc.)

1. Is Masagana 99 making a difference in rice production in the Phillipines?
2. Can you give your farmers enough help to increase their yields? If not what is helping them?
3. Are the banks giving credit properly and in enough amounts? Too much? Tied with inputs or market?
4. Are your salary and allowances adequate? Will he tell us what they are in detail?
5. How would you improve the system? (What's wrong with it?)

B. FARMER CHECKLIST

Objective: Information re changes in his life style: practices, real income, effectiveness of services from banks and technicians. (assuming ability to talk and think in future rather than past)

1. What are your crop plans? MVs type, fertilizer, herbicide, insecticide, ground preparation, cultivation, labor arrangements, credit, sale and disposal of crop?
2. Advice or guidance from whom on above?
3. Expand on credit subject referring to past.
4. Expand on crop sale and disposal referring to past. What have you done with increased income - if stated or if evident?
5. What difference has Masagana 99 made? (to you)

C. BANKER CHECKLIST

Objective; Is the Masagana 99 business profitable enough to continue lending to small farmers?

1. How much of your business is Masagna 99? By number of loans and pesos.
2. Are you lending to all farmers in your area who want to borrow for Masagana 99?
3. What are your repayment rates? How much of this is restructured?
4. Explain the repayment rate - either the abnormal highs or delinquencies.
5. How would you improve the system? (What's wrong with it?)

2nd Draft: BLTinslar:lmr
AD/AD 2/14/75

MEMORANDUM

TO : Mr. Honesto Francisco, Director
Department of Rural Banks Savings and Loan Assoc.
Central Bank of the Philippines, Manila

FROM : Douglas L. Tinsler, USAID Project Representative, Bicol
River Basin Development Program

SUBJ : Impact of DRB/IBRD Credit Program on Rural Bank Profitability

The attached financial rate of return (FRR) analysis of selected rural banks was calculated to determine the impact of the DRB/IBRD credit program on the profitability of participating rural banks. Twenty-two rural banks were analyzed. Of the sample, sixteen participated in the IBRD program while six banks did not participate in the IBRD program.

The study is the collaborative result of the Department of Rural Banks, particularly Mrs. Reyes and her staff, Col. Mangonon of the Department of Agriculture and Natural Resources Computer Center, Mr. Tabing of the Bicol River Basin Program, Mrs. Gail Lacy and Mr. Howell Hopson of the U. S. Peace Corps, Dr. Richard Phillips of Kansas State University and USAID.

The computer was programmed to calculate the financial rate of return to equity capital after depreciation, taxes and interest payments rather than the return to total rural bank equity which includes, in addition to private equity, government equity in the form of non-voting preferred stock.

For each bank the FRR has been calculated under four different alternative situations as listed below:

Alternative 1 - Base Case: Income from IBRD reloans included.

All expenses included.

Alternative 2 - Reduced Expense: Income from IBRD reloans

included, other expenses excluded.

Alternative 3 - Without IBRD: Income from reloans excluded.

All expenses included.

Alternative 4 - #2 and #3 combined: Income from reloans

excluded. "Other Expenses" excluded.

By comparing Alternative 1 (the "with" case) with Alternative 3 (the "without" case) the impact of the DRB/IBRD credit program on rural bank profitability was ascertained. The results are presented in Table I.

TABLE I

Rural Bank Financial Rate of Return
"With" and "Without" DRB/IBRD Credit Program

BANK	Alternative 1 With IERD	Alternative 3 Without IERD	Net Difference (I - III)
RB-019-WB	19.6	3.0	+ 22.6
RB-020-WB	20.0	13.0	+ 7.0
RB-021-WB	11.4	10.0	+ 1.4
RB-023-WB	19.6	18.9	+ .7
RB-025-WB	3.6	0.3	+ 3.3
RB-026-WB	22.7	21.2	+ 1.5
RB-027-WB	14.4	12.3	+ 2.1
RB-028-WB	28.9	21.7	+ 7.2
RB-029-WB	18.2	No IERD lending	N.A.
RB-030-WB	9.0	" " "	N.A.
RB-030-WB	21.7	1.9	2.8
RB-032-WB	23.0	6.2	16.8
RB-033-WB	6.4	4.4	2.0
RB-034-WB	16.4	10.6	5.8
RB-035-WB	6.9	No IERD lending	N.A.
RB-036-WB	9.9	" " "	N.A.
RB-037-WB	9.7	1.2	8.5
RB-038-WB	9.7	No IERD lending	N.A.
RB-039-WB	18.6	2.3	16.3
RB-040-WB	8.7	No IERD lending	N.A.

The average difference in the financial rate of return, "with" and "without" IERD lending, for the 16 banks which participated in the DRB/IBRD credit program is 7.3%.

The rate of return for the "without" case for each participating bank is understated since the cost of the IERD program could not be segregated from the overall costs of the rural bank and were consequently included in the "without" case calculations. Therefore, the net incremental financial rate of return for the rural banks participating in the IERD program, as presented in Table I, is somewhat overstated, but nonetheless, it provides a useful approximation of the impact of the IERD credit program on rural bank profitability.

In the case of alternatives 2 and 4, the basic "with" and "without" analysis for the IBRD program was calculated. In addition to this basic analysis, another consideration was introduced into the equation. It was noted that the "other expense" item found on rural bank financial statement was very large, often totaling as much as 25% of net income. Upon inquiry, we were lead to understand that "other expenses" included among other things, the per diems, allowances and miscellaneous costs of the Directors and officers of the bank. Since rural banks are largely family owned corporations, "other expenses" may constitute a higher percentage of total costs than is customary for commercial banks.

The with/without test applied in this particular model represents the extreme case which assumes 100% of the other expenses were not included in the banks' operating costs, when in fact, perhaps only a portion should have been ~~is~~ deleted. As expected, the average difference between the FRR for banks under this alternative improved (8.3%) over the first alternative which simply measured the net FRR increment with and without the IBRD program.

TABLE II

Rural Bank No.	Alternative 2 With IERD/ Without Other Expenses	Alternative 4 Without IERD/ Without Other Expenses	Net Difference (2 - 4)
019	28	3	+ 25
020	38	30	+ 8
021	15	14	+ 1
022	33	17	+ 16
023	25	24	+ 1
024	28	21	+ 7
025	22	17	+ 5
026	54	52	+ 2
027	28	25	+ 3
028	47	39	+ 8
029	N.A.	N.A.	-
030	N.A.	N.A.	-
031	10	7	+ 3
032	36	19	+ 17
033	13	10	+ 3
034	24	18	+ 6
035	-	-	-
036	-	-	-
037	17	8	+ 9
038	-	-	-
039	29	11	+ 19
040	-	-	33

TABLE III

Group #	With IERD			Without IERD
	1	2	3	4
# of Banks in group	5	5	6	6
% IERD participation in total Income	39-20	9-5	4-1	0-0
Average FRR	17.4	14.5	15.3	7.2
Average increment FRR (with and without IERD)	15.5	4.7	2.7	-
Average annual income	P208,000	P119,000	P274,000	P75,000

Finally, in Table III rural banks have been grouped according to the percentage contribution of IERD lending to total rural bank income. In this case, the banks could be grouped into four distinct categories:

- those with between 20-39% of total bank income derived from IERD lending
- those with between 5-9% of total bank income derived from IERD lending
- those with between 1-4% of total bank income derived from IERD lending
- those with no income derived from IERD lending

The data suggest a positive relationship between average FRR and the percentage of income derived from IERD lending. This positive relationship is even more apparent when the average increment to FRR "with" and "without" the IERD credit program is compared with the percentage of income derived from IERD lending. Finally, the average FRR also appears to be positively correlated with average annual income.

Appendix 7

SOURCE, AMOUNT AND PURPOSE OF LOANS BY TENURE, 335 RICE FARMS,
CENTRAL LUZON, PHILIPPINES, 1973

Source/purpose	Tenure					Total
	Leasee	Share-tenant	Owner-operator	Part-owner	Lease-tenant	
<u>Public sources:</u>						
			<u>Pesos</u>			
Production	183,766	49,881	30,047	29,960	8,810	302,464
Non-production	2,000	-	3,000	-	-	5,000
Sub-Total	185,766	49,881	33,047	29,960	8,810	307,464
<u>Private sources:</u>						
Production	49,583	28,923	5,402	2,300	2,142	88,350
Non-production	56,661	18,844	10,195	100	-	85,800
Sub-Total	106,244	47,767	15,597	2,400	2,142	174,150
Total	292,010	97,648	48,644	32,360	10,952	481,614
<u>Percent</u>						
<u>Public sources:</u>						
Production	63	51	62	93	80	63
Non-production	1	-	6	-	-	1
Sub-Total	64	51	68	93	80	64
<u>Private sources:</u>						
Production	17	30	11	7	20	18
Non-production	19	19	21	*	-	18
Sub-Total	36	49	32	7	20	36
Total	100	100	100	100	100	100

*Less than 0.5 percent.

J. M. Manto, R. D. Torres, SOURCES AND COST OF CREDIT TO RICE FARMERS IN CENTRAL LUZON,
June 1974.

Appendix 8

AMOUNT OF INTEREST PAID BY TENURE, SOURCE AND PURPOSE OF LOANS,
335 RICE FARMERS, CENTRAL LUZON, PHILIPPINES, 1973

Item	Tenure					Total or average
	Leasee	Share- tenant	Owner- operator	Part- owner	Lease- tenant	
<u>Pesos</u>						
<u>Amount of interest paid for the period:</u>						
<u>Public sources:</u>						
Production	16,342	3,740	3,213	2,606	608	25,509
Non-production	900	-	780	-	-	1,680
Sub-Total	17,242	3,740	3,993	2,606	608	28,189
<u>Private Sources:</u>						
Production	5,914	2,886	332	12	306	9,440
Non-production	10,966	3,032	912	-	-	14,910
Sub-Total	16,880	5,981	1,234	12	306	24,350
<u>All sources:</u>						
Production	22,256	6,626	3,535	2,618	914	35,949
Non-production	11,866	3,032	1,692	-	-	16,690
Total	34,122	9,658	5,227	2,618	914	52,539

Percent

<u>Equivalent annual interest rate:</u>						
<u>Public sources:</u>						
<u>Production</u>						
High	14	20	12	12	14	20
Low	8	8	8	8	12	8
Average	12	12	12	12	12	12
<u>Non-Production</u>						
Average	9	-	12	-	-	10
<u>Private sources:</u>						
<u>Production</u>						
High	330	60	30	12	163	330
Low	0	0	0	0	20	0
Average	21	17	10	12	43	19
<u>Non-production</u>						
High	181	150	40	-	-	181
Low	0	0	0	-	-	0
Average	30	26	10	-	-	27

J. M. Manto, R. D. Torres, SOURCES AND COST OF CREDIT TO RICE FARMERS IN CENTRAL LUZON, June 1974.

Appendix 9

AVERAGE USE OF INCREASED INCOME, 94 RICE FARMS, RIZAL, BULACAN
AND NEUVA ECIJA, 1973-1974 ***

Item	Percent of farms reporting	Average for all farms (Pesos)	Percent of group	Percent of total
Production Costs*:				
Fertilizer	68	474	45	9
Chemicals	50	149	14	3
Seed	9	11	1	**
Feed	23	146	14	3
Chicks, piglets	5	44	4	1
Other (Labor, animals and equipment)	66	235	22	4
Sub-Total	-	1,059	100	20
Regular living items:				
Food	87	777	31	14
Clothing	57	150	6	3
Education	63	284	11	5
Medical	53	176	7	3
Utilities	60	98	4	2
Home Maintenance	46	42	2	1
Travel/transportation	40	75	3	1
Recreation	31	33	1	1
Savings	37	482	20	9
Cash on hand	94	105	5	2
Repairs	21	245	10	5
Sub-Total	-	2,467	100	46
Special Items:				
Home appliances	39	211	11	4
Furniture	10	14	**	**
Utensils	3	3	**	**
Farm equipment	17	16	1	**
Farm animals	1	21	1	**
Farm materials	14	2	**	**
Home improvements	19	514	28	10
Repayment of old loans	68	555	30	10
Vehicles	4	360	20	7
Insurance	1	3	**	**
Land	1	21	1	**
Special occasions	39	139	1	**
Sub-Total	-	1,859	100	34
Total	-	5,385	-	100

* Partially estimated as some respondents gave only a total increase in production costs.

** Less than 0.5 percent

*** LaForteza - Reyes

Appendix 10

HOME APPLIANCES, VEHICLES, FURNITURE AND UTENSILS BOUGHT, 94 RICE FARMS, RIZAL, BULACAN AND NEUVA ECIJA, 1973-74**

Item	Number of farms reporting	Total cost	Amount paid to date
<u>Pesos</u>			
<u>Home Appliances:</u>			
Radio	19	4,187	4,187
Stove	6	3,460	2,260
Refrigerator	5	13,469	8,669
Stereo	3	6,500	6,500
Radiophone	3	1,335	1,335
Television	2	2,200	2,200
Fan	2	695	695
Lamp	2	50	50
Sewing machine	2	360	360
Sub-Total*	44	32,256	26,256
<u>Vehicles:</u>			
Jeep	2	29,000	29,000
Tricycle	2	5,000	5,000
Bicycle	1	160	160
Sub-Total*	5	34,160	34,160
<u>Furniture:</u>			
Set	4	1,250	1,250
Cabinet	2	240	240
Chair	2	190	190
Dresser	3	300	300
Bed	1	210	210
Sub-Total*	12	2,190	2,190
Utensils	3	280	280
Total	64	68,886	62,886

* Some farms bought more than 1 item.

** La Fortez - Reyes

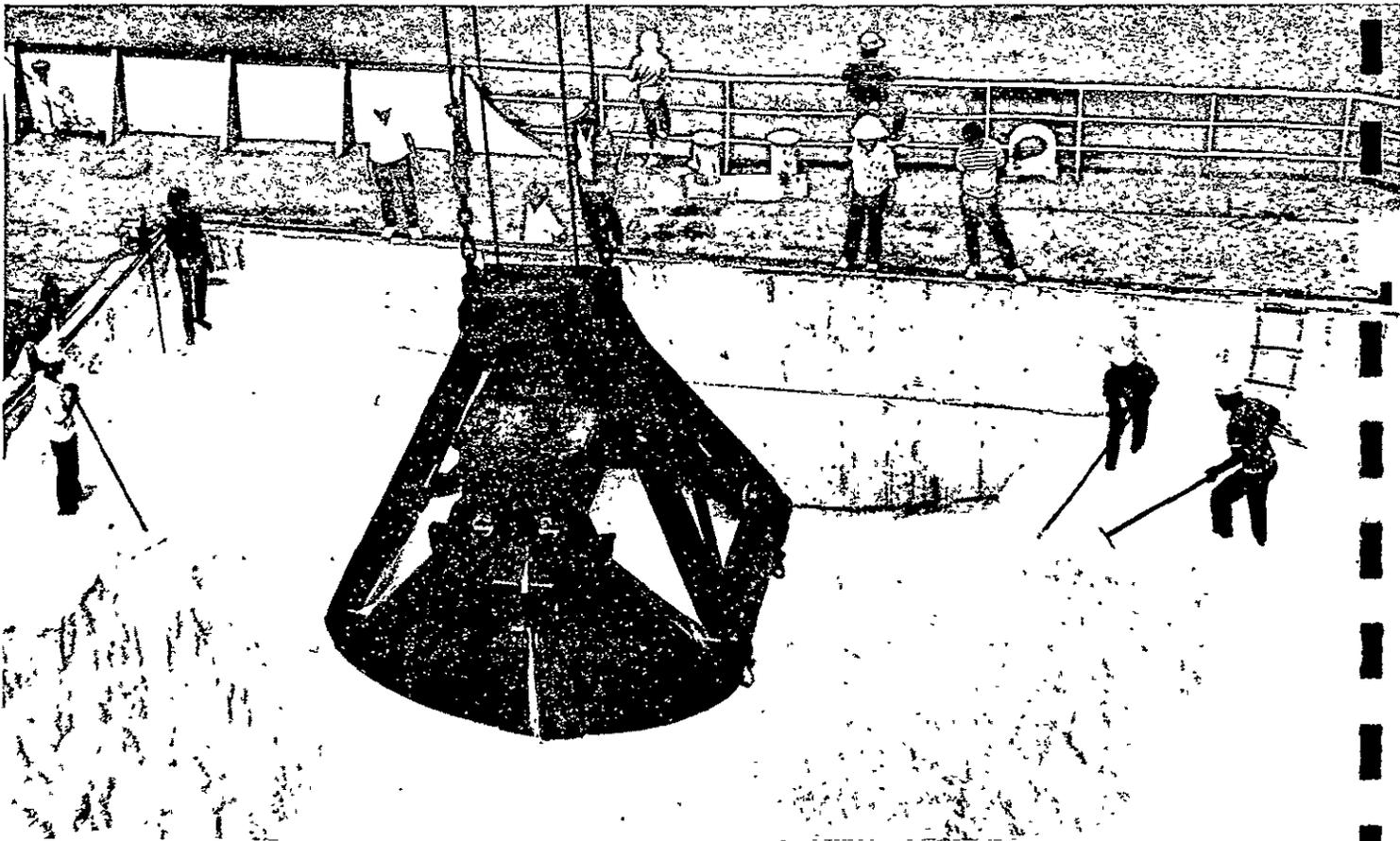
THE ECONOMICS OF FERTILIZER USAGE (*)

PLUS: the MASAGANA 99
LOANING PROCEDURE and
RICE CULTURE METHOD

(PROMOTION PAMPHLET FOR PLANTERS, INC.)
15000 - 20000 copies - 1974.*

SUPPORT





THE ECONOMICS OF FERTILIZER USAGE *

*Based on the article prepared by the technical committee of the National Food and Agriculture Council, composed of representatives of the Bureau of Soils, International Rice Research Institute and Food and Agriculture Organization.

RECENTLY, the prices of fertilizer for the food crop sector have been increased due to several factors, including inflation, the worldwide scarcity of fertilizer raw materials and the rising costs of production.

However, these increased prices are still much lower than the prevailing world-market price of fertilizer because the Philippine government continues to subsidize the fertilizer for the food crop sector by 35 percent.

To offset the increased prices of fertilizer and to make this vital farm input available to Filipino farmers, the Philippine government has taken two immediate steps.

First, the ceiling of loans being made available to farmers participating in the food production program has been raised to ₱1,600 per hectare (see loaning procedure on page 4).

Second, the price support for palay has been increased from ₱45 to ₱50 per cavan.

Taken together, say officials of the National Food and Agriculture Council (NFAC), these two measures assure farmers that they will continue to get good profits from their crops by applying the right amount of fertilizer on their field.

For example: the 1975 dry season Masagana 99 Phase IV fertilizer application is 60+30+30 per hectare. In bags of fertilizer, 60+30+30 is equivalent to four bags of 14-14-14 complete fertilizer, one bag of 45-0-0 urea and one bag of 21-0-0 ammonium sulfate.

At the old fertilizer prices, the six bags of fertilizer cost ₱370. At the new prices, these now cost ₱480 — or an increase of ₱110 as shown in Table 1.

With high-yielding varieties, the application of six bags of fertilizer will give the farmers an average expect-



Bulk shipment of urea (left) is unloaded at the Planters Products fertilizer plant in Limay, Bataan. A Bulacan farmer (above) applies the correct amount of fertilizer on his ricefield. Another farmer (right, wearing hat) and Antonino Indon, municipal agriculturist of Plaridel, Bulacan, examine adequately fertilized and productive corn crop.

TABLE 1

Bags of fertilizer per hectare	Old price retail	New price Retail	Increased cost per hectare
4 bags 14-14-14	₱260 at ₱65/bag	₱300 at ₱75/bag	₱ 40
1 bag 45-0-0	70	120	50
1 bag 21-0-0	40	60	20
Totals	₱370	₱480	₱110

TABLE 2

Expected yield	At old price ₱45/cavan	At new price ₱50/cavan	Increased returns per hectare
62 cavans (50 kg.)	₱2,790	₱3,100	₱310

ed increase in yield of seven cavans of palay per bag of fertilizer.

The expected average yield from high-yielding rice varieties is 62 cavans of 50 kilograms per hectare,² or 80 cavans of 44 kilograms per hectare. This yield is easily attainable during the high-yield, low-risk Palagad season by rice farmers who follow the 16 steps in Masagana 99 rice culture (see page 5). At the new price support for palay, this yield will give farmers additional earnings of ₱310 per hectare (see Table 2).

After subtracting the additional fertilizer cost from the increase in earnings, a farmer will still get a net increase in return of ₱200 per hectare.

Increase in earnings	₱310
Increase in fertilizer cost	110
Net increase in return	₱200

Of course, a farmer could get even bigger profits by producing more than 70 cavans per hectare. All he has to do is strictly follow the Masagana 99 cultural steps, especially those dealing with fertilizer and pesticide application.

On the other hand, it is estimated that the yield of a farmer who stops using fertilizer will drop by as much as 40 cavans per hectare.●

¹ Figures on costs are average national costs. There are bound to be deviations per province due to differences in handling, warehousing, transportation costs, and municipal taxes.

² Yield of 62 cavans of palay per hectare is the average national yield of farmers in Masagana 99 program areas applying two to three bags of fertilizer per hectare. If six bags of fertilizer are applied, the minimum yield will be 70 cavans per hectare.

LOANING PROCEDURE



Paunlarin ang Palayan sa Makabagong Paraan

- MASAGANA 99

MASAGANA 99

RICE CULTURE

STEPS BEFORE TRANSPLANTING



25 DAYS BEFORE TRANSPLANTING

Secure any of the Tungro-resistant HYV seeds like IR20, IR20-1, C4-63, C4-137, C4 63G, C12 or BPI-76 (NS)

Soak for not more than 24 hours in clean water Use 1 cavan seed to plant 1 hectare

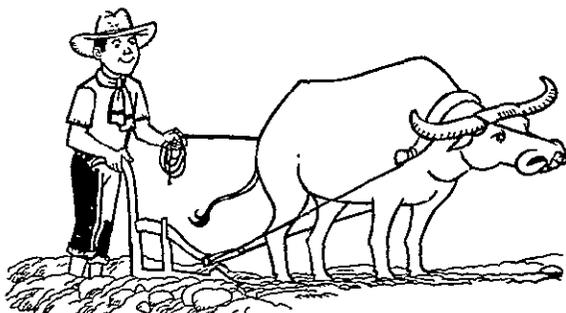
1



24 DAYS BEFORE TRANSPLANTING

Sow the germinated seeds in a well-prepared seedbed Use seedbed area of at least 400 sq meters per cavan of seeds

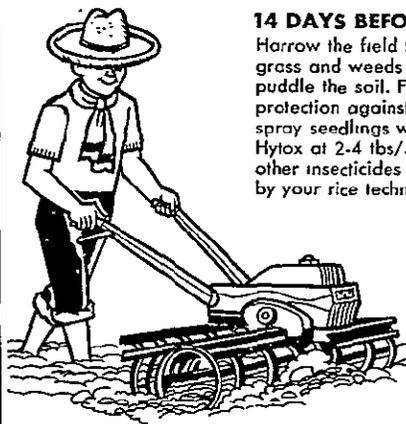
2



21 DAYS BEFORE TRANSPLANTING

Wet plow the land Fix all dikes If seeds were not soaked in anti-tungro solution spray seedlings with Mipcin or Hytox at 2-4 lbs 5 gal water or other insecticides recommended by your rice technologist

3



14 DAYS BEFORE TRANSPLANTING

Harrow the field to bury new grass and weeds and to puddle the soil. For insurance protection against Tungro, spray seedlings with Mipcin or Hytox at 2-4 lbs/5 gal, or other insecticides recommended by your rice technologist.

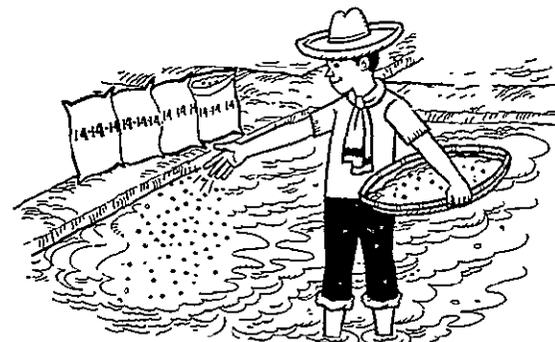
4



7 DAYS BEFORE TRANSPLANTING

Harrow field for the second time to bury new grass and weeds and to clean the land Again, for insurance protection against Tungro, spray seedlings with Mipcin or Hytox at 2-4 lbs 5 gal This will also control other insect pests present in the seedlings

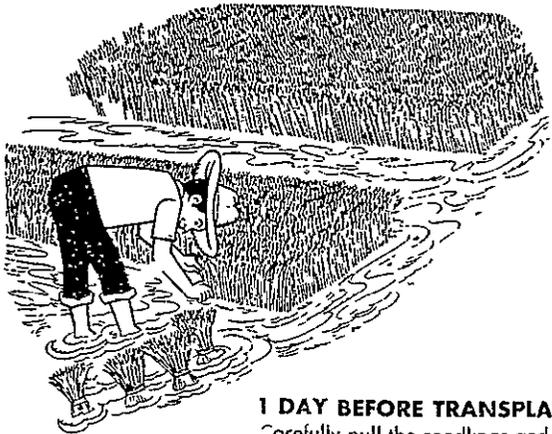
5



2 DAYS BEFORE TRANSPLANTING

Broadcast uniformly the basal fertilizer recommended. (Follow the recommended rates based on soil type and season) Make final harrowing. Flood seedbed to soften the soil in preparation to pulling the seedlings

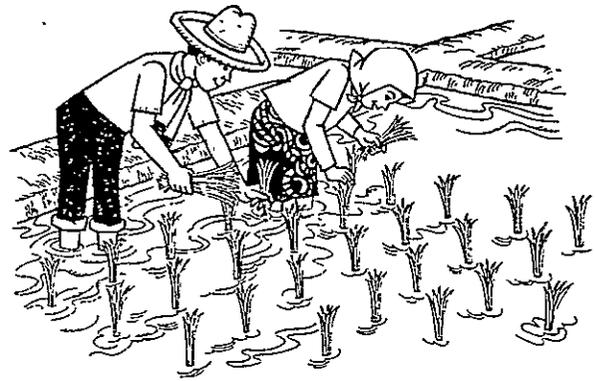
6



1 DAY BEFORE TRANSPLANTING

Carefully pull the seedlings and bunch them for easy transport and distribution to the paddy. For insurance protection against tungro, either soak roots of seedlings in chemicals recommended by your rice technologist or spray Mipcin 3 days after transplanting.

7



TRANSPLANTING DAY

Transplant at 20 x 20 cm. spacing for rainfed and at 25 x 25 cm spacing for irrigated. Use 2-3 seedlings per hill. Transplant at a depth of about 2-3 cm.

8

STEPS AFTER TRANSPLANTING



3 DAYS AFTER TRANSPLANTING (DAT)

If irrigation water is available, irrigate field to a depth of 3-5 cm. Prevent weeds from growing by broadcasting granular weedicides like 2,4-D Granules (at 25 kgs./Ha) or any weedicide suggested by the rice technologist. Spray Mipcin or Hytox for insurance protection against Tungro.

9



15 DAYS — AFTER TRANSPLANTING

If granular herbicides were not applied at 3 DAT, spray the weeds with Planters 2,4-D Ester, 2,4-D Amine, or Defolan at 4-5 lbs/5 gal. You may handweed or use rotary weeder to control weeds. Check for presence of insect pests. Repeat weeding operation at 25 DAT.

10

11

30 DAYS AFTER TRANSPLANTING (TILLERING STAGE), FOR RAINFED ON ALL SOILS, FOR LOAMY SOILS, IRRIGATED.

broadcast 2 bags ammosul or 1 bag urea per hectare to make the plants produce more tillers and promote foster growth

12

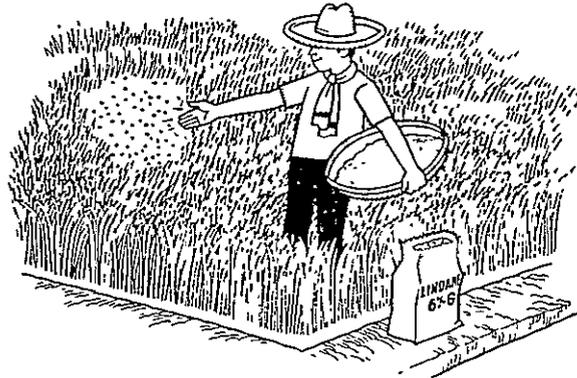
Continue checking your crops for presence of a) stemborer - If necessary spray with Parapest M-50, Dursban or Erodex, or broadcast 25 Kg /Ha Lindane b) armyworms, cutworms, leafhoppers, caseworms -- spray with Parapest M-50 or Dursban or any insecticide recommended by your rice technologist



13

45 DAYS AFTER TRANSPLANTING (PANICLE INITIATION STAGE) ALL SOILS, IRRIGATED AND RAINFED.

Broadcast evenly into the paddy water either 2 bags ammosul or 1 bag urea per hectare



14

50 DAYS AFTER TRANSPLANTING FOR VARIETIES C4-63, C4-63G, C4-137, C-12 and BPI-76 (NS)

Broadcast Lindane 6% G at the rate of 1 Kg active ingredient (a i.) hectare or any other insecticide granules at rates recommended by your rice technologist

75 DAYS AFTER TRANSPLANTING

For all tungro resistant varieties, broadcast Lindane 6% G at the rate of 1-1/2 Kg of active ingredients (a i.)/hectare or any of the granular insecticides or spray Parapest or any of the sprayable insecticides recommended by your rice technologist.

NOTE.

Check for presence of brown planthoppers and rice bugs and if necessary spray 2-4 lbs/5 gal. Mytox or Mipcin or 2-1/2-3 lbs/5 gal. Lethox; continue checking on step #12 (b)

15

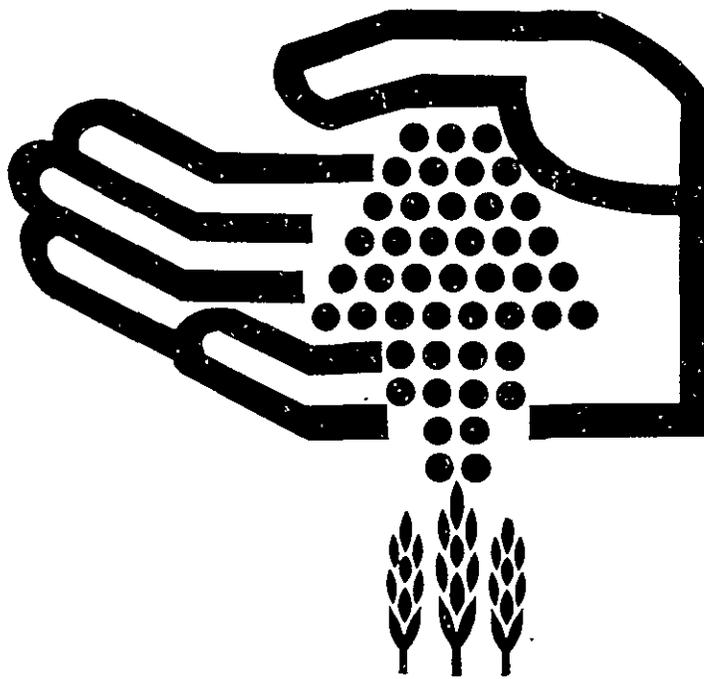


85 DAYS AFTER TRANSPLANTING

Drain water from the field. At 100 DAT or when 80 per cent of the grains are clear and firm to touch, harvest your MASAGANA 99 yield.

16





HOW TO GET THE MOST OUT OF THE FERTILIZER YOU BUY

IT'S important to make every fertilizer grain count. Here are several ways to maximize use of your fertilizer:

- *Have the soil of your field tested, and follow recommendations for fertilizer application to prevent using the wrong kind or amount of fertilizer.

- *Apply your fertilizer at the proper time to make it available to the growing plant.

- *Make better use of plant nutrients or fertilizers through controlled irrigation practices.

- *Avoid fertilizing too close to trees and hedgerows where fertilizers are not utilized efficiently.

- *Follow soil conservation practices such as contour waterways, strip cropping, contour plowing and soil drainage to help prevent loss of fertilizer from the soil. These practices also improve fertilizer efficiency by helping provide adequate moisture in the soil during drought periods.

- *Control weeds to prevent them from "stealing" plant nutrients from your crop. Fertilizer and water are more efficiently utilized by the crop if you control the growth of weeds.

- *Add lime to acid soils until the right pH level for crop production and plant food utilization is attained.

- *Control the pests and diseases of plants to protect the fertilized crop. ●

GENERAL RESEARCH CORPORATION

