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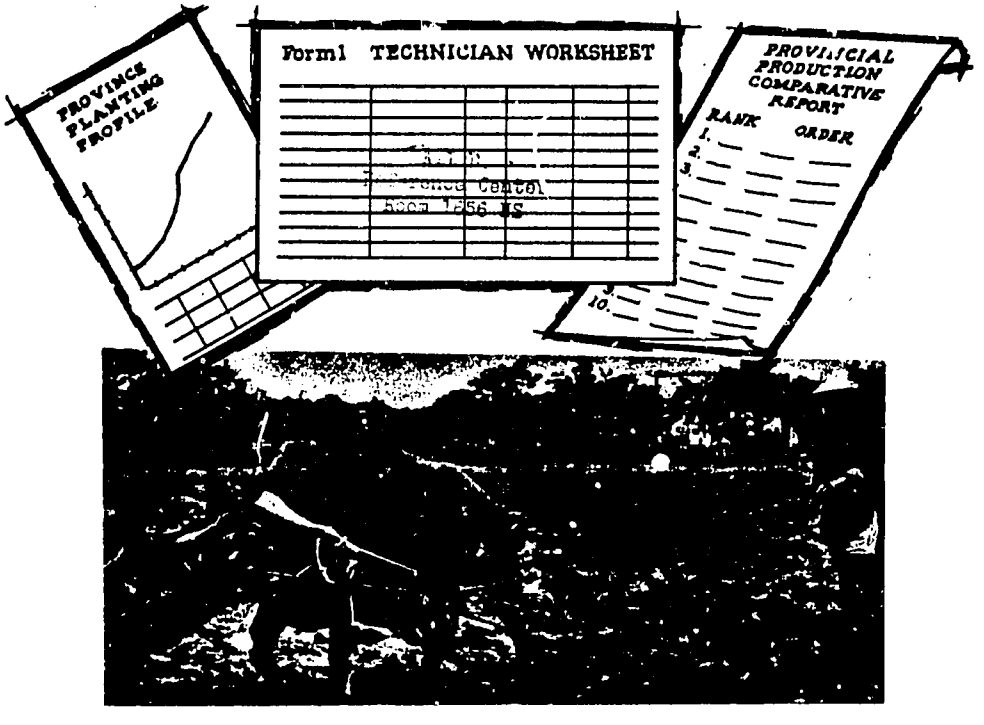

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Manila, Philippines
April 1975

THE MASAGANA 99 MANAGEMENT INFORMATION SYSTEM

Kenneth F. Smith
Management Systems Advisor

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U.S. Agency for International Development
Manila, Philippines

April 1975

ACKNOWLEDGEMENTS

Wherever anything is measured numerically,
wherever there is an attempt, however rough,
to assess anything in the form of numbers,
even by the simple process of counting,
then there begins to arise the necessity for
making judgements as to the significance of the data
and the necessity for traffic rules by which the flow
of information may proceed smoothly and purposefully.

M. J. Moroney
Facts from Figures

Development and implementation of the Masagana 99 Management Information System is a continuing cooperative effort between the governments of the Philippines and the United States, under the GOP/USAID Small Farmer Income & Production Project.

Many people, from the Secretary of Agriculture to the Field Production Technician, have been involved with the MIS during its evolution since its conception, to the present. Special recognition should be given however to the original NFAC/BAECON/USAID Working Group personnel who made the judgements, established the traffic rules, and initially installed this system, and with whom it was, and is, my pleasure to work.

Margaret Rose Amigo	NFAC
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Jessie Divinagracia	BAECON
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MANAGEMENT INFORMATION SYSTEMS

FOREWORD

A Management Information System -- or MIS -- is a modern development of a more familiar, but less glamorous process known as "Reporting". However, "MIS" is more than simply a cosmetic change in name to make it seem more attractive and sophisticated. Unlike the typical bureaucratic report which proliferates in the communications arteries of most organizations, a Management Information System is a means for obtaining and processing only specifically pre-designated elements of data (usually statistical, or subject to consolidation and manipulation) for managers to use in implementing programs, and indicating when corrective action may be necessary. This means that an MIS is usually carefully designed, thought through and developed with the end use in mind, rather than gathered because it might be available, and/or nice to know. Furthermore, the mechanics of gathering, recording, transmitting and analyzing the data elements are usually designed at the outset with considerations of efficiency, to minimize the burden upon all concerned (particularly the productive operating staffs) so that the prime work of the organization may proceed with a minimum of hindrance. Finally, the data is assembled from several (usually the most appropriate) sources, and organized for integrated analysis at a centralized point, for management decision-making purposes and feedback to the subordinate levels for their information, and action.

No two programs or projects are ever exactly alike; thus, each MIS constructed is a unique affair. Furthermore, since management is still very much an art (despite the scientific aura engendered by the modern application of quantitative analytical techniques) the data elements which are considered "key indicators" often vary according to the style of an individual manager. Although the subject matter may be well defined and many elements can be objectively identified by staff personnel, the content, form and frequency of data transmission and analysis can vary widely from project to project.

Nevertheless, despite the almost open-ended flexibility implied by the above, Management Information Systems can be categorized to some extent, some important considerations in system design identified, some general principles of management outlined, and a general procedure for MIS development expounded. All are important aspects that the designer would do well to bear in mind when constructing an MIS so that the system will not fail to live up to expectations because some fundamentally vital aspect was overlooked.

This handbook has been developed primarily to meet the continuing staff development needs at all levels in the utilization of the Masagana 99 MIS. It can also serve as a general guide to the adaptation of MIS concepts to other, similar programs. However, I have a particular purpose in writing -- to discuss the specific Masagana 99 Management Information System. Although I may make reference to other categories of MIS and general systems considerations, in passing, I will give short shrift to anything that does not have a direct bearing on my prime topic.

April, 1975

Kenneth R. Smith
Management Systems Advisor
USAID/Manila

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THE "MASAGANA 99" MANAGEMENT INFORMATION SYSTEM

INTRODUCTION

In May 1973, a comprehensive national campaign known as "Masagana 99" was launched in the Philippines by the National Food and Agriculture Council (NFAC), to increase the production of the nation's staple crop -- rice -- during the "regular" season. This program was developed to offset the shortages which resulted from the disastrous flooding of Central Luzon in 1972, and the subsequent drought in the "palagad" season of 1973.

In developing the Masagana program, the need was seen for systematic recording, reporting and analysis of selected data for program management purposes. Consequently, the Bureau of Agricultural Economics (BAECON) and the U.S. Agency for International Development (USAID) were asked to assist NFAC in designing and implementing a Management Information System (MIS) for the program manager and his management committee. An NFAC/BAECON/USAID Working Group was formed to design and develop a simplified manual system for the short range, and then spearhead its implementation in 43 provinces. The Provincial Program Officers were interviewed for basic data, and briefed along with other provincial officials, as well as many of the agricultural technicians who were involved in the program at the "rice roots".

With an atmosphere of urgency following crisis, this new concept (of systematic reporting, timely analysis and feedback for management utilization at both the Central and field levels) generally worked well. The system was the unified basis for establishing targets, forecasting resource requirements, alerting management to supporting element needs, monitoring comparative program performance on different aspects, identifying bottlenecks, and redistributing resources to balance shortages from overages. Many field changes had to be made to the system during implementation to accommodate aspects which did not turn out as well in practice as they had sounded in theory. There were also problems (particularly gaps, and obvious errors) with the data, even though it was the best available. Nevertheless, despite these shortcomings, the system functioned and was better than anything that had been previously used by NFAC for program management. More importantly, there was recognition, particularly by the field staffs that this report was not just a requirement of the bureaucracy, to be filled out, filed and forgotten; but that there were good reasons for timely, accurate reporting. Management <u>used</u> the information for program operation, and it made a difference to the way in which the program was actually implemented and supported in the field by the central office.

The early success of the Masagana harvests resulted in the program's continuation as a long term operation, and the desire to emulate it on many other programs. This has created growing pains for the Management Information System. It could no longer rest on its laurels of having done a "quick and dirty" job well. Although the overall objective of the MIS has remained the same since the early days, the program has become much more complicated. For one thing it has been expanded to more provinces (currently 57) and many changes in procedures have been instituted. The system has had to be refined so that apparent anomalies are not merely identified for management, but regularly followed up and corrected to prevent their recurrence. Comparisons are now required between different program phases to identify trends, and more detailed data is being required so that management may probe deeper. More sophisticated economic analysis can also be made of the basic data to determine possible cause/effect relationships. The evidence is now coming in to enable a revalidation or reevaluation of some of the basic assumptions under which the program was, and is being implemented.

In short, we are now setting in for the "long haul", and it is time to record the complete system, incorporating the many changes embodied in structuring, reporting and processing the Masagana 99 data since the early days.

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ESTABLISHING A FRAME OF REFERENCE

A project is a system, or combination of parts related to some form of regulated interaction for a common purpose. A program is usually a collection of projects, each of which is oriented to supporting a common overall objective. For example, we may have projects to irrigate farmland, provide farm-to-market roads, create farmer cooperatives, develop credit sources, etc. etc., all of which may be part of a common program to increase rice production. A Management Information System for a program (or a project) cuts across several functional areas, each of which may have its own reporting structures for technical data.

A program or project is too complex for one individual to do both the technical and the managerial work. Therefore the work is subdivided with different individuals assuming different responsibilities. However, a single manager, or management committee is empowered with the responsibility and the authority to maintain a sense of direction for the overall program.

Management operates in three general stages -- "Planning", "Implementation" and "After-the-Fact Evaluation". Sometimes these stages overlap in time, and a few Management Information Systems have been specifically designed to operate in all three stages. However, most systems are limited to highlighting certain aspects over others, and thus can be classified as belonging to one of the above. There are many Management Systems which exist primarily for "Planning"; and still others for "After-the-Fact Evaluation. They are all very interesting. Unfortunately, they are beyond the scope of this text.

In the "Implementation" stage, management has two general types of operational activities -- "Continuous" and "Terminal". "Continuous" refers to those functions that are usually identified as "staff support" such as budgeting, personnel management, programming, contracting, logistics, etc., all of which are essential tasks involving management, but which in essence are open ended. In each of these specialized areas, Information Systems have also been developed, which contain much valuable information for management. Again, they are beyond the scope of this text.

The "Terminal" activities are those specific objectives which the organization has been created to accomplish. Usually, they are found in the various technical divisions of the organization, such as "Agriculture", "Education", "Engineering", etc. -- the "Line" functions. Within those divisions, these terminal activities are organized into broad Programs such as "Establishing a Total Farm Support System", "Revamping a National Education System", or "Creating a Total Transportation System". They may also be subdivided into more specific and unique "one-of-a-kind Projects, such as "Organizing a Farmers' Cooperative", "Developing a 9th Grade Science Curriculum", or "Building a Highway". They may also be "multiple accomplishment" projects, such as "Developing a Series of Cooperatives", "Implementing a Particular Curriculum in a Number of Schools", or "Constructing a Series of Farm-to-Market Roads". Whatever form they take, simple or complex, one-of-a-kind or multiple accomplishment, they are the types of projects or programs where one can establish certain objectives, plan a time frame in which the objectives should be accomplished, and then get on with the task of "doing it". It is to this type of program/project activity that the following comments on Management Information Systems development are most pertinent.

To serve management's needs[1] <u>during implementation</u>, there are three basic categories of Management Information System -- "Status", "Control" and "Comprehensive" This sequence also roughly indicates the level of their complexity from relatively simple, to highly complex.

The chart on page 8 illustrates the general categories of Management Information Systems to be discussed. It should be borne in mind that although I have categorized the three types of Management Information Systems from "Relatively Simple" to "Highly Complex", from the layman's standpoint , they are <u>all</u> complex in varying degrees!

---

1 Supervisory program or project <u>decision makers</u>, as distinct from technical (professional, administrative or technical) staff or operational personnel at any level.

THE STATUS MIS

At the "relatively simple" extreme, regardless of the technical complexity of the project, the STATUS system generally provides management with an overall picture of project accomplishment in terms of only one or two indicators -- usually "Time" and/or "Cost".

The purpose of the indicators is to periodically inform management whether the project is On, Ahead or Behind SCHEDULE, and/or OR, Underrun or Overrun in terms of BUDGET. For "one-of-a-kind" projects, a more or less standardized Management Information System has been developed -- the Program Evaluation & Review Technique/Critical Path Method (PERT/CPM), -- and many variations on the networking theme can be developed for specific applications[1]. For more simple projects, a bar chart/milestone system may suffice. For "Multiple Accomplishment" type projects, another standardized MIS -- Line of Balance Technique (LOB) is also available and adaptable[2].

These systems are extremely useful for managing project implementation to meet time and cost limitations. However they only convey minimal technical information to management, in the form of identifying which "activity" is "critical". They do not furnish technical details on project status. Management must follow-up on an exception basis, to find out. The concept behind these systems is that if management takes care of the overall schedule/cost considerations, technical personnel will respond by getting the job done. When something goes out of control as indicated by excessive overrun/shortfall, only then should top management get involved in the technical details. This division of labor between management and technical staff works well on most large programs consisting of many projects -- in fact it is almost essential in order to relieve top management from the burdens of technical detail, and enabling them to get on with their primary task of managing. It is also true of many single, but complex projects.

For smaller, simpler projects and programs, and for managers with voracious appetites (particularly those who have strong technical experience prior to assuming the managerial position) the STATUS systems alone are insufficient. Such managers do not feel comfortable unless they have regular access to the technical subject matter of the project. I do not wish to imply that this is either good or bad -- it is merely an indication of variation in program situations and individual management styles.

Of course, within the organization, numerous other technical reports and channels for data interchange exist. The STATUS MIS is merely the unifying reporting system around which project accomplishment is measured and monitored.

The Masagana 99 Management Information System is not a STATUS MIS. Therefore even though some of the general design considerations which I will be discussing may be applicable. I will not make further reference to this type of management system.[3]

---

1 PERT/CPM/LOB Project Management Systems for Economic Development, Kenneth F. Smith, AID/Washington (Dec 71)

2 Ibid.

3 The reader who is interested in reviewing a recent Development Project Status System in detail, is referred to "A Project Status Reporting System for the Bicol River Basin Development Program", Kenneth F. Smith, USAID/Manila, February 1975.

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THE COMPREHENSIVE MIS

At the other extreme, COMPREHENSIVE Management Information Systems usually result in almost open-ended, random access libraries of technical information. These are the result of systematic attempts to capture a plethora of data which can be drawn upon and analyzed in many different ways to provide insights into program operations, for both management and technical personnel. The data are usually more technical than managerial in content, and are far more detailed than any single manager can absorb, digest and utilize on a regular basis. They can be manual, but are more usually computerized "data banks". They take a long time to develop (months or even years) and consequently, are usually only associated with activities of the "continuous" type, and projects that have a very long life span. Manual systems are usually the result of accumulations of reports from different levels within the organization, and are usually cumbersome slow, and very inefficient to record, transcribe, file and retrieve. Consequently, after filing, much of the data and experience recorded in the files is never brought to light, or integrated with current activities. Human limitations are very apparent in manual systems and management laments that it has no "organizational memory".

In recent years, much attention has been focused in the discussion and development of highly sophisticated computerized systems where the search and retrieval capability of the system is not limited by human factors. Some highly sophisticated systems are in use in several organizations. These are relatively expensive in absolute cost. However, the costs can often be rationalized in terms of data elements processed and the fact that some tasks can be done and analyses made that would have been impossible manually.

Development of such an MIS takes an approach that "Thou shalt have no other Reporting System .... "for all efforts are directed towards a total integration of all the available data. Theyare designed to assure that managers do not miss any information which might be relevant. The intent behind such comprehensive system design is to optimize total system performance by being able to gather all data (instead of only a few potential indicators) because in subsequent analysis of the interrelationships between sub-systems, some new, hitherto unrecognized but significant indicators may appear. One major premise is certain - if the data is <u>not</u> captured somewhere in the system, it will probably be impossible to obtain for analysis later.

The advocates of comprehensive Management Information Systems argue that designing for anything less will result in serious sub-optimization of total system performance because of ignored relatioships between sub-systems. Because many elements of the various sub-systems are similar, it is also inefficient to do so and the total MIS approach can accommodate economies of scale in the design analysis. On the other hand, the critics argue that the COMPREHENSIVE approach delays immediate benefits, encourages procrastination between the design and implementation phases, and results in system configurations that are too idealistic, and represent changes that are too large for the organization to accommodate.

There are some excellent Comprehensive Management Information Systems in being. However, the Masagana 99 MIS is <u>not</u> a COMPREHENSIVE system either. Therefore, our discussion of the comprehensive system ends here.

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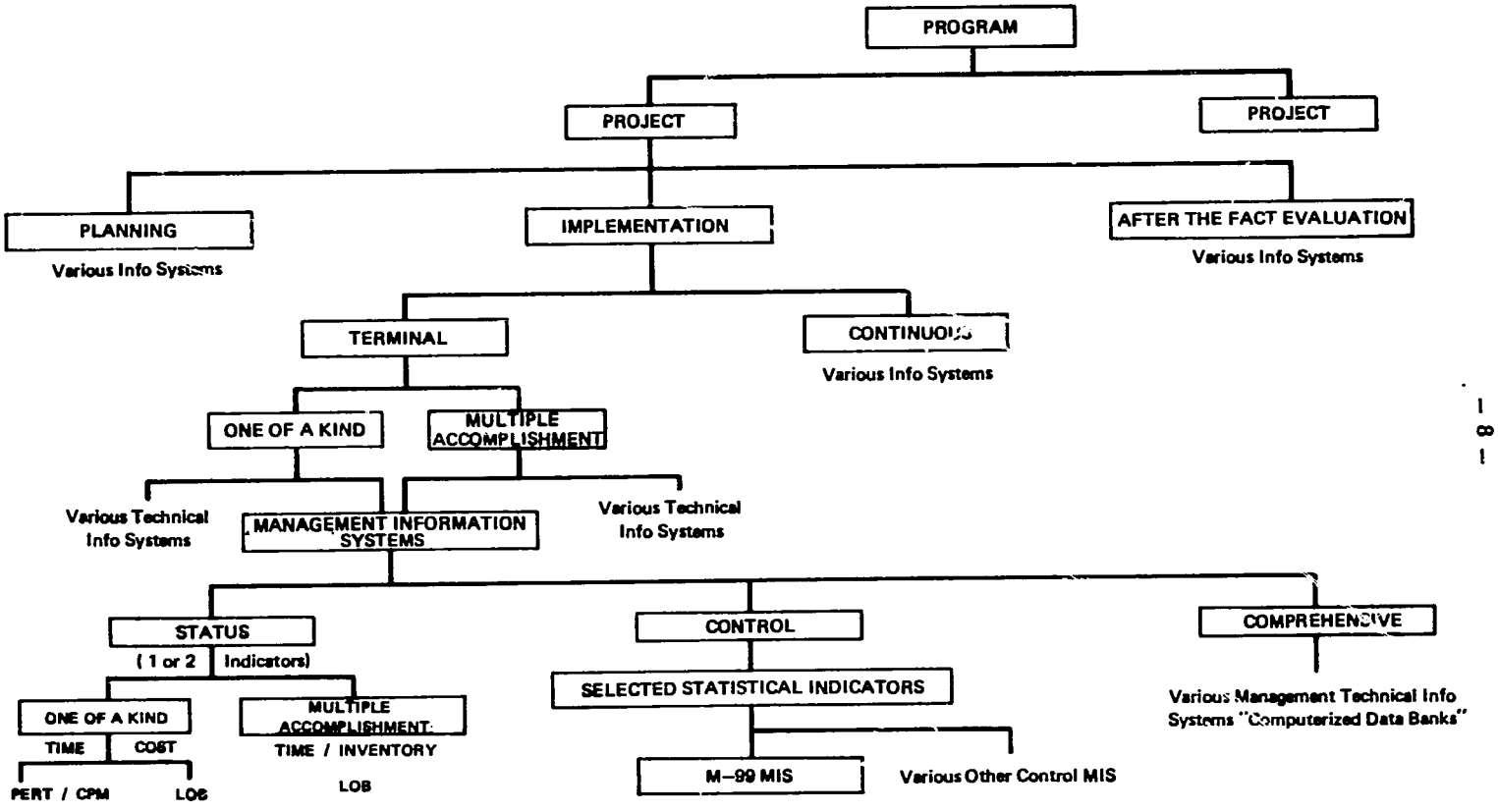
CATEGORIES OF MANAGEMENT INFORMATION SYSTEMS



MANAGEMENT AND THE CONTROL MIS

The type of Management Information System which we will be discussing falls in the CONTROL type, between these two extremes. Under this type of system, a limited number of pre-determined key data elements are selected for continuous observation, recording, monitoring, statistical analysis and summarizing for management. Depending upon the manager's personality, it may take the form of "positive" control, or control by "Exception".

Positive Control demands lots of available time and wide technical ability as well as managerial abilities, continuous observation, and interaction with the technical professional operations. Any manager who practices this form of control usually assumes some portion of the technical operating responsibility, either directly or by default, because his technical "subordinates" soon tire of being "second guessed" by their boss, and defer technical as well as managerial decision-making to him.

At lower echelons, this type of individual can perform an effective role as a "working supervisor". At higher management levels he may also perform an effective role, but he runs a great risk of slowing down the entire operation, by becoming overly involved in the technical aspects of the program, thereby neglecting his managerial functions. Nevertheless, many managers prefer this style of operating[1].

Control by Exception The most common management control systems for busy executives in large organizations operate "By Exception". This is necessary if management is not to be continuously involved in every detailed act. Management by exception means that certain standards are identified, with permissible limits described in advance. As long as performance is within acceptable limits, management does not interfere with technical operations. When performance exceeds these limits (for better or worse) management is informed, then investigates and takes corrective action.

---

1 Promotion systems within most organizations predispose managers to behave in this manner, because technicians are usually promoted to managerial positions on the basis of their technical performance rather than their managerial abilities. Management is usually perceived as a "higher" status job rather than a different "professional track" requiring different skills.

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CONTROL BY EXCEPTION

Control by exception uses two styles of information control:- Active and Passive.

Active Control As distinct from the "Positive" role, discussed earlier where the active manager injects himself into the technical details of operations, "Active Management Control" is where in addition to obtaining written reports on the program, the manager directly observes operations, administers tests, conducts surveys and makes personal field inspections.

This is a highly desirable role for the active manager, but it is time consuming, and has certain limitations. The manager should be aware that unless he makes such inspections on a random sampling basis, they should be treated as "impressionistic" only.

Although useful to enable the manager to improve his mental picture of the "real world", such sampling should not be used for quantitative analytical purposes, since there is no way of measuring its reliability. The data generated by the regular MIS, which should be more reliable, may not necessarily support the impressionistic observation, drawn from the manager's small sample.

Passive Control The manager is "passive" when he waits for reports which are submitted either on a routine recurring basis, or on a special one-time basis. The routine report is the method most frequently used, but it is also more difficult to implement and to use properly.

In passive control, management uses information rather than observation as the primary control device. Therefore management must identify clearly what information is needed so that it can adequately substitute for "on-the-scene" observation.

There are three key elements of control:

1. Establishing Standards
2. Detecting deviations from standards and measuring their extent
3. Taking corrective action

These reports must contain accurate, impartial, timely, and meaningful data. Most large organizations resort to a management analysis staff to consolidate the reported data, perform statistical analysis to identify trends and relationships throughout the whole operation, and present the significant information to the responsible managers.

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LIMITATIONS OF CONTROL MANAGEMENT INFORMATION SYSTEMS

Formal control systems introduce an inherent rating aspect which can compromise the original purpose. The very explicitness of formal control procedures provides a clear means to compare performances of subordinate managers and personnel. However, since reports are usually prepared by the operating activity with a vested interest (those actually performing the tasks) and then transmitted up through the organizational heirarchy, distortion of data can occur.

There is a human tendency for reporters to emphasize favorable data and to deemphasize,(or even screen)out unfavorable data. Thus, there is a tendency for the system to become an end in itself. The danger is that all efforts become directed toward what looks good in the reports. Attention from the bottom up erroneously tends to focus on completing the data elements that comprise the key indicators in the MIS, rather than on the objectives of the program which the key indicators have been selected to represent.

For example, a report that shows that each field production technician has signed up and trained his quota of "supervised farmers" looks good in the report. However, the signing up and training may have been rushed just so the report would look good. If that were indeed the case, the real purpose of the supervised training of farmers -- greater technical knowledge, and hence improved productivity and production -- would not have been achieved. Or worse still, the reports may be compiled by technicians in the office without actually doing any of the tasks reported!

Such distortions can never be completely eliminated from "people operated" systems. However, their effects can be minimized by management staffs continuously examining their formal management systems, and conducting regular, independent unannounced on-the-spot visits, surveys and statistical analyses. This does not mean that control procedures should be duplicated, but rather that they should be cross-checked, by correlation analysis and significance testing.

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SUMMARY

In summary, management control systems are formalized methods designed to monitor key management indicators. The system helps highlight problem areas that might affect mission performance. The "Management by Exception" principle operates on the assumption that management doesn't have time to look at everything, but when something gets exceptional (good or bad) those cases should be brought to its attention. This implies that at the outset management is willing to take the time to identify key technical indicators for the long term, establish the acceptable tolerances, and incur the cost of a special staff to monitor the system on its behalf. Although broader in concept than the STATUS System, the technicalindicators in the CONTROL System once selected, are fairly inflexible. Consequently, once established, if management dabbles in decision-making by seeking ever new indicators, the systematic efficiencies of a structured Management Information System will soon break down by the changes imposed upon it, or its utility outweighed by the ad hoc "priority" requirements imposed upon the organization.

Such a system can be manual, but as the number of "key data elements" grows, the scope of the project expands, and/or the number of statistical analyses increases, the efficiencies of large scale processing can be brought to bear by selected computerization.

MANAGEMENT INFORMATION SYSTEMS -- AN AID TO DECISION-MAKING

A management information system which provides regular systematic analyses of key indicators (technical, or otherwise), is not a substitute for judgement. It is only an aid to judgement. Systematic monitoring, control and analysis helps managers by isolating those areas where judgement must be applied and by indicating to the manager the potential significance of the information as revealed by the available data. The CONTROL MIS is based on the assumption that most occurrences are at least partly susceptible to rational analysis, and it tries to deal with these in a disciplined way. Regular, structured analysis, monitoring of key indicators, analysis and presentation to management eliminates much of the guesswork for the decision makers, leaving them more time to ponder the imponderables and weigh the intangibles -- to set the policies and directions for the program that they think will help attain the desired objectives.

A good management information system does not guarantee effective management. But with a poor system, even the most outstanding manager can do little more than rush from one crisis to another, hoping that his ad hoc decisions will withstand the penetrating review of hindsight.

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GENERAL PRINCIPLES IN MANAGING BY OBJECTIVES

1 -- Top Management determines the overall objectives of the Program and establishes priorities within those objectives.

2 -- Subordinate Managers determine the specific goals their employees should achieve to support the overall objectives.

3 -- Management at all levels explains to its employees the overall objectives, the rationale for the program, and the method for implementing, and following-up on the results.

4 -- Employees identify the specific goals that they individually must achieve to accomplish the organization's overall objectives.

5 -- Managers review employees goals and reach mutual agreement on the specific objectives they are to achieve.

6 -- Managers mutually agree when these objectives will be achieved, and how progress will be measured.

7 -- Managers mutually agree what resources and support will be required to attain the objectives.

8 -- The frequency, timing and content of progress reporting is agreed to between management.

9 -- A control system of monitoring and feedback on progress to management and employees at all levels is agreed to between management.

10 -- An After-the-Fact Evaluation is arranged for.

Since this booklet is a guide to Management Information System, rather than Management, per se, the above outline will not be discussed specifically here, but only in passing, in relation to the development of the Masagana 99 MIS.

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IMPORTANT CONSIDERATIONS IN SYSTEMS DESIGN

The following is a check list of some major considerations to bear in mind when designing a Management Information System. It is not structured in any particular order. No claim is made that it is a comprehensive list, and it can probably be added to by each individual reader. However, in the absence of anything better, it should serve as a good starter, and point of departure for an MIS design group.

Purpose

Scope

Environment

Communications

Man/Machine Interface

Cost

Personnel

Data Processing

Processing Time

Reporting Frequency

Detail Desired

Authority & Chain of Command

Data Summarization

Verification

Project Popularity

Goals & Targets

Vested Interests

Each of these factors is discussed in general terms on the following pages, and later, specific reference is made to them in terms of the Massagana 99 Program.

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IMPORTANT CONSIDERATIONS IN SYSTEMS DESIGN

PURPOSE Why is a management information system required? What type of system is needed? Who will use it?

SCOPE How is the project organized; what are the units from which data will be gathered? Are they technical, functional, and/or geographical? Are each of the data elements unique to a particular "organization", or are there a number of similar work units which can be structured to produce similar data elements? Can any of the data elements be summarized through intermediate organizational levels, or are they directly analyzed only at the central level?

ENVIRONMENT Is the project being implemented in a modern, sophisticated urban situation; an underdeveloped traditional rural situation or some stage in between? What geographical distances must be covered between data collectors and processors?

COMMUNICATIONS a. What methods of communication are available to transmit data from the collectors to the processors? Telephone, Radio, Telegram, Bush Telegraph, Mail, Messenger, personal hand-carrying, and/or verbal reporting?

b. What is the time lag between transmission by the collectors and receipt by the processors? Instantaneous, delays of seconds, minutes, hours, days, weeks, months? How consistent is this? Is it the same all year round or does it vary by the season, or political climate?

c. How reliable and secure is the system? Does it transmit accurately, or is there likely to be distortion (deliberate intervention or natural/technical causes) in the process? Is a "hard copy" of the data transmitted from the collector to the processor?

MAN/MACHINE INTERFACE To what extent is the system people-oriented or machine-oriented? In other words, are the indicators the result of mechanical readings (such as weights, measures, temperatures from mechanical devices) or are they judgemental factors? Are they produced automatically, or are they interpreted by people?

COST How much is management willing to spend to obtain the information it desires? Is the information needed whatever the cost, or are you working within budgetary limitations (i.e. some percentage of the project cost), or is preferred that the cost not be explicit, but buried in the operating costs.

PERSONNEL a. Is the project staffed with experienced, skilled data collectors, or will the burden be on inexperienced, unskilled techniciens who must learn on-the-job?

b. Are there sufficient personnel to collect the data for the area of coverage?

DATA PROCESSING Will the MIS be manual, computerized, or some combination of both. Can any of the collection aspects be "Source Data Automated" or will it be manually captured and later transcribed for machine processing?

PROCESSING TIME How long will it take after the occurrence before the central management staff can complete an analysis of the phenomena.

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REPORTING FREQUENCY How frequently does management desire to be informed of the operational situation -- continually, daily, weekly, monthly, quarterly, periodically, infrequently "By Exception"?

DETAIL DESIRED How much does management want to know -- "everything", "selected indicators", regularly "selected indicators by exception", "ad hoc" special studies.

AUTHORITY & CHAIN OF COMMAND a. Is the project manager "all powerful" to those from whom reports are required? Does he have direct authority over them, or do they work for someone else, and only provide data as an additional task, or as a courtesy.

b. How long is the Chain of Command? Does the project manager communicate directly with the data collectors, or does he have to go through several intermediate managerial levels?

DATA SUMMARIZATION Is the data only to be summarized on the project as a whole, or will it be summarized at, and for, intermediate levels?

VERIFICATION Can the central staff get easy access to the source of the data and the collectors to spot check, sample and verify the validity of the data reported?

PROJECT POPULARITY Does the project have a favorable Public Image with which people are willing to be identified, or is it generally unpopular and collectors likely to encounter resistance, withholding or deliberate distortion of facts?

GOALS & TARGETS a. Can the overall goal be quantified? If so, can data be obtained to measure accomplishment towards it? How frequently? Note: This is a very real problem in many economic development projects. It is quite easy to state a macro-economic goal "to raise the per capita income of a selected population group (for instance The Rural Poor) by 5%". It is entirely another matter to get hold of the raw data to actually measure it on a frequent basis.

b. Can the overall goal be sub-divided into smaller, intermediate targets? For example, can Production of Rice be expressed in monthly as well as annual terms?

VESTED INTERESTS Are the data collectors or the intermediate supervisors completely unbiased observers of the data they are required to collect and transmit, or do they have vested interests in understating or overstating the facts as they see them?

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GENERAL PROCEDURES IN DESIGNING A MANAGEMENT INFORMATION SYSTEM

1 -- Make a Technical Review of the Project (or Program)

2 -- Identify the Project's Objective

3 -- Identify the Data Elements

4 -- Determine Management's Desires

5 -- Develop Key Indicators

6 -- Select Key Indicators

7 -- Structure the System Formats

8 -- Determine the Reporting Frequency

9 -- Predetermine Standards

10 -- Establish Tolerable Ranges for Indicators

11 -- Arrange for Feedback

The above steps are discussed more fully on the subsequent pages in general terms.

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Make a Technical Review - You must become familiar with the technical aspects of the project or program with which you are going to work. If you have no technical background in the subject matter, locate some simple introductory materials and get yourself a "Reader's Digest" education on the topic. This will enable you to communicate with the experts. Then call in some technical experts and rely on them for technical fine-points.

Identify the Project's Objectives - What is the project specifically supposed to accomplish? This is an obvious, but often neglected point. People sometimes get so immersed in the immediate day-to-day operations of what they are doing -- the "input" and the "throughput" -- they forget about the "output" that they are supposed to produce. Remember that without clear objectives, managing is haphazard and no individual or group can expect to perform effectively or efficiently.

Identify the Data Elements - Together with your technical experts, "brainstorm" the possible raw elements of data that could be obtained, or useful to the project. Don't worry about their significance, how realistic it would be to obtain them, their source or formatting, and don't become alarmed at the number. Just list them. During this brainstorming session, many "intermediate" data elements and indicators[1] (such as rates, ratios, and percentages) will be suggested. Include them, but remember that such data cannot be obtained directly. They must be calculated from more basic data, which you should also identify. As a help in this stage, screen the existing files and see what kinds of data have been reported and utilized in the past on this or similar projects.

Determine Management's Desires - Sometimes, management has well established ideas about what it wants, and can be of assistance to you in the formulation stage. Often however, management doesn't know precisely what it wants, so asks for "everything". Generally, the less confident they are in their managerial ability, and/or the more technically competent they are in a particular aspect, the more indicators management will feel the need for. Obviously, "Everything" is not a feasible option for a Project Control MIS, and you should not limit yourself to (or accept uncritically) the indicators that management requests. In many instances, the manager may not have been totally aware of his project in terms of key indicators. He may have merely accepted those that already existed when he took over, or those with which he is familiar from his specialized technical training. For instance, an engineer who becomes a project manager usually requires a lot of engineering type data to manage by; a former budget officer surrounds himself with financial data, and ex-personnel officers tend to look at organization charts, staffing patterns and workloads for guidance. The actual selection of indicators will be the responsibility of the systems designer. Since you will have to persuade management that it can effectively monitor the project with them however, it is well to consult first to sense their direction.

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1 A good working definition of an indicator is that it is a statistic of direct normative interest which facilitates concise, comprehensive and balanced judgements about a situation, subject to interpretation that, if it changes in the "right" direction, things have gotten better, or people are "better off", and if it changes in the "wrong" direction, things are getting worse, or people are "worse off". (Freely adapted from Toward a Social Report, U.S. Dept. H. E. & W (1969).

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Develop Key Indicators - For every key aspect of the project, one or more indicators should be developed. Management's capability to use the information desired and/or developed is the paramount criterion in establishing key indicators. If it does not perform a function in the decision-making process, there is no use collecting it.

In general most managers receive far more information from many other sources than they can possibly use. Some is useful, some nice-to-know, and some totally irrelevant. However, before they can make this decision, they have to sort it out and segregate it, which consumes a large portion of their valuable time. Do not add to the manager's burden by further overloading him with irrelevant or nice-to-know information. He will not thank you for it. Put yourself in the manager's shoes and think the decision-making process through. Ask yourself what kind of decisions the manager could make concerning the project. Then ask yourself "would it make a difference if I did not receive this piece of information?" If not, eliminate it; and if in doubt -- throw it out!

Generally, managers are not (or should not be) interested in the specific details of a situation, but what these details can mean in a big picture. This means that rates, ratios and percentages are more likely to be useful indicators than actual units of measurement. One or two unit measures may be useful to the manager as well, however, just so he does not lose touch with the substance of the project.

Select Key Indicators - If you have more than one indicator for the same process or particular aspect of the project, consider whether any are redundant. Would one be better than the others. Why have two, when one might do? One caution to observe in selecting indicators -- make sure that the raw data elements that are required to develop the indicator are obtainable! I have seen instances where beautiful indicators were developed, but the raw data was impossible to obtain from any source! This of course renders the whole thing "inoperative".

Much nonsense is injected into many management information systems by "old line" reports officers and inexperienced designers at this juncture. They typically claim that a lot of data is necessary (and thus cannot be pruned) because it can be used in cross-checking. Here they fail to distinguish between research and/or technical operational data, and management indicators. In fact, most of such data reported to management levels is not used to cross check, even if it could be. More often, it is merely recorded and filed. Furthermore, if it is compared, there is usually no statistical significance testing done, and without such analysis, raw numbers that do not exactly compare give rise to more questions than answers, confusing rather than clarifying the picture for management. It also dissipates the field staffs productive technical efforts, because every element of data required by management takes time and effort to collect.

Therefore, when you are at the stage of reviewing data elements to select key indicators, wield the pruning pencil freely!! As you proceed, keep management informed of your progress, so that they will understand what you are doing, and hopefully feel they are a party to it. Otherwise, you run the great risk that when you finally present the complete system, they will say "That's not what I want", and either reject it outright (and you along with it!) or start redesigning the whole thing over again. In either case, much work will have been wasted, and time lost.

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Structure the System Formats - With the key indicators clearly identified, selected and tentatively approved by management, you may proceed to structure the way in which data will be recorded and reported at all levels in the system. Start with Top Management's report. Make a dummy outline of what you want to present using some hypothetical data. This will guide you in organizing the data required to support it. Anything that does not contribute to the above can be further purged from the system! There are four basic types of formats involved in a Control MIS; The Basic Worksheets, the Transmission Reports, the MIS Staff Analysis, and the Top Management Summary. The format in which information is presented to management should be different from the manner in which it is received. Management's report should be organized so that everything is in an orderly manner and easy to locate and understand. At the other extreme, the basic raw data should be recorded by the field technician on a worksheet, designed for convenience in collection rather than analysis. Transmission of data from the technician should be in a summary report, designed for ease in transmission.

Failure to do this preliminary design work is the basic weakness in traditional reporting systems. It is an important point for further discussion. From my observation of reporting systems that have been structured, the syndrome seems to follow a pattern of overemphasis on designing worksheets and neglect of transmission and management summary reports design. The worksheets usually seem to be highly structured in a matrix format with many redundant data elements and they are transmitted, unanalyzed, to the next management level. Transmitting worksheets is counterproductive in many ways. Since the burden of analysis rests with the recipient, who rarely has the time or the staff capacity to do so, they continue on through the heirarchy largely unanalyzed. At the same time, they foster the illusion that with so much data, so well organized on these "spread sheets" at the lower levels "they" know what is going on, and at the higher levels, management can summarize whatever it wants from all our data! Higher management in turn tends to feel that its subordinate managers must have the big picture. The sheer bulk of the document when received by top management inhibits more than a cursory glance, and with the pressures of time, go unread. They do indicate to outsiders that management has a lot of facts at its disposal and thus presumably knows what is going on, and are indeed often used by management as "handouts" to questioners.

Thus "worksheet" reports become bureaucratic scriptures, - freely circulated, often alluded to, occasionally glanced at, but seldom read, and rarely interpreted. Unfortunately, they have little impact upon the programs or projects being reported upon. Their production becomes the end rather than a means to action based on the consolidated information they contain. The time absorbed in their preparation also precludes other productive work by field personnel, upon whom the ultimate burden for data gathering rests. Awesome, but unread, they are thus institutionalized, regardless of utility. When they fail to do the job intended, additional reporting requirements, in ever greater detail, are imposed on the already overburdened system by a frustrated management.

In a good design, the worksheet of the technician will not be a miniature picture of that which top management receives. The basic raw data elements which he records on his worksheet will only be a part of the data used to establish the key indicators. Top management's information will come from many sources. Imposing a new reporting structure on any organization always causes problems. Management's assurances that it is better, more effective, more efficient, etc. usually fall on deaf ears. It means new procedures, additional paper and leg work on the part of the "doer", with little, if any, benefit in return. It is always helpful therefore, if you can eliminate an existing requirement as a quid pro quo when installing a new system. Before you finish structuring your formats also check with the existing system to see whether any of the required data elements could be culled from these secondary sources.

Determine the Reporting Frequency - How often should management be informed on a regular basis? Daily, Weekly, Monthly, Quarterly, Annually, or when?

There is no standard answer for this. The urgency of the situation, the available communication network and the staff time required and available to process the data are all important factors to take into consideration.

As a general practice, however, management seems to want information much more frequently than it can be gathered and processed, and also more frequently than they have the ability to absorb. For example, a report that is submitted by a field agency to the central office on a weekly basis because of a statutory requirement is serving no constructive purpose if the central office only has the capability of summarizing it monthly!

Predetermine Standards - In consultation with management, the time has come for determining levels that can reasonably be expected to be attained in each of the indicators at various intervals during the life of the project. Management may already have some overall goals established. Your job is to help management think through the project and indicators in detail. Be patient. Management may not have gone through this exercise before and may consider it a waste of time, impossible to do, or both. However, you must persist, for without a basic plan, you will have nothing to compare the actual results, and your information will be reduced to "nice-to-know but so-what" rather than information upon which to act. Managers generally tend to feel that defining goals or standards is extremely difficult since activities vary from year to year, from man to man, and from one project to another due to a myriad of uncontrollable variables. Despite this, it is important that management state what it would like to happen.

In some situations, particularly where you are comparing a large base of different work units performing similar functions, predetermining standards is not so critical. Instead you can monitor and report the variance between the work units for any particular indicator, and use this as the basis for applying managerial pressure to the extremes. (The Masagana 99 MIS utilizes this approach). Standards can then be developed as you go, based on "normal" or "average" performance. However, unless the project is open-ended in time, its objectives may not be met this way.

Establish Tolerable Ranges for Indicators - The principle of management by exception means that matters should only be brought to top management's attention when things are exceptional.

Having established what indicators are significant, management must now determine what is meant by "exceptional." ±5% variation? ±10% variation? Or what? In real life, things hardly ever work out exactly as planned. Sometimes they get a little ahead, sometimes a little behind. Allowance must be made for these variances otherwise management will be saturated with detail again. Again, where a number of a similar work units are being compared, instead of absolute variation being used as the measure, the statistical standard deviation from the mean can be utilized.

At the lower managerial levels, the exception principle will not generally be applicable. It is the responsibility of these managers to keep their production/accomplishment up to standard wherever possible. They must, therefore, be aware of actual production as the work proceeds so that they can take on-the-spot corrective action as needed. They should not pass on information to top management, and then learn about it themselves for the first time when management calls them on an exception basis!

Feedback - It is important that the comparative analysis which the management information staff prepares in its continuous monitoring of the key indicators, be made available to the various subordinate managers and staffs so that they may see their relative standings and contributions to the overall program. As indicated earlier, although they should know the items which they contributed to the report, they may be unaware of some of the data elements (and consequently the indicators) provided from other sources. Also, by seeing their own ranking compared to their peers, they may obtain a better perspective of their own role in overall program accomplishment.

SYSTEM DEVELOPMENT VS. ACCURACY

It is important to recognize that in the development stage, establishing a valid and reliable system structure has priority over obtaining accurate data. In the early stages of implementation, numerous errors will surface throughout the system. The MIS staff should not attempt to make adjustments to the data received (interpretations of what 'they' really meant) merely because it looks wrong. The data should be accepted, faithfully transmitted and recorded at its face value. During the comparative analytical phase, these obvious errors will show up again and be available for corrective follow-up action. This is the appropriate way to make contact with those who submitted the data.

Accuracy can always be improved with closer follow-up and double-checking. However unless the integrity of the system is stressed, monitored and maintained, basic errors in the system may continue from the source, uncontrolled. Once the system is established, time can be spent by the MIS staff to follow-up before utilization of the reported data. The tendency to "second guess" the reported data must be curbed however. At all times, the data submitted is the responsibility of the reporter. No matter how "expert" they may be in the subject matter, the MIS staff has no basis for substituting their judgement for his. The MIS staff merely process and analyze the data received. Once "second-guessing" starts, the reporter will disassociate himself from his own reports, data sources will be difficult if not impossible to trace, and the integrity of the entire system will fall apart.

A brief example should illustrate this point. In the early design and implementation stages of the Masagana 99 MIS, several PPOs reports indicated less hectarage planted for the second month of the program, than for the first month, even though the data was supposed to be cumulative. There was insufficient time to check back with the PPOs to verify their data prior to the analysis and publication deadline. It would have been a simple matter for the MIS staff to substitute their knowledge for the PPOs and merely added the previous month's reported data to the current month's figures. Although this might have improved the accuracy of the report for the short term it would not have helped in building the system. The PPOs would have continued to have reported erroneous data (i.e. monthly, rather than cumulative reports), and grown very cynical about the "Central Office" adjusting their figures ("That's not what I reported!"). Also, other PPOs who had made the same mistake but had not been detected because their second month's data was greater than their first month's, would not have been made aware that they were also doing it wrong. As it was, we were able to discuss the problem with all the PPOs as a group, point out "apparent errors", and reinforce the reason for cumulative data.

SUMMARY

The foregoing is a generalized explanation of the procedure for developing a Control Type Management Information System. Any system developed for this purpose should be relatively simple, easy to understand, and not require a great amount of the field staff's time to implement and operate.

Once developed, such a system can provide a high level of control over a project with a minimum amount of effort on the part of the manager. In general, it will simplify his life, while giving him increased effective control over his project.

We will now turn to the Masagana 99 Information System and discuss in detail how these principles and procedures were (and are being) applied.

THE MASAGANA 99 MANAGEMENT INFORMATION SYSTEM

OVERALL DESIGN

PURPOSE The Masagana Management Information System (MIS) is a CONTROL TYPE system to obtain standardized data from all participating provincial field technicians and other selected sources, and process it centrally to provide a regular comparative analysis of accomplishment in the province, together with an overall national analysis of the rice production program, in terms of several selected key statistical indicators.

The above assessments are regularly furnished to the Secretary of Agriculture and the National Food and Agriculture Council (NFAC) Management Committee, for information, program corrective action, and policy-making decisions. Feedback copies to the participating Provincial Governors, and their Provincial Action Committee, (including the Provincial Program Officers and Bureau of Agricultural Economics Provincial Staff Officers) are also provided for their comparative review and necessary follow-up action.

SCOPE Masagana 99 is a nationwide program, implemented by various governmental and private organizations in 57 provinces, and coordinated by the National Food and Agriculture Council (NFAC) in Quezon City. The manager of the Masagana 99 program reports to the Director of NFAC, and the Secretary of Agriculture.

For management purposes, the fundamental organizational structure is geographic:- THE PROVINCE is the principal management unit. Under the program, each province has an officer in charge -- THE PROVINCIAL PROGRAM OFFICER (PPO). PPO's are direct employees of the Department of Agriculture, either in the Bureau of Plant Industry (BPI) or the Bureau of Agricultural Extension (BAEX)

The PPO has a number of TECHNICIANS who work under his direction in implementing the program. Some of these technicians may be his own direct employees, while others may belong to another government agency, but detailed to work on the Masagana 99 program.

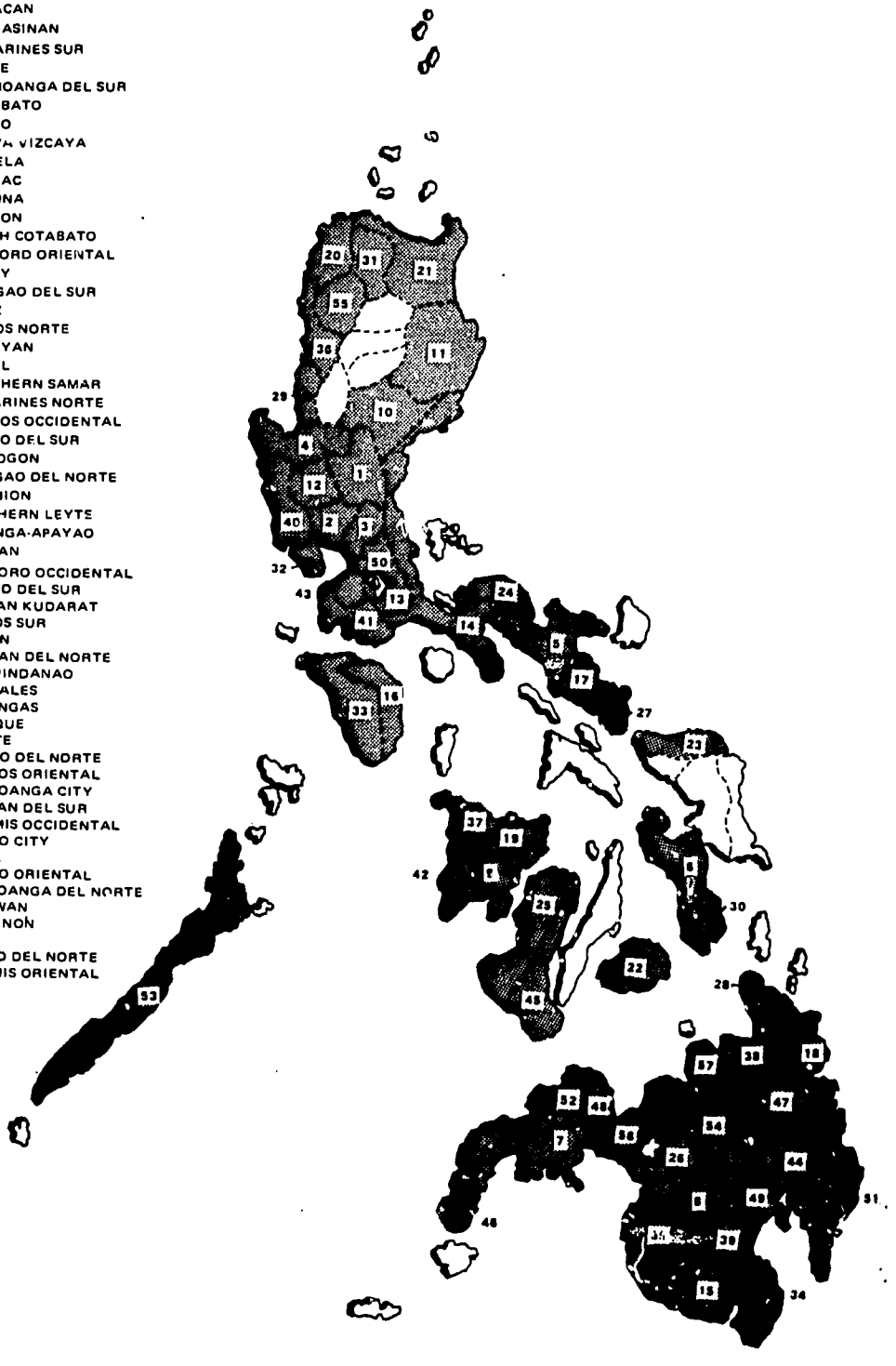
Each technician performs essentially the same function -- assisting, supervising and monitoring the productive efforts of a number of FARMERS. Thus their reports can be standardized and structured for systematic analysis.

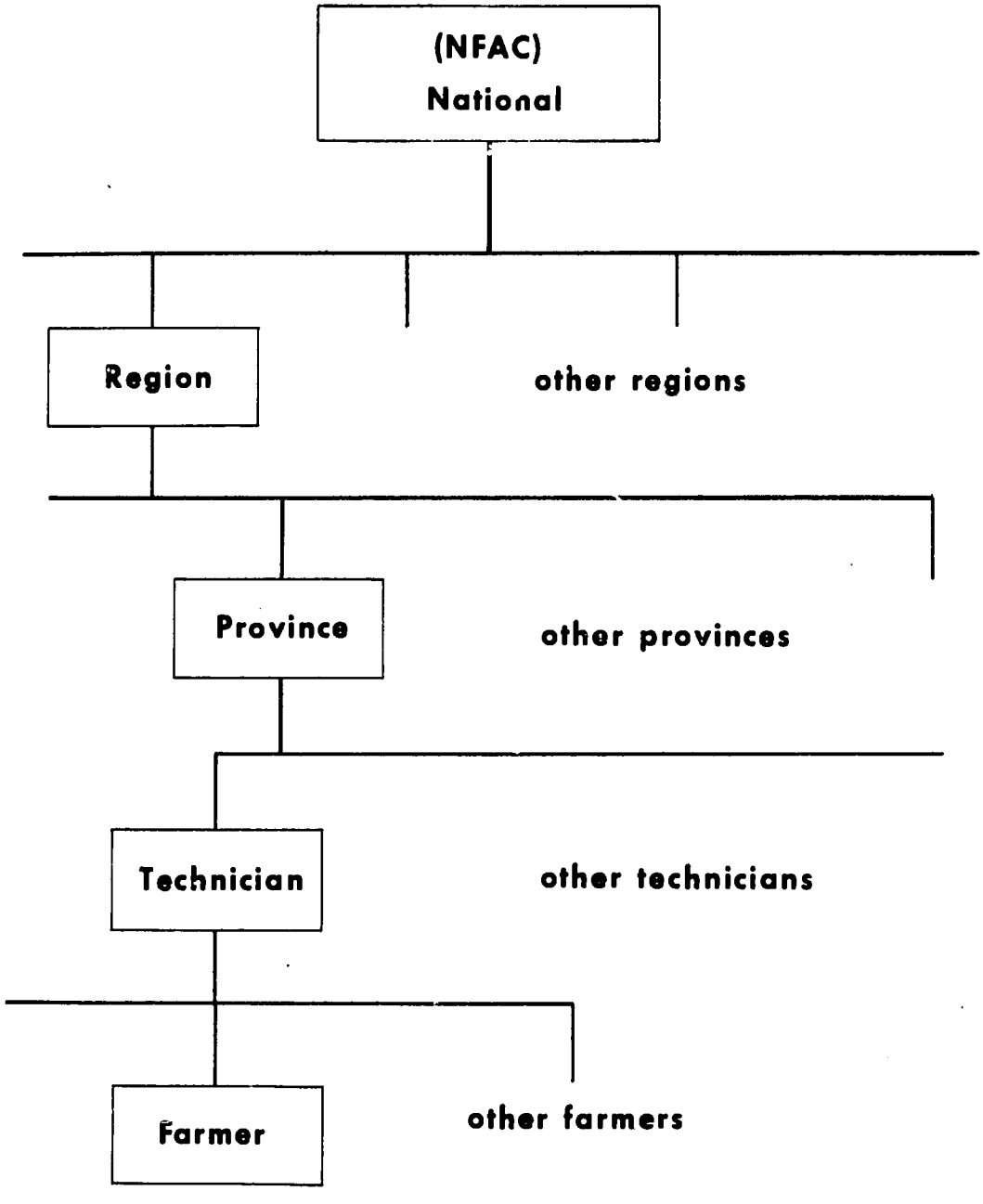
In addition to the PRODUCTION data from the technicians on the farmers they supervise, the PPO obtains CREDIT data from various institutions providing credit to the farmers -- the RURAL BANK, the PHILIPPINE NATIONAL BANK, and the AGRICULTURAL CREDIT ADMINISTRATION. Thus the required credit data can also be standardized and pre-structured.

ENVIRONMENT The program is being implemented nationwide in a traditional, underdeveloped rural situation. Data on the program is gathered by the technicians, and the financial institutions in each of the participating provinces, summarized by each province, then transmitted to NFAC and/or BAECON in Quezon City, where it is centrally processed.

MASAGANA 99
PROVINCES

ORDER	PROVINCE
1	NUEVA ECIJA
2	PAMPANGA
3	BULACAN
4	PANGASINAN
5	CAMARINES SUR
6	LEYTE
7	ZAMBOANGA DEL SUR
8	COTABATO
9	ILOILO
10	NUEVA VIZCAYA
11	ISABELA
12	TARLAC
13	LAGUNA
14	QUEZON
15	SOUTH COTABATO
16	MINDORO ORIENTAL
17	ALBAY
18	SURIGAO DEL SUR
19	CAPIZ
20	ILOCOS NORTE
21	CAGAYAN
22	BOHOL
23	NORTHERN SAMAR
24	CAMARINES NORTE
25	NEGROS OCCIDENTAL
26	LANAO DEL SUR
27	SORSOGON
28	SURIGAO DEL NORTE
29	LA UNION
30	SOUTHERN LEYTE
31	KALINGA-APAYAO
32	BATAAN
33	MINDORO OCCIDENTAL
34	DAVAO DEL SUR
35	SULTAN KUDARAT
36	ILOCOS SUR
37	AKLAN
38	AGUSAN DEL NORTE
39	MAGUINDANAO
40	ZAMBALES
41	BATANGAS
42	ANTIQUE
43	CAVITE
44	DAVAO DEL NORTE
45	NEGROS ORIENTAL
46	ZAMBOANGA CITY
47	AGUSAN DEL SUR
48	MISAMIS OCCIDENTAL
49	DAVAO CITY
50	RIZAL
51	DAVAO ORIENTAL
52	ZAMBOANGA DEL NORTE
53	PALAWAN
54	BUKIDNON
55	ABRA
56	LANAO DEL NORTE
57	MISAMIS ORIENTAL





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COMMUNICATIONS

a. The primary method of communicating M-99 data from the technicians to the PPO is by the technician hand-carrying the data to the PPO in the province. From the PPO to the Central Office, the primary method of transmission is by radio although some reports are transmitted by commercial telegram. In addition, a "hard copy" report is sent by mail for file record purposes.

b. The time lag for radio and telegraphic reports is usually up to three days from the more remote parts of the Philippines. However, some provinces have no access to either radio or telegram, and in the rainy season many of the roads are impassable. Thus many technicians cannot report to their PPO's in the first instance, and several provinces may not be heard from for one or two months. (These conditions also have an impact upon the implementation of the M-99 program).

c. The transmission system has a low qualitative reliability. Periodically, technicians are unable to transmit reports at all to their PPO's due to natural causes; radio transmission is subject to distortion, and even telegrams are occasionally garbled. Most hard copy reports are received too late for summarization at the central office and thus not used in the decision making process. Nevertheless, given the circumstances prevailing in the Philippines, this is the best transmission system option that can be anticipated during the life of this program.

MAN/MACHINE INTERFACE

The system is primarily people-oriented. Although most of the indicators are seemingly precise quantitative measures, in most instances they are not exact measurements; they are estimates by people observing or questioning others.

COST

The total cost of the M-99 data is not explicit, as it is buried in operational costs. Management needs some information for program management regardless of its acquisition cost, and the recent establishment of a separate Management Information Systems Staff within NFAC indicates its continuing desire for this type of data analysis.

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PERSONNEL

a. The primary data collectors in the system are the provincial agricultural technicians. Even if skilled in their agricultural speciality, in so far as data collection, recording and transmission is concerned, they must largely be considered untrained and inexperienced. They will be trained on-the-job and through short training seminars, in the proper maintenance, recording, and reporting of data. Indications are, however, that most technicians are overextended in their area of coverage.

b. The PPOs are also being exposed to new reporting concepts on-the-job. Most have had some experience during the earlier phases of the Masagana program. This will be supplemented with a number of short training seminars, and follow-up visits from the Central MIS staff. Most have a reports officer on their staff, who should also receive intensive training in MIS concepts and procedures. The Bureau of Agricultural Economics is cooperating with the PPO's at the field level to prepare the monthly provincial report for NFAC.

c. The Central Staff have acquired extensive on-the-job experience in implementing the MIS during earlier phases of the program. A permanent full-time staff unit has recently been established within the NFAC, and includes new hires. Formal training in Management Information Systems and related management concepts will be enlarged through long term participant training in the U.S. as well as short training seminars, in-country, and continued on-the-job application.

DATA PROCESSING Initially, the system was established as a completely MANUAL one. Currently, design work is underway to computerize much of the data received at the central office, for statistical analysis, tabulation and comparative feedback. It is anticipated that the data coming from the provinces will continue to be manually captured and reported to NFAC.

PROCESSING TIME Deadlines for reporting have been established with emphasis on timely reporting and processing, so that a completed report can be made available to the NFAC management committee two weeks after the month being reported.upon.

The current target date for production of a monthly comparative report and summary analysis, is 15 days after the end of the month reported upon. This time includes transmission time from the data collector to NFAC. It is hoped to reduce this to 10 days after computerization. (Currently Central Staff Processing is 5 days, which could be reduced to 1 day).

REPORTING FREQUENCY Management requires an MIS report once a month, as soon as possible after the month reported upon.

DETAIL DESIRED Management wants the status of selected indicators for all provinces in the program reported regularly, comparatively analyzed, and exceptions noted. Reports to NFAC provide both production and financial data (obtained from the banking institutions) together with a multiple-choice type assessment on problems encountered during implementation. Data elements are reported as cumulative rather than monthly totals. In addition, ad hoc requests are made on other aspects of the program from time to time.

AUTHORITY AND CHAIN OF COMMAND

The Project Manager is not "all powerful". Some of the technicians who work under his direction are his own employees. However, some technicians are detailed from other agencies and/or bureaus and his control over them is not always total. Furthermore, since Masagana 99 is an NFAC program, the PPO himself may be responsible for carrying out other programs and projects of his own bureau. The program is wide ranging, including credit and inputs such as fertilizer and pesticides. These elements are handled through a separate chain of command over which the PPO has little direct control. There is thus an extensive amount of coordinating to do between various elements at the provincial level. This is handled by the PROVINCIAL ACTION COMMITTEE, of which the Governor is the Chairman, and the PPO his action officer. Nevertheless, the lines of authority are not completely clear out.

DATA SUMMARIZATION ANALYSIS AND FEEDBACK

Data is summarized by each technician for his area of coverage on standardized worksheets, then by the PPO for the Province, and finally by the NFAC for a nationwide picture. It can also be summarized by the NFAC for Regional shredouts if so desired.

The data is analyzed and presented in a number of tables - Each table analyzes a key statistical indicator. The data from each province is compared to its cumulative target and then the provinces are compared for performance on different indicators and then rank-ordered according to their standings. Thus the high and low performers on each indicator are immediately identifiable based on their own reporting.

A short summary and comment is made on this data, highlighting the apparent significance of the reported information. Copies of the report comparing provincial standings are furnished to each province for their information and use.

VERIFICATION

The Central Staff has no administrative limitations in access to data collectors and information sources. With appropriate credentials, they are free to interview bankers dealers, technicians and farmers. The only limitation is time, since it may take several days to visit an appropriate sample population in a province.

PROJECT POPULARITY

Masagana 99 has a high visibility and generally favorable public image.

GOALS AND TARGETS

Profiles - both graphic and numeric tables - outling the normal monthly planting schedule of each province have been developed so that monthly planting and harvesting rates can be estimated, and program targets planned.

a. The overall goal has been quantified in terms of hectares to be reached, and yields to be obtained therefrom. The data can be obtained on a monthly basis, subject to the limitations of inadequate technical coverage, and communications problems.

b. Intermediate targets have been developed for most provinces in terms of monthly plantings. These have to be expanded to other provinces, and their quality improved.

VESTED INTERESTS

The farmers have a vested interest in understating their production -- either to appeal for assistance, relief in the form of loan extensions, or to minimize taxation. They also occasionally overstate their production to boast about their high performance. To a large extent, the technicians and the PPOs also identify themselves and their performance with the production performance of the farmers.

FOLLOW UP

Independent sample surveys to verify the quality of the reported data are conducted periodically by NFAC, BAECON, USAID Central Staff and the MIS staff unit.

FAMILIARIZATION

The PPOs, BAECON Field Staff, technicians and other interested provincial personnel (including provincial governors) are periodically briefed on the mechanics of the system for their information and local utilization.

MASAGANA 99 MANAGEMENT INFORMATION SYSTEM FORMATS

The System consists of eight (8) distinct formats:

1. Provincial Profile
2. Technician Worksheet
3. Technician Summary Report to PPO
4. PPO Worksheet
5. PPO Summary Report to NFAC
6. Financing Institution Summary Report to PPO
7. BAECON/NFAC Comparative Provincial Summary of Key Indicators
8. BAECON/NFAC Summary Analysis

A sample set of these formats is shown for illustrative purposes only, and the purpose and use of each described.

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FORM 7

DEPARTMENT OF AGRICULTURE & NATURAL RESOURCES

BAECON/NFAC/USAID

P R O F I L E

CONSOLIDATED RICE SITUATION REPORT

ABRA

TOTAL EFFECTIVE
- HECTARAGE: (000' Has)

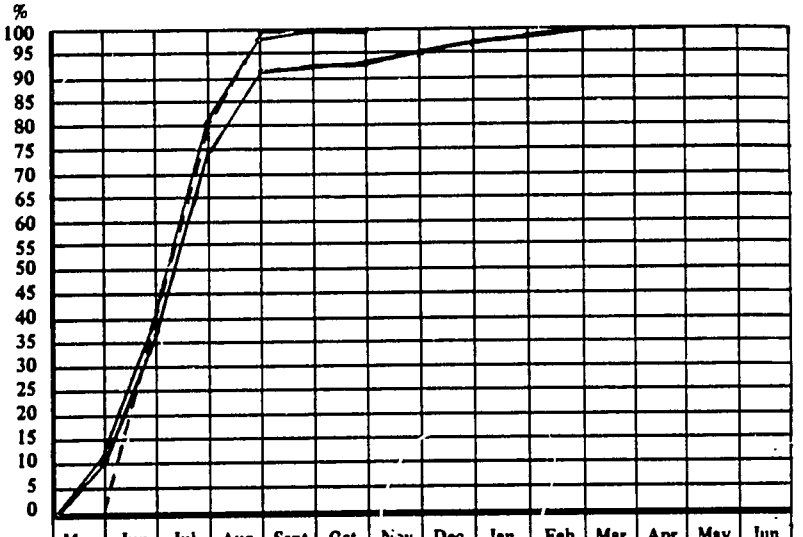
ANNUAL: 19.0

Legend:

— Normal Planting (Cumulative %)

- - - Reported Cum. Planting as % of Target

▬ Cum. % - May. Oct.



	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec '73	Jan '74	Feb	Mar	Apr	May	Jun
I. Monthly %	11	26	38	17	1	0	2	2	2	1	0	0		
II. Cum %	11	37	75	92	93	93	95	97	99	100	100	100		
HAs RICELAND PLANTED Cum % (May-Oct)	12	40	81	99	100	100								
A. *All Rice*														
1. Estimated (monthly)														
2. Estimated (cumulative)														
3. Historical (cumulative)	2	7	14	17	18	18	18	18	19	19	19	19		
4. Estimated as % of Historical (cumulative)														
B. *Masagana 99 Program*														
1. Reported (monthly)		9	3	1	0	0								
2. Reported (cumulative)		3	6	7	7	7								
3. Planned (cumulative)	1	3	6	7	7	7								
4. Reported as % of Planned (cumulative)		104	101	100	100	100								
5. Reported as % of Target		27	81	100	100	100								
HAs ALL RICELAND HARVESTED														
1. Reported (monthly)														
2. Reported (cumulative)														

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THE PROVINCIAL PROFILE

This form is the basic document for establishing "norms" and estimating provincial targets under the Masagana 99 program. In the planning stage, for program purposes, management is interested in determining TWO items of information from the provincial level.

a. How many "effective rice hectares" does it have?
b. When are they "normally" planted?

Because of political, sociological and natural (climatic) conditions, no two provinces are alike. This standardized format attempts to identify those differences in terms of **EFFECTIVE HECTARES OF RICELAND.**

The "Effective Hectare" is the basic unit of measure for establishing targets. An "effective hectare" is the equivalent of one hectare of land upon which one crop of rice is grown per year. Thus, for farmers who only raise one crop per year, their effective hectarage is the same as their actual hectarage. By planting two crops per year on the same hectare, the farmer has the same effect on total production as acquiring another hectare. Thus he has two effective hectares.

Although there may be seasonal peaks, rice is planted at different times in different provinces, and even within the same province.

The data on this form is developed by the Central MIS Staff in consultation with the Bureau of Agricultural Economics, the PPO, the Province Agriculturalist, and others who may have relevant input.

By structuring the graph in terms of percentages, a standardized format can be used for any province. Given the total annual effective hectarage, and the estimated percentage of plantings each month, the cumulative plantings in the province by phase can be estimated, and Masagana 99 targets established as some proportion of the total estimated provincial production. Projections can be made from this basic data to estimate the appropriate timing and quantity for inputs, and for harvesting and marketing.

During the program's implementation, the actual plantings can be plotted on the graph as a ready reference to determine adherence, or deviation from the plan. This updated information is useful for adjusting the program and alerting the support elements.

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Form 1

TECHNICIAN'S WORKSHEET

FARMER'S NAME	SUPERVISED FARMERS											APPLICATION			HARVESTED AND/OR DAMAGED								Repayment Pesos
	WITHOUT CREDIT				WITH CREDIT										IRRIGATED				RAINFED				
	AREA PLANTED				APPROVED LOANS			AREA PLANTED															
	IRRIGATED		RAINFED		Ha	Amount Pesos	Month	Irrigated		Rainfed													
	Ha	Month	Ha.	Month				Ha	Month	Ha	Month	Fertilizer Sacks & Type	Pesticides	Weedicides	Area (Ha)	Production (Sacks)	Ave. Yld. Cav. /Ha.	Month	Area (Ha)	Production (Sacks)	Ave. Yld. Cav. /Ha.	Month	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X

FORM 1 - THE TECHNICIAN'S WORKSHEET

This is the basic record of every farmer's activity under the program. It is maintained on a current basis by each technician responsible for supervising farmers, and must be kept up to date at all times. This is the technician's personal record of his work. It should not be sent to anyone else, and should be available for inspection by the PPO, the Central Office MIS Staff, and the Agricultural Program Evaluation Staff, or anyone having a need to review the data for research purposes.

Each farmer supervised should be recorded on the worksheet in a simple, but legible manner (it is not necessary to type the entries), and all details should be recorded in a cumulative manner throughout the season. Thus a complete record of an individual farmer's activity should be available from planting to harvesting by the end of the season.

The form is practically self-explanatory, so it will not be discussed here at length. An important point to note however is the method for recording the entries in harvesting/damage (P-W).

Every farmer who is recorded as planting must eventually have another entry indicating the harvest time and yield obtained. In the case of damage,

a. If the crop is not replanted, and the damage is TOTAL, it can be recorded immediately it is damaged, with a harvest of "0".

b. If the crop is not replanted, but some harvest is anticipated (however slight) recording of damage should be deferred until harvest time.

c. If damage is such that replanting is necessary, and replanting occurs during the <u>same month</u> as the initial planting, do not report the replanting.

d. If replanting occurs in a subsequent month to the damage, the blocks under damage/harvesting should be completed, indicating the area damaged, and the yield as "0". A new line entry should be made for replanting.

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FORM 2

NFAC/BAECON/USAID Management Information System

Masagana 99 Summary Report from Production Technician
to Provincial Program Officer

Cumulative from _____ to _____

Production Technician _____ Municipality _____ Province _____

Financing Institution _____

Note: Your report for the month must be received by Provincial Program Officer not later than the 3rd day of the following month.

SUPERVISED FARMERS WITHOUT CREDIT:

Planting Operation

1. Number of Farmers _____ farmers
2. Area Planted (Irrigated) _____ ha
3. Area Planted (Rainfed) _____ ha

Harvest Operation

4. Area Harvested (Irrigated) _____ ha
5. Total Production (Irrigated) _____ cav.
6. Area Harvested (Rainfed) _____ ha
7. Total Production (Rainfed) _____ cav.

SUPERVISED FARMERS WITH CREDIT:

Planting Operation

8. Number of Farmers _____ farmers
9. Area Planted (Irrigated) _____ ha
10. Area Planted (Rainfed) _____ ha

Harvest Operation

11. Area Harvested (Irrigated) _____ ha
12. Total Production (Irrigated) _____ cav.
13. Area Harvested (Rainfed) _____ ha
14. Total Production (Rainfed) _____ cav.

PROBLEMS:

15. _____ Lack of seeds
16. _____ Slow credit approval/release
17. _____ Fertilizer unavailable
18. _____ Pesticides unavailable
19. _____ Weedicides unavailable
20. _____ Water supply inadequate
21. _____ Flood, typhoon, drought
22. _____ Pests and disease
23. _____ Labor shortage
24. _____ Drying/storage
25. _____ Marketing/pricing difficulties

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FORM 2 - TECHNICIAN SUMMARY REPORT TO PPO

This form summarizes some of the data on the Technician Worksheet.

Note: Not all items on the form 1 need be reported to the PPO. They are merely recorded for reference purposes.

The Form 2 is a cumulative report. That is, the data reported is not just that which occurred during the month reported upon, but includes all data from the beginning of the phase. Thus to obtain the data for form 2, the entire column of the appropriate item on the Form 1 is totalled each month.

This has been developed as a cumulative system for two very important reasons:

a. It is easier for the technician to total his worksheet each month, than to extract from it the data that changed during the month.

b. Because of the problem of data transmission, occasionally technicians (and even PPOs) miss a monthly reporting cycle. Under these circumstances, if the data were only reported for the actual month in which it occurred, there would be no record of that data in the following month's report. (In a CONTROL SYSTEM, late reports of monthly activity are not utilized, because the decisions will already have been made without them). With a cumulative report, late reports distort the picture somewhat, but do not understate the project's accomplishment over the long run. Maintaining as much data as possible in a cumulative frame of reference therefore provides the most accurate picture of the project's status.

The first 14 items in the Form 2 are quantitative -- that is, they are numbers which should be accurate, and capable of verification. If the technician keeps a good record of the farmers he is supervising, and follows up their activities frequently, he should have no difficulty in compiling these numbers. If he does have difficulty, then either he is overextended and supervising too many farmers for the prevailing local conditions, or he is not maintaining his records properly. In either event, the PPO should follow-up and take appropriate corrective action.

The remaining items (15-25) are qualitative, or subjective evaluations by the technician. Here by checking the appropriate item, the technician indicates the major problem, or problems affecting his farmers.

Note: Although the Form 1 is kept as accurately as possible, the data transmitted in the Form 2 should be rounded off to the nearest whole number. Decimals should not be used in reporting as these can be missed in transmission, resulting in gross errors.

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Form 3

MASAGANA 99
NFAC/BAEcon/USAID MANAGEMENT INFORMATION SYSTEM

Financing Institution: _____

PROVINCIAL PROGRAM OFFICER'S SUMMARY WORKSHEET
CUMULATIVE FROM _____ TO _____

MUNICIPALITY	TECHNICIANS	SUPERVISED FARMERS																						
		WITHOUT CREDIT								WITH CREDIT														
		AREA PLANTED				HARVESTED AND/OR DAMAGED				AREA PLANTED				HARVESTED AND/OR DAMAGED				APPROVED LOANS			Loan Released	Loans Matured	Loans Repaid	Loans Restructured
		Irrigated		Rainfed		Irrigated		Rainfed		Irrigated		Rainfed		Irrigated		Rainfed								
		No.	Ha.	No.	Ha.	Ha.	Prod	Ha	Prod.	No	Ha	No.	Ha.	Ha	Prod.	Ha.	Prod.	No.	Ha.	Amount	Amount	Amount	Amount	Amount

FORM 3 - PPO WORKSHEET

The Form 3 is the worksheet on which the PPO compiles the reports of his technicians (Form 2) for the month.

This summary is made monthly, as a complete status report on the key data items by the technicians under his supervision. If desired, achievements during the month can be obtained by subtracting the previous month's statistics from the current month's.

Used properly, this worksheet can be the basis of an excellent monitoring and control system for the PPO to compare the performance of his technicians, and the progress of their farmers, in much the same way that the provinces are compared on the national level. (See pages 41 through 58 for a description of the comparative analysis).

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FORM 4

Masagana 99
Report from Provincial Program Officer to NFAC/BAECON
Cumulative from _____ to _____

Provincial Program Officer: _____ Province: _____

Note: Your report for the month must be received by NFAC/BAECON not later than the 8th day of the following month.

SUPERVISED FARMERS WITHOUT CREDIT:

a.	Number	a.	_____farmers
b.	Area Planted, Irrigated	b.	_____hectares
c.	Area Planted, Rainfed	c.	_____hectares
d.	Area Harvested, Irrigated (Phase _____)	d.	_____hectares
e.	Area Harvested, Rainfed (Phase _____)	e.	_____hectares
f.	Production, Irrigated (Phase _____)	f.	_____cavans
g.	Production, Rainfed (Phase _____)	g.	_____cavans

SUPERVISED FARMERS WITH CREDIT:

Rural Banks

h.	Number of Loans	h.	_____farmers
i.	Area Financed	i.	_____hectares
j.	Loans Approved	j.	_____Pesos
k.	Loans Released	k.	_____Pesos
l.	Loans Matured/Due (Phase _____)	l.	_____Pesos
m.	Loans Repaid (Phase _____)	m.	_____Pesos
n.	Loans Restructured	n.	_____Pesos
o.	Area Planted, Irrigated	o.	_____hectares
p.	Area Planted, Rainfed	p.	_____hectares
q.	Area Harvested, Irrigated (Phase _____	q.	_____hectares
r.	Area Harvested, Rainfed (Phase _____)	r.	_____hectares
s.	Production, Irrigated (Phase _____)	s.	_____cavans
t.	Production, Rainfed (Phase _____)	t.	_____cavans

Philippine National Bank

u.	Number of Loans	u.	_____farmers
v.	Area Financed	v.	_____hecares
w.	Loans Approved	w.	_____Pesos
x.	Loans Released	x.	_____Pesos
y.	Loans Matured/Due (Phase _____)	y.	_____Pesos
z.	Loans Repaid (Phase _____)	z.	_____Pesos
aa.	Loans Restructured	aa.	_____Pesos
ab.	Area Planted, Irrigated	ab.	_____hectares
ac.	Area Planted, Rainfed	ac.	_____hectares
ad.	Area Harvested, Irrigated (Phase _____)	ad.	_____hectares
ae.	Area Harvested, Rainfed (Phase _____)	ae.	_____hectares
af.	Production, Irrigated (Phase _____)	af.	_____cavans
ag.	Production, Rainfed (Phase _____)	ag.	_____cavans

Agricultural Credit Administration

ah.	Number of Loans	ah.	_____farmers
ai.	Area Financed	ai.	_____hectares
aj.	Loans Approved	aj.	_____ Pesos
ak.	Loans Released	ak.	_____Pesos
al.	Loans Matured/Due (Phase _____)	al.	_____Pesos
am.	Loans Repaid (Phase _____)	am.	_____Pesos
an.	Loans Restructured	an.	_____Pesos
ao.	Area Planted, Irrigated	ao.	_____hectares
ap.	Area Planted, Rainfed	ap.	_____hectares
aq.	Area Harvested, Irrigated (Phase _____)	aq.	_____hectares
ar.	Area Harvested, Rainfed (Phase _____)	ar.	_____hectares
as.	Production, Irrigated (Phase _____)	as.	_____cavans
at.	Production, Rainfed (Phase _____)	at.	_____cavans

PROBLEMS ENCOUNTERED: Check those applicable

ba.	_____Lack of seeds	bg.	_____Weather problems
bb.	_____Slow credit approval	bh.	_____Pests/Diseases
bc.	_____Fertilizers unavailable	bi.	_____Labor shortage
bd.	_____Pesticides unavailable	bj.	_____Drying/Storage
be.	_____Weedicides unavailable	bk.	_____Marketing/Pricing
bf.	_____Water supply		

FORM 4 - PPO REPORT TO NFAC

The Form 4 is a summary of the production information received from the technicians on the Form 3, and the summary of the credit information received from the financing institutions on Form 5.

As soon as possible after compilation, the data on the Form 4 -is transmitted by the PPO to NFAC or BAECON central office by the fastest means possible, to arrive not later than the 8th day of the month following the month of the report. Usually this is sent by radio, or commercial telegram. In addition, a written form 4 is sent by mail, or hand-carried by anyone visiting the Central Office.

Note: Statistical data should be submitted in whole numbers, with Financial Data rounded off to the nearest peso.

Items ba-bk are subjective indicators of the major problems being experienced in the province. The PPO should check the pertinent items and supplement this with a short narrative description of the problem.

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M A S A G A N A 99
Report of Financing Institutions to Provincial Program Officers

Cumulative From _____ to _____

Province _____

Financing Institution _____

INSTRUCTIONS:

1. Report should be cumulative by Phase.
2. Report should be submitted to the Provincial Program Officers not later than the 5th of each succeeding month.

	PHASE						
	I	II	III	III	IV	V	
			MASAGANA PLUS DS 2/	DIRECT SEEDING ONLY		MASAGANA PLUS DS 2/	DIRECT SEEDING ONLY
A. Total Number of Loans (Farmers)							
B. Total Area Financed (Hectares)							
C. Total Loans Approved (₱)							
D. Total Loans Granted/Released (₱)							
E. Total Loans Matured/Due 1/ (₱)							
F. Total Loans Repaid (₱) (Principal Only)							
G. Total Loans Restructured 1/ (₱)							

Various financial institutions in the province support the Masagana 99 program. The three organizations involve are: (1) The Rural Banking System, (2) The Philippine National Bank and (3) The Agricultural Credit Administration

The field offices (Rural Banks, PNB and ACA Branches) make a monthly report to the FPO in their province on Form 5 summarising the status of loaning operations.

1/ Loans restructured should not be included in matured loans (due for repayment)
2/ Direct Seeding

MASAGANA 99 DATA ANALYSIS

The data reported by the PPOs is analyzed at NFAC and BAECON by the Central MIS Staff. It is then prepared for quick, easy interpretation with provincial comparisons, by calculating, tabulating and rank ordering the results on separate pages.

The entire package is then published monthly as a report, together with a top management summary, for use by the Masagana 99 Management Committee. Feedback copies are also furnished to the PPOs and the Provincial Governors for their information and local action.

At present, the report is being analyzed and processed manually. Development work is under way however to computerize much of this in the near future.

A sample of each of these tables is presented in the following pages with a brief explanation of their purpose, and utility.

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TABLE - PARTICIPATION OF PROVINCES IN MASAGANA 99 PROGRAM PHASE IV - NOVEMBER 1974 to APRIL 1975

Rank Order	Province	New M-99 Target (000 ha.)	Percentage of M 99 Program
1	Nueva Ecija	60.00	10.36
2	Pampanga	35.00	6.04
3	Bulacan	28.00	4.83
4	Pangasinan	20.00	3.45
5	Camarines Sur	20.00	3.45
6	Leyte	20.00	3.45
7	Zamboanga del Sur	20.00	3.45
8	Cotabato	17.20	2.97
9	Iloilo	16.50	2.85
10	Nueva Vizcaya	16.00	2.76
11	Isabela	15.00	2.59
12	Tarlac	15.00	2.59
13	Laguna	15.00	2.59
14	Quezon	15.00	2.59
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
..	...	...	...
50	Rizal	2.50	.43
51	Davao Oriental	2.50	.43
52	Zamboanga del Norte	2.10	.36
53	Palawan	2.00	.34
54	Bukidnon	2.00	.34
55	Abra	1.76	.30
56	Lanao del Norte	1.50	.26
57	Misamis Oriental	1.50	.26
	TOTAL	579.31	100.00

In this table, the provinces are rank ordered on the basis of their target commitment to the program.

The PPOs set their own provincial targets. Because each province differs in size, condition and capacity to respond, it is to be expected that there will be a wide range. Although politically, each province is important in its own right, for management purposes, it is important to distinguish between those provinces that are major participants and those that only have a token involvement in the program. For example, in Phase IV, over 50% of the program is being carried out by 13 provinces. Although all provinces in the program should receive support from central management in carrying out their program, in the case of problem situations, priority attention should be devoted to the priority areas.

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TABLE MASAGANA 99 TARGET AS A PERCENT OF PROVINCIAL HECTARAGE - NOVEMBER 1974 TO APRIL 1975

Rank Order	Province	New M 99 Target (000 ha.)	Provincial Hectarage (Nov. 1974-April 1975) (000 ha.)	M 99 Target as % of Provincial Hectarage
1	Nueva Ecija	60.00	60.00	100
2	Pampanga	35.00	35.00	100
3	Zamboanga del Sur	20.00	20.00	100
4	Pangasinan	20.00	20.00	100
5	Cotabato	17.20	17.20	100
6	Iloilo	16.50	16.50	100
7	Tarlac	15.00	15.00	100
8	Ilocos Norte	12.00	12.00	100
9	Surigao del Norte	8.00	8.00	100
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
53	Palawan	2.00	8.90	22
54	Aklan	5.00	24.30	21
55	Bukidnon	2.00	9.60	21
56	Agusan del Sur	3.00	21.00	14
57	Davao City*	3.00	-	-
	TOTAL	579.31	920.76	63

* No report on provincial hectarage

This table compares and rank orders the provinces stated targets as compared to the "normal effective hectarage" available for planting during this time. (The latter data came from the Provincial Profile).

Targets should be set by the PPOs based on the anticipated availability of their resources to implement the program. A primary resource, of course, is availability of rice land.

From a quick scanning of this listing, it is apparent that the first nineteen provinces are anticipating reaching every farmer who normally plants during this season!! The MIS Staff are not the appropriate ones to chellenge the PPOs apparently ambitious plans. At the other extreme, some provinces are undertaking an apparently low level of commitment to this nationally important program. Again it is not the MIS Staff's role to judge whether this is too low or whether it is in fact appropriate, given the prevailing conditions in the province. Utilizing this common indicator and presenting the data to the Masagana 99 Management Committee in this manner however provides that Committee with a basis for comparing, reviewing and questioning the Provincial PPOs proposed plans.

TABLE MASAGANA 99 PLANTING PERFORMANCE FROM NOVEMBER 1974 - FEBRUARY 1975 IN RELATION TO MASAGANA 99 TARGET TO DATE

Rank Order	Province	M 99 Cumulative Area Planted (000 ha.) Irrigated	Rainfed	Total	M 99 Target Todate	M 99 Planting as % of M 99 Target Todate
1	Bukidnon	10.03	5.12	15.15	1.45	1,044
2	Negros Oriental	3.60	0.08	3.68	0.72	511
3	Misamis Oriental	2.12	0.20	2.32	0.60	387
4	Lanao del Norte	3.20	0.49	3.69	1.29	286
5	Batangas b/	3.62	0.32	3.94	1.62	243
6	Misamis Occidental*	5.74	0.21	5.95	3.00	198
7	Aklan	5.97	3.80	9.77	5.00	195
8	Zamboanga del Norte	3.23	0.85	4.08	2.10	194
9	Maguindanao	7.31	1.36	8.67	4.73	183
10	Surigao del Norte	9.38	4.45	13.83	7.78	178
11	Albay	18.30	3.12	21.42	13.00	165
12	Sorsogon a/	11.50	0.41	11.91	8.00	149
13	Laguna	20.13		20.13	15.00	134
14.	Isabela b/	17.74	0.38	18.12	13.50	134
15.	Pampanga	21.92	20.43	42.35	32.02	132
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
..	...	...	...	...	...	...
43	Mindoro Occidental	3.33	0.29	3.62	4.50	80
44	Quezon	10.21	1.71	11.92	15.00	79
45	Antique	3.12	0.16	3.28	4.39	75
46	Bulacan a/	20.15	0.20	20.35	28.00	73
47	Camarines Norte	4.37	0.65	6.02	8.50	71
48	Rizal	1.75		1.75	2.50	70
49	Pangasinan	11.28	1.18	12.46	18.00	69
50	Davao del Sur	3.56		3.56	5.40	66
51	Nueva Ecija	29.15		29.15	51.00	57
52	Lanao del Sur*	2.72	1.29	4.01	8.30	48
53	North Cotabato	5.71		5.71	16.79	34
54	Sultan Kudarat	1.38		1.38	4.80	29
55	Nueva Vizcaye	1.82	0.23	2.05	12.01	17
56	Palawan a/	0.26		0.26	1.70	15
57	Zamboanga del Sur	1.32	0.09	1.41	20.00	7
	TOTAL	443.51	86.35	529.86	538.47	98

* As corrected
a/ Report as of January 31, 1975
b/ Submitted report subject to verification

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PLANTING PERFORMANCE IN RELATION TO M-99 TARGET-TO-DATE

This table compares cumulative plantings for the Phase with the cumulative target-to-date for the same period of time. This is an important concept and is elaborated on below.

In order to compare provinces which have different size programs that are planned to progress at different rates, it is not sufficient merely to compare total accomplishments from greatest to smallest. On this basis, the smallest program (Misamis Oriental, with 1,500 has) could never compare with the largest (Nueva Ecija, with 60,000 has). Neither can the provinces be meaningful compared on the basis of the percentage of their target that they have accomplished, because they are all planning to progress at different rates.

For example, if three provinces had completed 15%, 30% and 80% respectively, of their overall planned targets, although some information can be obtained from this comparison, it is inadequate. What is more important is to compare each province's status with where it is supposed to be. From this we might learn the following:-

PROVINCE	PRESENT COMPLETION TO DATE	APPARENT COMPARATIVE STATUS	PLANNED TARGET COMPLETION TO DATE	PRESENT AS A % OF TARGET TO DATE	STATUS EVALUATION	ACTUAL COMPARATIVE STATUS
A	15%	3rd	10%	150%	Ahead of Schedule	1st
B	30%	2nd	30%	100%	On Schedule	2nd
C	80%	1st	90%	89%	Behind Schedule	3rd

Thus evaluating the status of each province against its own plan is a much more meaningful basis for intra-provincial comparison.

From the data presented in Table 3, it is apparent that Bukidnon is at major variance from its plan. Whether the target was initially set too low, or whether the implementation was superficial; or whether major reallocations of resources were made to the province to enable them to achieve such spectacular gains cannot be determined from this data. Perhaps an unusual situation occurred and the province was able to take advantage of it. In any event, the data indicates that Bukidnon needs more detailed follow up by top management. Similarly, Zamboanga del Sur is having major difficulties in implementing the program. The factors may be beyond their control (such as weather) nevertheless, the reasons should be determined by management, and reprogramming of resources initiated.

An important point is that planting is done by the farmer, not the PPO and technician. Therefore, the PPO and his staff are not necessarily responsible for planting "under achievement" or "over achievement", and should not be blamed or praised for the data in the report they render. Of course, neither the PPO as the local manager nor the technician as the local implementer can be indifferent to farmer performance as compared to the plan. They cannot take a "bahala na" attitude. If performance is lagging significantly, corrective action should be taken, if possible, to get it moving faster. If, on the other hand the program is overreaching itself, the PPO should review whether this is in fact desirable. Resources might be spread too thinly, sacrificing quality for quantity. Or the abundance may be laying in problems for the future. Criticism (or accolades) on the basis of this indicator alone will inhibit the PPO and his staff reporting accurately what is happening in their area. This in turn will have a detrimental effect upon top management's ability to use that data effectively -- making adjustments to plans, overall allocations of resources, forecasts, and other follow through action..

The reasons for the prevailing situation should be determined on an exception basis. The purpose of the MIS is to indicate which provinces are "exceptional" enough to warrant that kind of scrutiny.

TABLE MASAGANA 99 PLANTING PERFORMANCE FROM NOVEMBER 1974 - FEBRUARY 1975 IN RELATION TO TOTAL (APRIL 1975) TARGET

RANK ORDER	Province	Cumulative Area Planted (000 ha.) Irrigated	Rainfed	Total	Masagana 99 Total Target	M 99 Planting as % of Total Target
1	Bukidnon	10.03	5.12	15.15	2,00	758
2	Lanao del Norte	3.20	0.49	3.69	1.50	246
3	Misamis Occidental*	5.74	0.21	5.95	3.00	198
4	Aklan	5.97	3.80	9.77	5.00	195
5	Zamboanga del Norte	3.23	0.85	4.08	2.10	194
6	Surigao del Norte	9.38	4.45	13.83	8.00	174
7	Maguindanao	7.31	1.36	8.67	5.00	173
8	Albay	18.30	3.12	21.42	13.00	165
9	Misamis Oriental	2.12	0.20	2.32	1.50	155
10	Sorsogon	11.50	0.41	11.91	8.00	149
11	Laguna	20.13	-	20.13	15.00	134
12	Capiz	4.09	12.69	16.78	12.70	132
13	Negros Oriental	3.60	0.08	3.68	3.00	123
14	Pampanga	21.92	20.43	42.35	35.00	121
15	Isabela	17.74	0.38	18.12	15.00	121
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51	Nueva Ecija	29.15	-	29.15	60.00	48
52	Lanao del Sur	2.72	1.29	4.01	8.30	48
53	North Cotabato	5.71	-	5.71	17.20	33
54	Sultan Kudarat	1.38	-	1 38	5.00	28
55	Nueva Vizcaya	1.82	0.23	2.05	16.00	13
56	Pelawan	0.26	-	0.26	2.00	13
57	Zamboanga del Sur	1.32	0.09	1.41	20.00	7
	TOTAL	443.51	86.35	529.86	579.31	91

Sometimes it is also useful to know each province's performance in absolute terms. For this reason the accomplishments of the provinces are compared with their overall targets for the season.

These vary a great deal from the cumulative targets at the beginning of the season, but become more similar as the season runs its course, until in the last month, they are identical.

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TABLE PROJECTED HARVEST - MAY 1975

RANK ORDER	PROVINCE	Area Planted in February (000 Ca.)	Province Ave. Yld/Ha. in February (000 Ca.)	Projected Harvest May 1975 (000 Ca.)
1	Capiz	10.22	71	725.62
2	Surigao del Norte	10.03	65	651.95
3	Nueva Ecija	14.15	44	622.60
4	Pampanga	7.96	70	557.20
5	Laguna	3.35	125	418.75
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53	Davao del Norte	2.30	79	181.70
54	Quezon	2.39	75	179.25
55	Antique	2.25	74	166.50
56	Bohol	2.16	57	123.12
57	Ilocos Norte	2.19	39	85.41
	TOTAL	128.04	69	8835.00

By projecting ahead three months the reported area planted during the month, and multiplying this by the current provincial average yields, a crude but quick projection of probable expected harvest can be made for various planning purposes.

There is no guarantee of course that the current yields will prevail, or that all the hectarage planted will be harvested. Nevertheless, processing and marketing organizations should be alerted to potential workloads, supply and demand implications, with as much lead time as possible and this is a step in that direction.

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TABLE MASAGANA 99 PRODUCTION PERFORMANCE (PHASE III) AS OF FEBRUARY 28, 1975

Rank Order	Province	Production (000 cav.)	Area Harvested (000 ha.)	Average Yield Per Hectare
1	Laguna	3,348.5	26.73	125
2	Misamis Occidental	618.2	5.29	117
3	Zamboanga del Sur	1,053.7	10.04	104
4	South Cotabato	2,958.0	29.20	101
5	Davao City	68.5	0.69	99
6	Mindoro Occidental	1,503.2	17.48	86
7	North Cotabato	1,247.6	14.49	86
8	Iloilo	8,747.8	103.72	84
9	Lanao del Sur	575.1	7.17	80
10	Zamboanga City	125.5	1.58	79
11	Davao del Norte	198.8	2.53	79
12	Mindoro Oriental	1,063.5	13.84	77
13	Camarines Norte	523.1	6.84	76
14	Sultan Kudarat	86.8	1.13	76
15	Zambales	1,055.8	14.09	75
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43	Cavite	370.6	6.44	58
44	Albay	1,234.5	21.42	58
45	Sorsogon	160.9	2.81	57
46	Bohol	505.0	8.86	57
47	Pangasinan	533.3	9.67	55
48	La Union	1,213.4	23.16	52
49	Bataan	428.3	8.39	51
50	Negros Oriental	212.9	4.27	50
51	Palawan	13 3	0.29	46
52	Nueva Ecija	5,138.4	117.09	44
53	Abra	201.1	4.92	41
54	Ilocos Sur	984.1	24.75	40
55	Ilocos Norte	951.8	24.56	39
56	Northern Samar	3.1	0.12	26
57	Surigao del Sur	NR	NR	-
	TOTAL	61,128.8	891.02	69

In this table, the average yields per hectare are compared for the provinces. Even though the farmers in the provinces are supposed to be following the same recommended practices of technology, closely supervised by trained technicians -- yields vary widely. Some of this variation is due of course to different soil and weather conditions. Some is also due to failure to follow recommended practices.

There is insufficient data here for an in-depth evaluation of what happened in each case. Nevertheless, management can get the "big picture" -- total production and average yield, -- and the exceptions are identified for follow-up purposes.

At the technician level, the farmer's experience recorded in the technician's worksheet should provide a good basis for an in-depth evaluation.

TABLE MASAGANA 99 PRODUCTION PERFORMANCE IN IRRIGATED AND RAINFED AREAS AS OF FEBRUARY 28, 1975

Rank Order	Province	Irrigated Area Production (000 cav.)	Irrigated Area Harvested (000 Ha.)	Irrigated Area Average Yield	Rainfed Area Production (000 cav.)	Rainfed Area Harvested (000 cav)	Rainfed Area Average Yield
1	Laguna	3,151.7	24.58	128	196.8	2.15	92
2	Misamis Occidental	611.9	5.21	117	6.3	0.08	79
3	Zamboanga del Sur	632.7	6.08	104	421.0	3.96	106
4	South Cotabato	2,958.0	29.20	101	-	-	-
5	Davao City	68.5	0.69	99	-	-	-
6	Mindoro Occidental	872.9	9.79	89	630.3	7.69	82
7	North Cotabato	1,247.6	14.49	86	-	-	-
8	Iloilo	3,794.2	36.78	103	4,953.6	66.94	74
9	Lanao del Sur	496.1	4.36	114	79.0	2.81	28
10	Zamboanga City	125.5	1.58	79	-	-	-
11	Davao del Norte	178.7	2.15	83	20.1	0.38	53
12	Mindoro Oriental	1,063.5	13.84	77	-	-	-
13	Camarines Norte	372.4	4.54	82	150.7	2.30	5[illegible]
14	Sultan Kudarat	86.8	1.13	76	-	-	-
15	Zambales	558.9	6.99	80	496.9	7.10	70
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49	Bataan	381.4	7.05	54	46.9	1.34	35
50	Negros Oriental	175.6	3.00	66	37.3	1.27	29
51	Palawan	12.8	0.28	46	0.5	0.01	50
52	Nueva Ecija	3,961.7	86.12	46	1,176.7	30.97	38
53	Abra	147.2	2.94	50	53.9	1.98	27
54	Ilocos Sur	407.2	10.31	39	576.9	14.44	40
55	Ilocos Norte	688.9	16.24	42	262.9	8.32	40
56	Northern Samar	1.4	0.06	24	1.7	0.06	28
57	Surigao del Sur	NR	NR	NR	NR	NR	NR
	TOTAL	44,618.9	610.45	73	16,509.9	280.57	59

Generally, there are anticipated to be differences between yields from irrigated and rainfed areas.

This table merely breaks out in further detail what those differences are in each participating province. The order is the same as the previous table for ease in cross referencing.

TABLE CUMULATIVE AREA HARVESTED FROM SEPTEMBER 1974 TO FEBRUARY 28, 1975 AS PERCENT OF AREA PLANTED FROM MAY TO OCTOBER 1974

Rank Order	Province	Area Planted as of October 31, 1974 (000 Ha)	Area Harvested as of February 28, 1975 (000 Ha)	Area Harvested as Percent of Area Planted
1	Surigao del Norte	3.12	3.80	122
2	Cotabato South	26.31	29.20	111
3	Antique	6.86	7.14	104
4	Aklan	8.08	8.27	102
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54	Palawan	8.00	0.29	14
55	Northern Samar	9.49	0.12	1
56	Davao City	-	0.69	-
57	Surigao del Sur	5.25	NR	NR
	TOTAL	1,160.30	891.02	77

This table is a cross-check for the MIS staff and the managers on the planting and harvesting data submitted. What is being checked here is whether the area reported planted four months earlier has been reported as harvested -- thus allowing four months for the growing season. (This includes damaged areas).

Because of several factors:-- aggregation by month, occasional difficulties in reporting on time, variations in the growing cycle, delays in reporting and harvesting, etc. -- we do not expect the columns to "balance" perfectly. However, significant variation from 100% should be followed up as it indicates a problem somewhere.

On the high side for example, Surigao del Norte is reporting that by October 1974 it had planted 3,120 hectares of rice land. Four months later it had harvested 3,800 hectares! This is not necessarily an error, although superficially, it seems as though a special variety of "miracle rice" may have been planted. One possible explanation is that the additional 680 hectares were planted in October, but not reported until November, for some reason or other. Another explanation may be that it was planted in early November and harvested in late February. Or there may be some early maturing varieties, which could have been planted after October and still harvested by the end of February.

On the low side, there is greater cause for concern. The reports for Surigao del Sur and Davao City are inadequate for analysis and require follow-up. In Northern Samar, although 9,490 hectares were planted as of October, only 120 have been reported as being harvested or totally damaged by February. It could be that their harvesting reports are late[1]; it could be a failure to report damage. It could be erroneous data due to improper tabulation. In any event, it is a signal to top management that all is not as it should be, and the most exceptional cases are identified for follow-up. The PPO's should also review their records if they are not on or close to 100% to reassure themselves that their reports are in order.

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1 We have observed on some occasions that although an area is harvested, the harvesting report is delayed until the grain is threshed, dried and sacked so that the yield can be more accurately reported. Oftentimes this is several months after the growing season has passed.

TABLE CUMULATIVE NUMBER OF SUPERVISED FARMERS BY CREDIT SOURCE FROM NOVEMBER 1, 1974 TO FEBRUARY 28, 1975

Rank Order	Province	Total	SF Not Requiring Credit	SF With Credit		
				RB	PNB	ACA
1	Albay	21,974	13,033	1,962	6,794	185
2	Leyte	21,573	5,234	6,795	9,544	-
3	Pampanga	15,165	5,100	5,994	3,944	127
4	Laguna	14,786	5,045	7,313	2,355	73
5	North Cotabato	14,134	3,951	1,210	8,345	628
6	Ilocos Norte	13,677	8,966	926	3,785	-
7	Bukidnon	12,844	7,716	317	4,730	81
8	Camarines Sur	12,732	5,919	3,946	2,549	318
9	Bohol	12,597	5,108	3,860	3,469	60
10	Nueva Ecija	12,193	2,283	6,587	2,634	609
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48	Davao Oriental	1,798	1,395	330	73	-
49	Cavite	1,790	614	799	339	38
50	Nueva Vizcaya	1,684	608	933	117	26
51	Lanao del Norte	1,595	148	997	450	-
52q	Zamboanga del Sur	1,542	116	608	818	-
53	Sultan Kudarat	1,156	150	91	915	-
54	Negros Oriental	1,008	251	457	300	-
55	Davao City	829	299	71	459	-
56	Batangas	540	138	-	402	-
57	Palawan	146	138	1	145	-
	TOTAL	378,970	149,986	97,122	126,121	5,741

This data is compiled for reference and comparison of activity (workload) levels by financial institutions within a province, and overall.

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TABLE PERCENTAGE OF SUPERVISED FARMERS REQUIRING CREDIT

Rank Order	Province	Total Supervised Farmers	SF Not Requiring Credit	% of SF Requiring Credit
1	Palawan	146	0	100
2	Isabela	7,140	13	100
3	Mindoro Occidental	3,485	135	96
4	Misamis Occidental	5,367	247	95
5	South Cotabato	6,324	450	93
6	Zamboanga del Sur	1,542	116	93
7	Davao del Sur	2,036	157	92
8	Lanao del Norte	1,595	148	91
9	Bulacan	9,786	1,124	89
10	Sultan Kudarat	1,156	150	87
11	Davao del Norte	4,388	588	87
12	Agusan del Norte	4,749	734	85
13	Tarlac	7,426	1,168	84
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49	Bukidnon	12,844	7,716	40
50	Zambales	3,289	2,234	32
51	Southern Leyte	8,716	6,162	29
52	Capiz	11,203	8,076	28
53	La Union	10,291	7,656	26
54	Davao Oriental	1,798	1,395	22
55	Agusan del Sur	2,962	2,342	21
56	Ilocos Sur	5,075	4,289	16
57	Lanao del Sur	2,089	1,894	9
	TOTAL	378,970	149,986	60

This table indicates the extent of participation in the total M-99 program concept of providing credit to farmers and closely supervising them. If supervised farmers are to follow the recommended practices, financing is required. There may be a few farmers who are self-financing, or who for various reasons elect to obtain their credit from sources other than the program. However when large numbers of farmers are nominally enrolled in the program, but do not avail of financing, it is a general indication that they are only following the non-cost management recommendations such as HYV seeds and weeding, rather than really investing in the total program and inputs required for higher production. Management must evaluate whether this is desirable or not.

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TABLE AMOUNT OF APPROVED LOANS BY CREDIT SOURCE NOVEMBER 1974 TO FEBRUARY FEBRUARY 28, 1975

Rank Order	Province	Total (000₱)	RB (000₱)	PNB (000₱)	ACA (000₱)
1	Pampanga	21,754	13,009	8,520	225
2	Nueva Ecija	21,613	14,108	6,051	1,454
3	Bulacan	20,364	10,017	9,922	425
4	Tarlac	15,463	8,628	6,267	568
5	Laguna	15,206	10,644	4,402	160
6	South Cotabato	14,567	660	13,849	58
7	Leyte	13,895	5,304	8,591	-
8	Isabela	12,448	5,363	7,085	-
9	Cagayan	12,312	3,555	8,590	167
10	Mindoro Occidental	11,756	1,667	10.089	-
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48	Zamboanga City	947	-	947	-
49	Negros Oriental	939	583	356	-
50	Davao City	835	112	723	-
51	Rizal	787	255	532	-
52	Ilocos Sur	666	143	519	4
53	Agusan del Sur	582	237	345	-
54	Batangas	574	-	574	-
55	Davao Oriental	564	471	93	-
56	Lanao del Sur	360	336	-	24
57	Palawan	247	1	246	-
	TOTAL	333,451	137,974	189,098	6,379

This is a tabulation of the amount of credit released to farmers under the program, ranked from highest to lowest. In this table, the rank order is not particularly significant, but the levels of activity of the various financing institutions can be compared within a province, and overall.

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HECTARES FINANCED AS PERCENT OF HECTARES PLANTED
NOVEMBER 1, 1974 TO FEBRUARY 28, 1975

Rank Order	Province	Hectares Actually Financed (000 Ha)	Hectares Planted (Intended to be Financed (000 Ha)	Hectares Financed As Percent of Hectares Planted
1	Lanao del Sur	0.39	-	-
2	Mindoro Occidental	9.59	3.13	306.
3	Batangas	0.64	0.22	291
4	Cagayan	10.89	5.33	204
5	La Union	3.05	1.51	202
6	Maguindanao	1.31	0.68	193
7	Zamboanga del Sur	2.19	1.29	170
8	Agusan del Sur	0.62	0.38	163
9	Davao del Norte	5.18	3.22	161
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47	Bulacan	17.86	17.86	100
48	Zambaonga City	1.28	1.30	99
49	Capiz	4.36	4.57	95
50	Lanao del Norte	2.49	3.13	80
51	Isabela	14.04	18.04	78
52	Surigao del Norte	4.23	6.08	70
53	Zamboanga del Norte	1.84	2.69	68
54	Pampanga	20.43	30.41	67
55	Aklan	4.87	7.40	66
56	Abra	1.54	2.42	61
57	Negros Oriental	1.07	3.37	32
	TOTAL	360.09	339.76	106

Ideally, the farmer should get his production credit just before he plants, so that he can utilize the money and inputs for land preparation. If credit is received too early, or planting is delayed too long after receiving the credit, there is a possibility that the money may be misused on things other than that for which it was intended. If received too late, (a traditional problem in agricultural credit) the benefits anticipated from providing the credit may not be realized. For these reasons, "Hectares FINANCED as a Percent of Hectares PLANTED: is a key indicator.

The table above illustrates the range of situations that exist. Although overall, credit is getting to the farmers on or before planting, what is important is the particular situations. In some instances (Negros Oriental for example) only a third of the potentially financed area actually received financing before planting. This indicates that the credit delivery systems need to be improved considerably before credit can have the maximum desired impact. At the other extreme, (Mindoro Occidental) large areas have been financed before planting. This is not necessarily a problem for any particular month. However, what needs to be tracked here is whether this condition persists over a period of time, to the extent that the money is apparently not being utilized for rice production.

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TABLE AVERAGE SIZE OF LOAN PER HECTARE - NOVEMBER 1974 TO FEBRUARY 28, 1975

Rank Order	Province	Total Loans (000₱)	Hectares Financed (000's)	Average Loan Per Hectare
1	La Union	6,931	3.05	2,273
2	Mindoro Occidental	11,756	9.59	1,226
3	Abra	1,842	1.54	1,196
4	Davao Oriental	564	0.49	1,151
5	Bulacan	20,364	17.86	1,140
6	Davao del Sur	3,755	3.31	1,134
7	Cagayan	12,318	10.89	1,131
8	Maguindanao	1,473	1.31	1,124
9	Kalinga-Apayao	4,467	4.04	1,106
10	Davao City	835	0.77	1,084
11	Pampanga	21,754	20.43	1,065
12	Bohol	6,965	6.61	1,054
13	Zamboanga delSSur	2,302	2.10	1,051
14	South Cotabato	14,567	13.97	1,043
15	Quezon	10,649	10.48	1,016
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50	North Cotabato	9,205	11.76	783
51	Misamis Occidental	4,927	6.51	757
52	Zamboanga dCity	947	1.28	740
53	Capiz	3,059	4.36	702
54	Misamis Oriental	1,240	1.80	689
55	Northern Samar	7,486	10.98	682
56	Leyte	13,895	20.48	679
57	Sorsogon	4,434	10.14	437
	TOTAL	333,451	360.09	926

This table gives an indication of the amount of credit that is being extended to farmers. La Union seems abnormally high (and in excess of program guidelines). Sorsogon seems very low. The reasons for these and other variances may be important for management to follow up.

Note: The present data is based upon total approved loans. Beginning with Phase V, the data will be based upon releases of loans -- the amount that farmers are actually using.

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TABLE TOTAL REPAYMENT AS OF FEBRUARY 28, 1975 AS PERCENT OF CUMULATIVE LOANS APPROVED AS OF AUGUST 1974 (PHASE III)

Rank Order	Province	Loans Approved As of August 1974 (000₱)	Total Repayment As of February 1975	Percent Repayment
1	Surigao del Norte	532	1,840	346
2	Zamboanga City	287	751	262
3	Camarines Norte	2,974	5,756	194
4	Camarines Sur	12,951	24,840	192
5	Rizal	1,284	1,632	127
6	South Cotabato	10,860	9,619	89
7	Misamis Occidental	4,130	3,571	86
8	Pampanga	17,776	14,811	83
9	Quezon	6,394	5,100	80
10	Surigao del Sur	3,078	2,389	78
11	Southern Leyte	1,022	754	74
12	Sultan Kudarat	806	569	71
13	Kalinga-Apayao	1,123	780	69
14	Davao del Sur	5,753	3,840	67
15	Laguna	14,845	9,629	65
16	Aklan	3,646	2,270	62
17	Sorsogon	3,853	2,364	61
18	Albay	11,552	6,842	59
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44	Ilocos Norte	17,043	3,915	23
45	Bulacan	33,451	7,789	23
46	Antique	4,972	1,007	20
47	Lanao del Norte	1,807	370	20
48	Pangasinan	36,682	5,773	16
49	Batangas	6,093	934	15
50	Cagayan	10,976	1,242	11
51	Capiz	6,275	657	10
52	Zambales	7,183	649	9
53	Zamboanga del Sur	13,756	702	5
54	Davao City	-	407	-
55	La Union	6,722	NR	-
56	Isabela	26,678	NR	-
57	Lanao del Sur	24	NR	-
	TOTAL	517,845	230,766	45

This table indicates the repayment rate of matured loans by province. In areas where the repayment rate is low, it indicates problems in collections and where vigorous follow up action needs to be taken.

In areas where the repayment rate is high (over 100%) although not necessarily incorrect, this also indicates a need for review. The crop cycle is approximately 4 months while the maturity date is six months after the loan. Thus it is possible that some loans are being repaid early. Whatever the reason, it needs checking.

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TABLE PRODUCTION TECHNICIAN WORKLOAD ANALYSIS AS OF FEBRUARY 28, 1975

Rank Order	Province	Supervised Farmers	Production Technicians	SF/PT
1	Agusan del Sur	2,962	7	423
2	Bukidnon	12,844	32	401
3	Surigao del Norte	8,952	25	358
4	Bohol	12,597	40	315
5	Leyte	21,573	70	308
6	Capiz	11,203	37	303
7	Leyte del Sur	8,716	32	272
8	Sorsogon	10,571	40	264
9	North Cotabato	14,134	54	262
10	Zamboanga City	2,493	10	249
11	Misamis Occidental	5,367	22	244
12	Quezon	10,596	49	216
13	Albay	21,974	105	209
14	Northern Samar	5,415	33	164
15	Davao Oriental	1,798	11	163
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
..	...	...	...	...
43	Zambales	3,289	44	75
44	Ilocos Sur	5,075	72	70
45	Antique	2,881	46	63
46	Davao del Sur	2,036	34	60
47	Tarlac	7,426	145	51
48	Iloilo	10,155	211	48
49	Rizal	1,857	39	48
50	Cavite	1,790	40	45
51	Pangasinan	7,902	193	41
52	Nueva Vizcaya	1,684	62	27
53	Zamboanga del Sur	1,542	63	24
54	Batangas	540	34	16
55	Palawan	146	34	5
56	Maguindanao	2,818	-	-
57	Davao City	829	-	-
	TOTAL	378,970	3,217	118

This table compares the number of supervised farmers with the number of technicians available to supervise them. The average workloads provide management with a picture of the intensity of supervision that farmers are receiving under the program. Although no standard ratio can be implemented nationwide, because of varying conditions from provice to province, nevertheless wide disparities indicate the need for administrative corrective action.

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TABLE PROBLEM AREAS AS OF FEBRUARY 28, 1975

1. WATER - 20%

Ilocos Norte	Zamboanga del Norte
Nueva Vizcaya	Zamboanga del Sur
Cavite	Zamboanga City
Mindoro Occidental	Agusan del Norte
Rizal	Lanao del Norte
Antique	South Cotabato
Capiz	Maguindanao

2. DISEASE/PEST - 15%

Mindoro Oriental	Zamboanga del Norte
Rizal	Zamboanga City
Camarines Sur	Agusan del Norte
Capiz	Bukidnon
Iloilo	Maguindanao
Bohol	

3. WEATHER - 12%

Antique	Lanao del Sur
Bohol	Surigao del Sur
Zamboanga del Norte	Davao del Norte
Zamboanga del Sur	Maguindanao
Agusan del Norte	

4. DRYING/STORAGE - 9%

Leyte	Lanao del Sur
Zamboanga del Sur	Davao del Norte

5. LABOR - 8%

Nueva Vizcaya	Agusan del Norte
Leyte	Bukidnon
Zamboanga del Norte	Davao del Norte

6. X
6. CREDIT - 7%

Cagayan	Zamboanga del Norte
Mindoro Occidental	South Cotabato
Antique	Maguindanao

7. MARKETING/PRICING - 5%

Antique	Zamboanga del Norte
Leyte	

8. FERTILIZER - 3%

Ilocos Norte	Rizal
Ilocos Sur	

The "multiple choice" problem indicators from the PPOs are grouped in this table, weighted by the "Area Planted". This then provides management with an overall summary of the magnitude of major problems affecting its program as implemented. Thus if corrective action can be taken management is alerted to what is needed, and where.

ANALYSIS

A brief summary of the program highlights and analysis for the month is prepared for the management committee. A sample is shown on page 60 for illustrative purposes. This is supplemented by the detailed tables for management review, since the Management Committee wishes to be fully informed on the status of all the provinces, rather than just the exceptions. Because of their rank ordering, the exceptions are easy to identify on each table.

In addition to providing structured data, rank ordering, identifying apparent anomalies in provincial programs, and the extent of the variation for management information and follow-up action; these data serve another useful purpose:-

Correlation Analysis By conducting rank order correlations[1] between some of the tables, some of the underlying assumptions about the program can be examined for policy analysis.

For example, one might presume in general (other things being equal) that the more intensive supervision a farmer receives, the higher his yield is likely to be. By comparing the Average Yield table for each province with the Workload table, an indication of the validity of this assumption can be obtained.

Again, it is generally supposed that the availability of credit has an influence on yields. By comparing the average loan per hectare per province with the average yield, that assumption too can be analyzed.

It might be expected that farmers obtaining low yields would have greater difficulty in repaying their loans, than those obtaining high yields. By correlating yields with repayments, this assumption can also be checked, for program managers information and guidance.

The findings from these analyses are published by the MIS staff in memo form for the Management Committee's information.

MIS Field Surveys Each month after analyzing the report, the MIS staff takes to the field for selective review, follow-up and sample survey studies. The significant findings from these trips are published and distributed to the Management Committee, as a separate memorandum, with the highlights incorporated into the following month's summary report.

APES Evaluation In addition to the regular monthly program review and analysis by the MIS Staff, a periodic in-depth evaluation and audit of the Masagana 99 program's objectives and accomplishments is conducted by the NFAC Agricultural Program Evaluation Services (APES) staff. Although this staff usually works independently from the MIS Staff there is a professional exchange (technical/analytical, as well as program data) between the two divisions.

BAECON Surveys It is anticipated that the Bureau of Agricultural Economics will soon be in a position to conduct and analyze regular periodic provincial surveys of plantings, harvestings and yields, with Masagana 99 participants as one of the stratifications. When this survey is functioning, the data can be compared (for significance testing) with the MIS data. This will provide management with another means of cross-checking its program data for accuracy.

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1 For a detailed explanation of rank order correlation as well as several other useful statistical concepts, see Statistical Survey and Analysis Handbook, Kenneth F. Smith, USAID/Manila, Philippines, March 1975.

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SAMPLE SUMMARY ANALYSIS
DEPARTMENT OF AGRICULTURE

MASAGANA 99 PROGRAM SUMMARY AS OF FEBRUARY 28, 1975

March 1975

A. REPORTING 93% of the provinces reported on time for February; an improvement over the previous month. Reports were not received from four provinces - Bulacan, Batangas, Palawan and Sorsogon.

B. PROGRAM STATUS

1. The Target Area for Masagana 99 Phase IV (Nov 74 - Apr 75) is 580 thousand hectares. This represents 63 percent of the total palay area normally planted during this time period.

2. Planting is slightly behind schedule:- 530 thousand hectares (98% of the cumulative target-to-date) has been planted.

3. Production

a. 61 million cavans of palay have been produce from the 891 thousand hectares harvested during the time period Nov. 74 - Feb 75 (under Phase III). This is an average yield of 69 cavans per hectare.

b. Laguna tops the average yield list, with a reported average of 125 cavans per hectare. Misamis Occidental, Zamboanga del Sur and South Cotabato each register over 100 cavans per hectare.

c. The status of over 1/4 million hectares which should have been harvested is unknown. (Table 4b which compares the cumulative area harvested for February with that planted four months earlier indicates only 77% of harvested.)

4. Credit

a. 333 million pesos has been approved by the three participating financing institutions, as follows:

Organization	₱ Millions	Percent
PNB	189	57%
RB	138	41%
ACA	6	2%

The average loan is 926 pesos per hectare.

b. 379 thousand farmers were reportedly supervised as of February 1975. About 60% of these availed of credit while the remaining 40% were self-financed.

c. From Nov. 1974 to Feb. 1975, 360 thousand hectares were given credit assistance. 23 thousand hectares in 10 provinces are apparently receiving late financing.

d. There are apparently serious problems in repayment. The repayment rate of matured Phase III loans fell from 49% last month to 45% this month. Five provinces have repaid more than the amount due in February, 20 provinces reported loan repayments ranging from 50 to 89 percent, while more than half of the programmed provinces have repayments ranging from 5 to 44 percent. Delinquent loans now amount to more than 1/3 million pesos.

5. Problem Areas As of February 1975, lack of water was considered the main problem in production, with 20 percent of the program area affected.

C. MIS FOLLOW UP Based on field trips this month, most of the provinces are not maintaining comprehensive records on the farmers being supervised.

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FEEDBACK

Copies of the MIS Program Management Summary, and the detailed comparative tables of key indicators are sent to each of the participating provinces for their use. The Provincial Action Committee can:-

* verify that the data being published by the Department is correct (as they submitted it).
* compare their performance with the other provinces, and use this knowledge for self-assessment.
* get a better appreciation of what the Management Committee is most concerned about in program management.
* adapt the same approach to manage and compare performance by technicians within the province.

FOLLOW-THROUGH MONITORING

Within the NFAC, the MIS Staff maintains a series charts and files for reference purposes.

"Trend Charts" are maintained and displayed on each of the indicators at the overall program level. Trend Charts are extremely useful in identifying how things are going, from one month to another. If little is accomplished over several months it will very quickly be reflected in the trends, regardless of the verbal assurances of managers at intermediate levels that "action is being taken". Where predetermined goals, or standards can be established, actuals compared against these indicate very graphically whether the program is doing well, or experiencing difficulties in implementation. A sample is shown on the following page.

A folder is maintained on each province, with a copy of the provincial profile, notes from the trip reports pertaining to the province, etc.

Finally, a master file of the monthly Summary Reports and supporting tables is maintained.

GROWTH

The Masagana 99 system is still being developed. Therefore it is anticipated that other indicators and tables may be created in the future (such as fertilizer usage by province) for management analysis.

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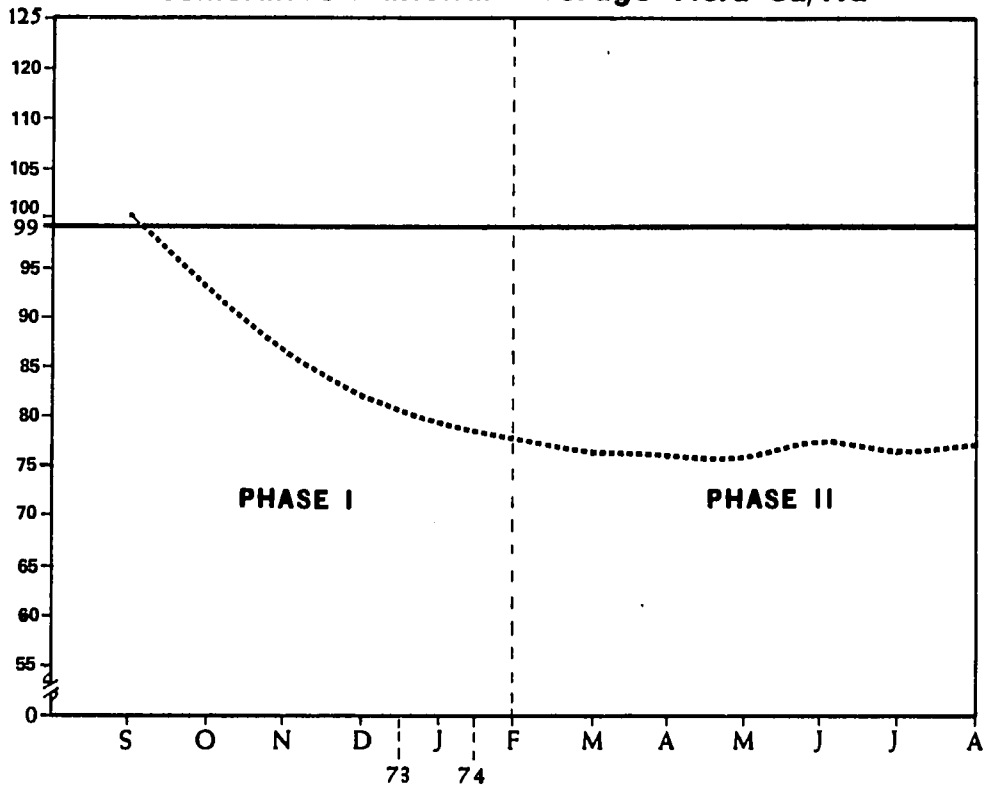
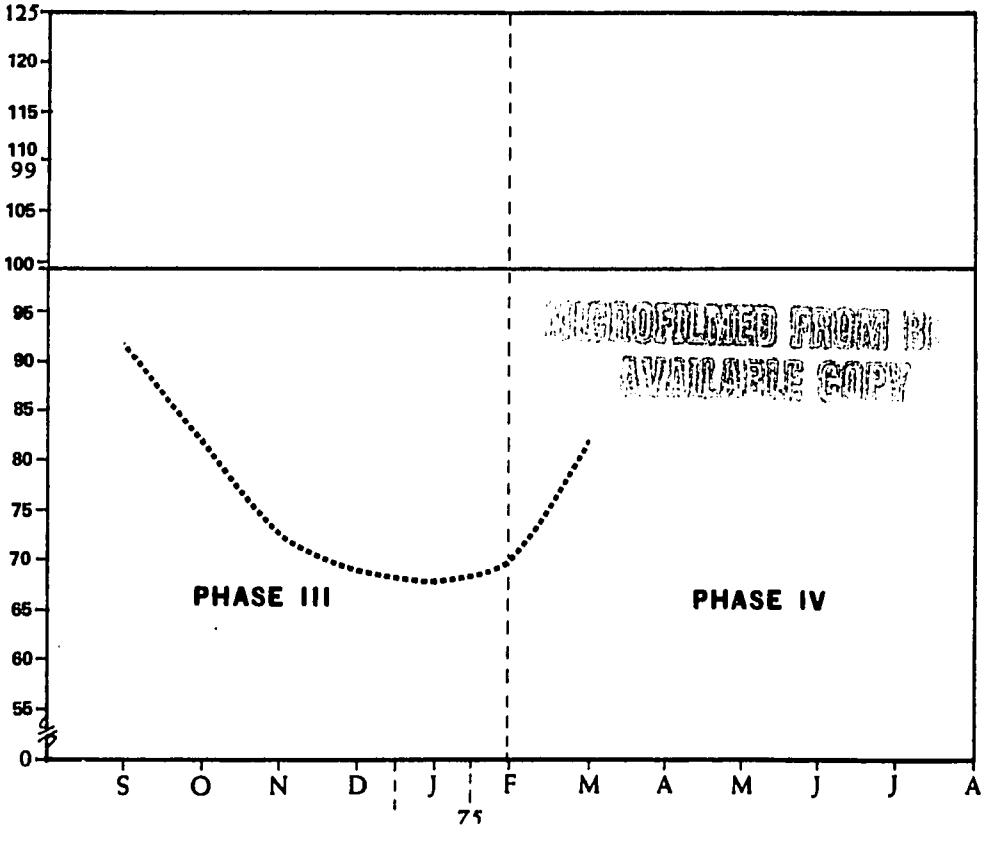
MASAGANA 99
Cumulative National Average Yield Ca/Ha





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CONCLUSION

The most important characteristic of a Control type Management Information System is that it provides a framework in which the managers at various levels can function effectively. They can get a running picture of where the program is in comparison to where it should be according to the plan. A priority system for identifying potential problems is provided for, and corrective action can then be directed where it is most urgently required.

The system helps management to determine the necessary inputs for the program and identifying when they will be required. Responsibility for each aspect can be pinpointed, and the structured reporting system keeps management informed without being inundated with a lot of irrelevant or unanalyzed data. The probable consequence of slippage, or acceleration can be readily identified and communicated to other interested parties.

A systematic approach to management has certain limitations, and should be borne in mind. Projects are not automatically "worthwhile" merely because they have been planned. A good Management Information System cannot guarantee the success of a project. It is not a substitute for technical knowledge, or competence. An MIS cannot make any decisions or take any action. It provides no additional resources to the program. In short, it will not manage. An MIS is only a tool to help the human manager do a better job of managing. But, used appropriately it should prove itself indispensible.

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