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# **SMALL FARMS IMPLEMENTATION PLANNING**

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an agency of  
The Ministry of Finance & Planning,  
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## PREFACE AND ACKNOWLEDGEMENTS

The authors of this Manual are indebted to many who have published materials in the past on Project Management Planning and Implementation. Many multigraphs, multiliths, bulletins, circulars and books were reviewed during the months while the PDRT were preparing materials used in training courses with persons responsible for formulating and implementing projects in a sizeable number of Jamaican government agencies, statutory bodies, and ministries.

Many of the Project Management tools that others have found useful and subsequently put in written form, were used as the course materials for training here in Jamaica. But, the PDRT team soon determined that these materials are most readily learned in training situations when they were used on actual projects in which the trainee become involved. This Manual shows how the tools are applied on real Jamaican projects such as the Pioneer Farms. The PDRT found this "action-training" approach to be a very effective teaching and training model. The participants quickly learn, own, and adapt the tools and techniques because of their obvious relevance and applicability, and at the same time projects are actually moved forward during the training period. Thus, both trainees and actual projects benefit from the action-training approach. Based on the training experience of two years, the team strongly recommends this approach in other countries where project management training is attempted. From the trainees viewpoint, it is an exciting, but demanding approach to training and it is quickly accepted because it helps to speed up the actual development project implementation process. This is the crux of the development effort in developing countries.

Much of the training materials used by PDRT to construct this Manual came from four primary sources. These publications are highly recommended to anyone interested in developing and using training materials on project management:

United Nations, The Initiation and Implementation of Industrial Projects in Developing Countries, A Systematic Approach, U.N., New York, 1975.

J. Bainbridge and S. Sapirie, Health Project Management, A Manual of Procedures For Formulating and Implementing Health Projects, World Health Organization, Geneva, 1974.

Peter Delp, et.al., Systems Tools for Project Planning, PASITAM, Indiana University, Bloomington, Indiana, 1977.

D. Cleland and W. King, Systems Analysis and Project Management, Second Edition, McGraw-Hill, New York, 1975.

The PDRT team is indebted to others who gave assistance previous to and during the preparation of this Pioneer Farm project management manual. Foremost among these persons were the Pioneer Farm Managers from all over Jamaica who attended PDRT training courses and assisted the PDRT in applying the management tools to the management problems facing them in planning and implementing the Pioneer Farm Projects. These managers produced the actual

and illustrative working documents that can be applied to other projects as the Pioneer Farm Programme expands. There are also the many officials within the Ministry of Agriculture, particularly those in the Production Unit, who have supported and assisted in this training effort. In addition, the Programme Officers of USAID and the Director of Projects Division (now PAMCO), Ministry of Finance, have encouraged the team to prepare and formalize these and other training materials so they can be used by other resource persons who are given the responsibility of training project management personnel in various segments of the government and in the private sector. Last, but by no means least, is the Secretarial Staff of PAMCO who worked diligently through many drafts to put the material in publishable form.

This manual was prepared by the Project Development Resource Team (PDRT of PAMCO). The text of this manual was written by Merlyn Kettering. Appendices 1 through 9 were written by Bruce Brooks, Conrad Smikle and Merlyn Kettering using materials from the Pioneer Farm Managers Workshop. Appendix 10 is a publication of the Production Unit of the Ministry of Agriculture. Without the assistance and encouragement of all the persons mentioned above, the publication of this material would not have been possible.

The PDRT takes full responsibility for any errors or omissions in the material. We sincerely hope that the material will be specifically useful to the Pioneer Farm Managers, the Pioneer Farm Programme, and the Ministry of Agriculture. However, the Project Implementation Planning Steps introduced here, have broad applicability. They can also be used and adapted by officials on other projects that are faced with the complex problems that surround project management.

PAMCO  
June, 1979

## ACKNOWLEDGEMENTS

The Project Planning and Management Series is a product of the Government of Jamaica/USAID National Planning Project (1976/1980). It was developed by the Project Development Resource Team (PDRT) for use in its "action-training" programme and presents practical approaches and tools for project planning and management. PDRT action-training brings teams and persons assigned to live projects into workshops, seminars and consultations, to acquire the specific knowledge and skills needed to perform their particular responsibilities with respect to "live" projects. During action-training, participants complete work on the "live" projects of their sponsoring organizations under the guidance of the Resource Team. In this way, projects are developed and moved forward while officers are being trained in job-relevant aspects of planning, analysis and management.

The publication of a series of this scope is a long and difficult process. All present PDRT members, listed as contributing authors, have worked together in writing, revising and publishing the series. The significant contributions of specific members deserve special mention. Dr. Merlyn Kettering, as long-term project advisor, guided the action-training programme and designed and developed the series. Dr. Bruce Brooks was responsible for final versions of many modules. Mrs. Marjorie Humphreys assumed primary responsibility for editing and production, and deserves much credit for organizing and clarifying the materials. Mr. Lascelles Dixon has headed the PDRT since 1979 and also deserves credit for the cover designs and for improving many of the art illustrations.

The series is the result of extensive experience in project action-training by the PDRT since 1976. Previous PDRT members including James Kristiansen, Anthony Hyde, Beverley Charles, David Logan and Vivianne Goodin have contributed through action-training workshops and working papers, which are referenced in relevant modules. In addition, many persons in Jamaica, United States Department of Agriculture (USDA) and USAID have given support to the project and encouragement to this publication. In particular, Mr. Morris Solomon of the Development Project Management Center (DPMC) of USDA was responsible for the original project design and for supplying publications and giving encouragement and advice throughout the project. The many participants of the workshops and seminars have also contributed significantly to the form and content of the series.

Finally, credit is due to the total staff of PAMCO who have given support, constructive criticism and encouragement to the development of this series. The contributions of Mrs. Christine Hinds and Miss Linnette Johnson are especially significant as they were responsible for typing the many drafts and final manuscripts and were helpful in identifying communication difficulties in the texts.

The publication of this series is only a beginning of the development of relevant and practical planning, analysis and management materials. There are gaps; there are areas needing improvement and revision. The series is intended to be used and to be useful. Use in action-training and practical application to project development will result in revision, expansion and adaptation. All comments on the usefulness, accuracy, and relevance of the materials are welcome. The efforts of all preparing and publishing the Project Planning and Management Series are justified if it helps to develop our national capabilities to design and carry out realistic and successful development projects.

Marcel Knight  
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## FOREWORD

### Introduction

One of the greatest challenges of this decade will be the effective management of increasingly scarce national resources to meet development objectives. As discrete sets of activities utilizing limited resources to achieve specified objectives within a definite time frame, projects are basic building blocks for the development programmes of nations and lending agencies. If projects are to be realistically designed and successfully implemented, there must be a national capability and commitment to manage and control financial, physical and human resources so their contributions are channelled toward the aims of their parent organizations and societies. A critical test of national maturity is the capability to plan for and effectively manage the use of resources through projects.

The Project Planning and Management Series presents practical approaches, tools and techniques for the formulation and implementation of sound projects. The series consists of a set of manuals on planning, planning for implementation and management along with associated modules explaining specific tools and techniques relevant to various functions of project development. The series can be used as a reference and guide for persons with responsibilities on "live" projects. It is also of interest as a text for persons studying project planning and management. All concepts, approaches, tools and techniques presented have practical relevance to projects and many have broader management applications as well.

The Project Planning and Management Series is based upon experience gained through the extensive use of action-training for project development. The objectives of the project were to (1) increase the flow of development projects, while (2) increasing Jamaican capabilities in planning and managing projects. The "action-training" approach was introduced and tested through the activities of the PDRT which was instituted by the project.

### Action-Training

Action-training is carried out within the organizational setting of the participants and uses "live" projects so that the workshops are strongly oriented to operational problem-solving within the context of actual forces and resources of the situations in which projects must succeed. Action-training is a practical response to the pressures of a developing society where scarce management skills do not permit the release of persons from organizational responsibilities to attend long traditional training courses.

The PDRT action-training programme brings teams and persons assigned to live projects and with actual responsibilities into workshops, seminars and consultations and gives them the specific knowledge, guidance and skills required to perform their assignments. In this way, projects are developed and moved forward while project personnel are being trained in relevant aspects of planning, analysis and management of both immediate and future benefit for the individual and the organization.



Action-training on projects utilizes the immediate application of approaches, tools and techniques on "live" projects to ensure that:

- (1) the sponsoring organization and the nation benefit through observable project progress;
- (2) the training is operational and relevant within the real organizational context;
- (3) the participants have understood the concepts, tools and techniques well enough to apply them in actual situations; and
- (4) the participants benefit by mastering new skills and are rewarded by promoting project progress.

Action-training is best instituted where it supports rational and co-ordinated systems of project development, i.e., planning, implementation, monitoring and decision-making. Different groups of persons have responsibility for the various aspects of a project throughout its life. Some persons identify projects, others plan and prepare feasibility studies; others appraise; others select; others negotiate loans; others manage contracts and consultants; others manage; others monitor and so on.

Action-training is used to give persons and teams the specific knowledge and skills necessary to understand their responsibilities within the total project system and to be able to perform their roles effectively. It focusses specifically on what persons need to know to do their jobs and reinforces their understanding by testing the application of new skills on live projects.

An action-training workshop generally follows a simple formula for each topic and technique introduced. An introductory presentation is followed by a simple exercise to illustrate the concept and demonstrate its application. This is then followed by a work period during which participants work on actual assignments on live projects in consultation with the PDRT. The application to live projects reinforces the learning, permits an in-depth exploration of its applicability, tests relevance for this situation, and permits adaptation to fit the actual context, assignment, and experience of the participants. The live projects are not simulations, but actual undertakings of the respective organizations of the participants and represent assignments which are integrated into their normal duties. It is usually necessary to follow a workshop with site and field consultation to see that assignments are completed and that the tools are being used for project development and problem-solving.

PDRT carries out action-training in several ways:

- (1) Project Workshops conducted over several weeks, which result in the completion of a specific stage of project documentation or development; such as a completed Project Profile, Implementation Plan or Management Information System.

- (2) Consultation Workshops lasting several days over a period of time, which help a project team solve specific problems in project design, analysis, implementation, management, monitoring, or evaluation.
- (3) Seminars lasting one day, which introduce specific or general concepts and techniques to persons with particular administrative or technical responsibilities involving these skills.

### Use of the Series

The Project Planning and Management Series is structured as a support to action-training. Different persons perform different functions and roles with respect to projects and therefore require different skills. Some persons must be able to perform sophisticated financial and economic analysis, while others may need only elementary knowledge of how to construct a cash flow. Some must focus on the clarity of objectives while others must be able to prepare definitive market and technical plans. Some need to be able to analyze while others must formulate. Some must be project managers, while others are executives. Some must manage contracts and consultants, while others monitor project performances, and so on. This requires that some basic concepts and skills be taught to most project personnel and that specialized skills relevant to specific responsibilities and roles must be taught to the different teams and groups. For this reason, the series is divided into distinct manuals and modules so that the appropriate concepts, tools and techniques can be selected for direct relevance to the specific functions of participants or the specific project problems being addressed by the action-training.

As a project is moved through its life from identification and conception, through planning and approval to implementation and termination, different approaches, knowledge and tools are relevant. The Project Planning and Management Series can be used because of its flexible structure to give the appropriate knowledge and skills to persons with different roles and responsibilities in the project life, e.g., planning, analysis, management, monitoring, contracting, control, and so on. The following examples illustrate some applications of action-training by PDRT using the series.

1. A Project Profile Workshop - conducted over three weeks for project teams with responsibility for the first identification planning document on a project idea. This workshop is conducted using Manual P -- Project Planning with an assortment of modules, including:
  - 1 - Project Objectives; 2 - Logical Framework; 5 - Project Organization; 7 - Project Scheduling--Bar Charts; 13 - Project Technical Analysis; 17 - Project Costs and Benefits; and so on.
2. A Planning for Implementation Workshop - conducted over three or more weeks for project teams with responsibility for preparing

action or implementation plans for projects having been approved or authorized. This workshop is conducted using Manual I -- Planning for Implementation, with an assortment of modules, including:

3 - Work Breakdown Structure; 4 - Activity Description Sheets; 6 - Linear Responsibility Charts; 9 - Project Scheduling--Network Analysis; 10 - Milestones Description Charts; 11 - Planning and Budgeting; 35 - Introduction to Contracts; 38 - Project Files; and so on.

3. Project Seminars - introducing specific concepts, project-relevant skills and project systems as illustrated in Modules 12 -- Role of PAMCO; 31 - Decision-making System for Projects; 44 - Introduction to Lending Agencies; 36 - Project Documents for Planning and Implementation; and so on.

The Project Planning and Management Series is designed to complement the lectures, exercises, project work and consultations of PDRT workshops. IT IS NOT INTENDED TO BE USED AS SELF-INSTRUCTIONAL MATERIAL. It is designed for use in conjunction with the guidance of an experienced multi-disciplinary training and consultation team. An important characteristic of action-training, typical of adult education, is that it draws upon the knowledge and experience of the participants as well as the PDRT as an integral component of the workshop. The material in the series is, therefore, basic, operational and brief. It is expanded and reinforced during project work and workshop interaction.

The ultimate justification of this series is similar to that of the action-training introduced through the National Planning Project. If it contributes to promoting better project formulation, successful implementation and generally helps to move projects forward, it is justified. However, the importance of the series goes beyond this if it ensures that Jamaica increases her indigeneous capability and capacity for formulating and managing development projects as part of the thrust toward increased self-reliance and independence.

The present series is part of a process of materials development and action-training which has been initiated by the National Planning Project. There are gaps and inadequacies which will be identified. The series is not intended to be static. It should be expanded, revised, adapted and tested through an evolution of action-training and application to projects so that its relevance is maintained through constant upgrading and revision. The series is only the beginning of a process of developing practical approaches, tools and techniques to ensure effective management of our resources in the challenges of development facing us in the immediate and distant future.

## I. INTRODUCTION

Pioneer Farms are a means of accelerating the land-use reform process while dealing with problems of rural unemployment, particularly among youth. Idle and under-utilized lands are identified and appraised for development potential. After a Pioneer Farm Project is approved, a group of youths with appropriate qualifications are selected and assigned to each Pioneer Farm. The Pioneer Farm begins as a pre-cooperative under the Ministry of Agriculture. The primary objective is to form a productive, self-disciplined and self-reliant community organized on a cooperative basis.

The Ministry of Agriculture has primary responsibility for the Pioneer Farm Programme, but the success of the programme depends upon a wide range of skills and contributions from other Ministries and Agencies, including the Social Development Commission, the Cooperative Development Centre, a Farm Advisory Committee, Community Councils, and local Members of Parliament. An example of the broad involvement in the programme can be seen in the initial identification, selection, and training of candidates. The operation and success of each Pioneer Farm is dependent upon a high degree of co-operation and coordination to integrate the various Ministries, Agencies and persons who contribute to these projects.

To achieve the integration of the diverse organizational resources contributing to Pioneer Farms, it is necessary to have a plan for coordinating and implementing the programme. Without such a plan, a great deal of confusion and conflict is likely to ensue undermining the capability to achieve the objectives. In fact, early experiences in establishing Pioneer Farms have shown the confusion which can result, and has demonstrated that the resulting difficulties can thwart the Pioneer Farms in their attempts to become viable, operational cooperatives. These early frustrations need not be discouraging if the lessons learned from experience improves the performances on these and future Pioneer Farms.

The major purpose of this manual is to help the Pioneer Farm programme carry out more successful projects. Much of the material presented was developed in training courses for Pioneer Farm Managers and stems from the experiences of existing Pioneer Farm Managers.

The emphasis in the manual is on sound project management and administrative practices applicable to Pioneer Farms. These practices will be especially useful to the Pioneer Farm Manager, but are relevant to all levels of administration of the programme. Therefore, Regional Directors, Parish Managers, Cooperative Officers, Land-Lease Officers, Technical Officers and all persons involved in the programme who need to be familiar with the managerial techniques developed and applied to Pioneer Farms will find this manual useful.

Technical aspects of Pioneer Farm development are not discussed because they vary greatly from one Pioneer Farm to another. Generally, there is a high level of technical assistance available to Pioneer Farms. The problem has been to achieve the necessary cooperation and coordination so that technical expertise is accessible to the farms when it is needed.

This is a managerial problem and an example of the need for a sound management system for projects within the Pioneer Farm programme. It is critical to the success of the Pioneer Farms Programme.

This manual was written by the Project Development Resource Team (PDRT) of the Projects Division, Ministry of Finance & Planning.<sup>1</sup> The project management procedures and techniques presented here are applicable to a wide variety of projects. This manual illustrates their relevance to Pioneer Farms specifically. The application of these management tools to Pioneer Farms is demonstrated by the illustrative materials incorporated in the Appendices. The examples of the application of these tools were developed during the training of Pioneer Farm Managers at the courses conducted by PDRT at the Eltham Training Centre of the Ministry of Agriculture in early 1979.

1 The PDRT is now a unit within the Project Analysis and Monitoring Company (PAMCO) which, as an agency of the Ministry of Finance and Planning, performs the functions of the former Projects Division.

## 11. THE NEED FOR PROJECT MANAGEMENT

A main difference between project management and traditional organizational management lies in the organizational structures used for implementation. Traditionally the Ministry of Agriculture is structured into departments and units which have distinct and specific functions and activities. Each of these units is composed of distinct sets of skills and professional competencies which are distinct from other units and organized to perform specific functions in relation to the overall objectives of the Ministry. The departments and units are organized into clear lines of vertical authority and responsibility and they can operate according to prescribed Ministry procedures and regulations. There are functional units, such as Veterinary Division or Soils Division, and geographical units, such as Regional and Parish Offices. In normal operations, these units act as distinct parts of the organization and are primarily concerned with the coordination necessary to perform their assigned functions.

Projects are temporary forms of organization which are imposed upon the traditional organizational structures and operations of the Ministry. They are devised to achieve a specific set of limited objectives within a defined time limit. A Pioneer Farm Project, for example, is not to last more than two years before becoming an independent and self-reliant farm. The project is not permanent within the Ministry, but it must draw upon the human and financial resources of the permanent Ministry units to be successful. Projects are not only temporary, but are cross-departmental, cutting across traditional organizational structures, thus requiring at the project level, the coordination and integration of functions and personnel between the various organizationally distinct units. Because they are cross-departmental, projects require creation and clarification of formal and informal lines of communication, coordination, authority and responsibility to complement those of the permanent structures of the organization. The vertical, diagonal and horizontal relationships necessary for project management often create confusion. As a consequence, projects are often characterized by a lack of clarity regarding who does what, who controls whom, and who is ultimately responsible.

Projects present a strong contrast to the hierarchial relationships which generally dominate organization relationships within the Ministry. Successful implementation requires the integration of organization resources across the Ministry. This can create a great deal of confusion. When the Ministry adopts a large number of diverse projects, such as those to which they are committed in the increased agricultural production drive and the Five-Year Plan, this confusion is multiplied. There are increased demands on all units to perform specific functions on specific production projects in addition to their ongoing traditional functions. This can result in the lack of assistance for specific projects, such as Pioneer Farms, because of work overload or the lack of a coordination plan. In the absence of a plan for management and administration of projects, Pioneer Farm Managers, and even senior administrators, do not have the authority to demand that resources and persons from other Departments or units be released for project work because the resources of personnel do not fall under their direct authority. They may fall outside the authority of the Ministry itself.

This common problem affects many projects in the Ministry, and to solve it requires a special effort on the part of the Ministry. Planning for project implementation forms the logical basis for initiating sound project management early to avoid or overcome some of the management difficulties of projects. These are applicable to Pioneer Farms as demonstrated through the preliminary applications in the training programme of PDRT. The following management procedures and techniques for implementation planning are a practical approach for improving the chances for success of the Pioneer Farm projects.

Usual management approaches and techniques are applicable to the implementation of Pioneer Farms, and must not be neglected if the farms are to be successful, but they are insufficient for these projects. Special attention must be paid to implementation management in the case of Pioneer Farms because of the complete organizational nature of project implementation as discussed previously. Pioneer Farms at the project stage do not have clearly defined lines of authority and responsibility consistent with the traditional structures of the Ministry. The lack of a clear and unified vertical hierarchy of responsibility for all aspects of Pioneer Farms projects is further complicated by the involvement of agencies and persons outside the authority of the Ministry of Agriculture. (See Appendices 1 & 2).

The project farm manager is primarily responsible for the management of the Pioneer Farm, under the direction of the Parish Manager. (See Appendix 3). This includes primary responsibility for planning, organizing, directing, coordinating, controlling and monitoring all aspects of project operations. Yet there are many persons who will contribute to the success of the operations who are not under his authority, nor that of the Parish Manager, nor even the Ministry of Agriculture. In many cases, they will hold positions which are professionally and organizationally senior to the Farm Manager. This demonstrates why there is a need for a practical and disciplined management approach to the implementation of Pioneer Farms.

The complexity of implementing a Pioneer Farm project can be illustrated by a work diagram showing the scope of tasks and activities required for a farm to be established. Illustration 1, shows a breakdown of the general areas of work and responsibility for a specific Pioneer Farm. The wide range of professional and technical skills which focus on a farm show the complexity involved in these relatively small projects.

When the Work Structure Chart (Illustration 1) is transformed into an organizational chart to incorporate the units which are responsible for various work, the complexity of the Pioneer Farms Programme is more evident. Illustration 2 shows the organizational chart for a Pioneer Farm; imposed upon the traditional organizational structures of the Ministry of Agriculture. Such organizational complexity is common to the implementation of many projects, and highlights the need for an implementation plan. In addition, projects can become a burden to the various units and departments that must maintain their own ongoing programmes as well as provide support for these special projects.

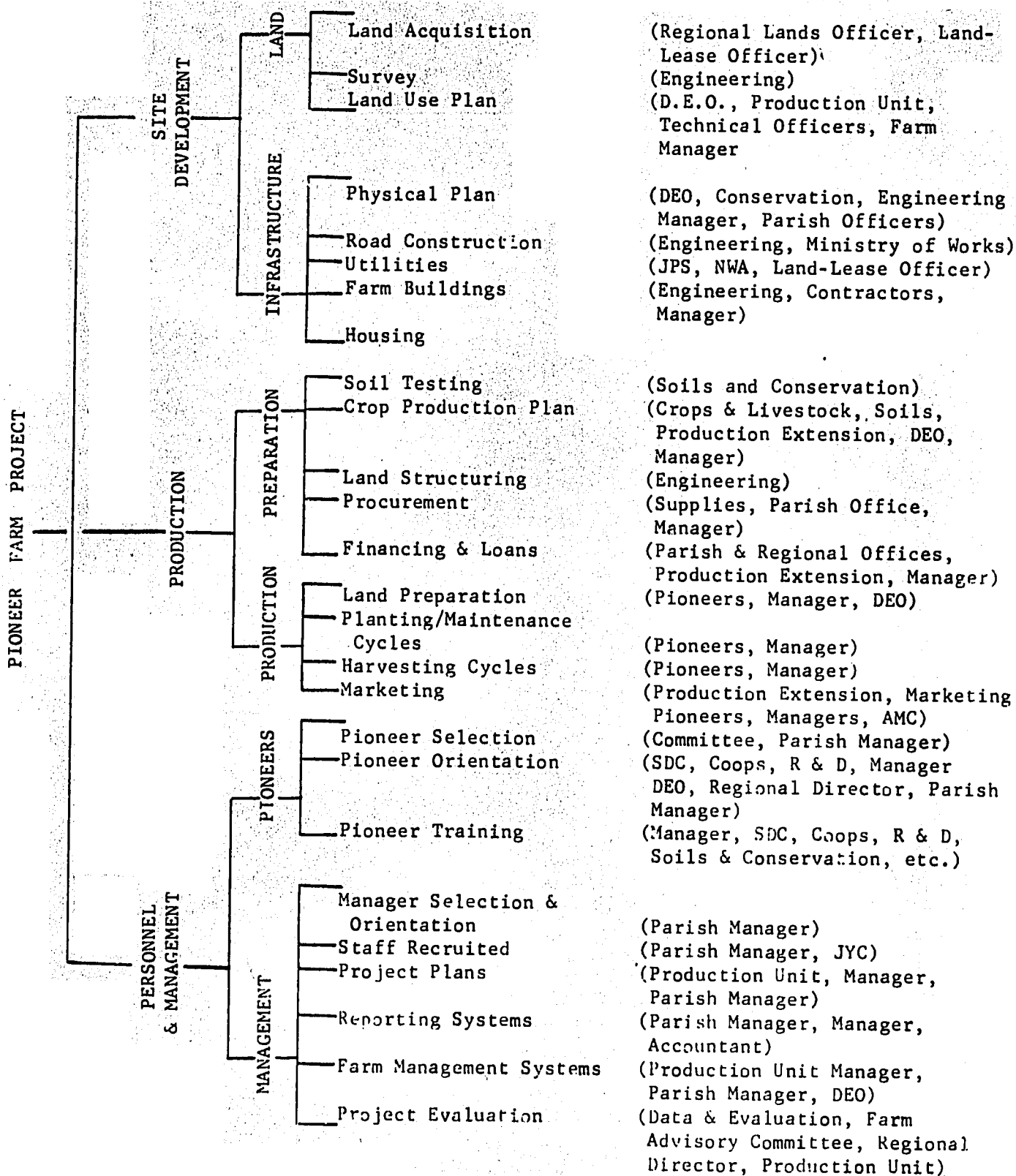
Illustration 2 shows the extent to which responsibilities, skills, authority and administration of a Pioneer Farm are dispersed throughout the

WORK STRUCTURE CHART

Illustration 1

Project Components Elements Activities

(some groups of persons involved)



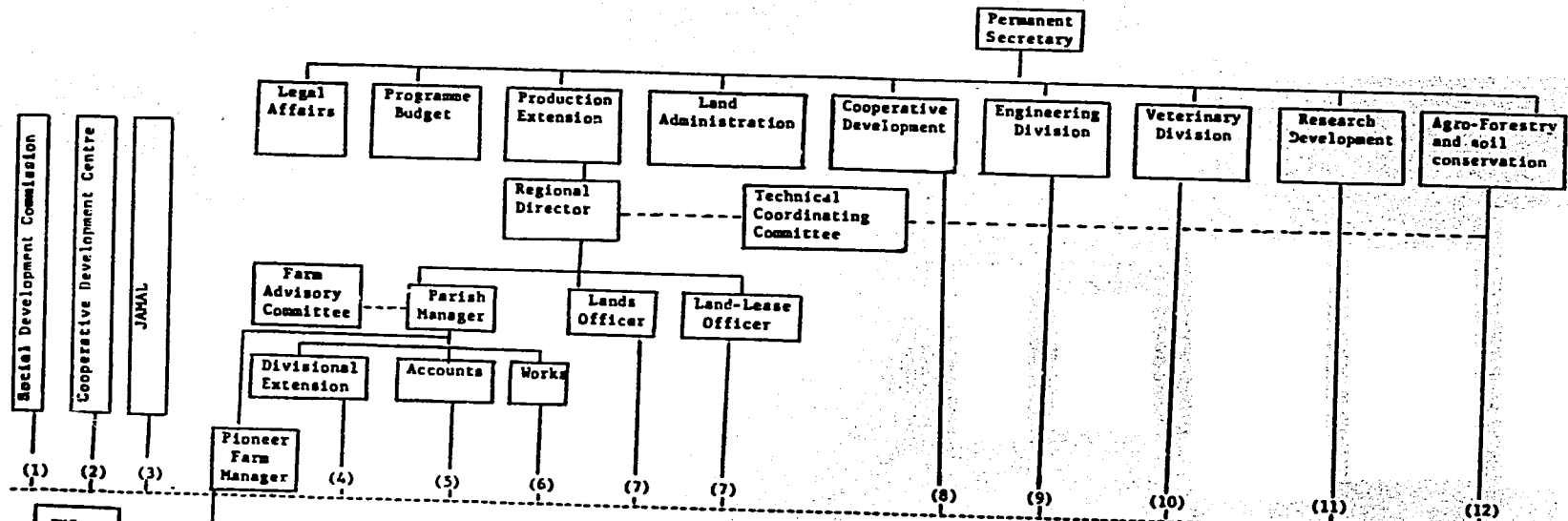


PROJECT ORGANIZATION CHART

Illustration 2

"NON-MINISTRY OF AGRICULTURE RESOURCES"

"MINISTRY OF AGRICULTURE RESOURCES"



Code: — : Lines of Authority; --- Lines of Coordination; O Project Work Units requiring persons and time for project in Ministry of Agriculture:

- |  |   |
|--|---|
| 1 Orientation & Training                           | 10 Veterinary & Livestock Assistance          |
| 2 Cooperative & Accounts Training                  | 11 Crops and Production Assistance            |
| 3 Literacy Training                                | 12 Soils, Tests and Production use Assistance |
| 4 Advisory Support & Training                      |   |
| 5 Reporting and Monitoring                         |   |
| 6 Infrastructure & Equipment Plans and Procurement |   |
| 7 Land Appraisal & Acquisition, Land-lease Plans   |   |
| 8 Cooperative Structuring & Support                |   |
| 9 Physical & Topographical Survey and Plans        |   |

PAMCO, PDRI  
Resource  
Material

DO NOT DUPLICATE WITHOUT PERMISSION

Ministry. This is one of the most obvious and difficult management realities of a Pioneer Farm. To avoid a great deal of confusion and frustration, there must be an implementation management plan to coordinate the project because its components are obviously not entirely under the direct authority and control of the Pioneer Farm Manager or the Parish Manager.

Five Steps of Planning for Project Implementation introduces disciplined project management at the early stages of the project. If good management is not introduced early in the life of the Pioneer Farm, the seeds of failure and conflict may already be sown and may thwart the intended accomplishments of the project. Therefore, this model of project management proposes that five steps in planning for the implementation of a Pioneer Farm must precede the actual operations of the project. These are "pre-execution" steps forming the foundation for sound project implementation, and assist in successfully meeting the overall project objectives by developing procedures, techniques and plans for the management of the project as it is initiated. All persons contributing to Pioneer Farms including senior administrators, TECHNICAL and COOPERATIVE staff, Farm Managers, Farm Assistants and Pioneer Farm members, should be familiar with the management tools necessary to move a project successfully through these five implementation planning steps.

### III. INFORMATION FOR PROJECT MANAGEMENT

Good project management is built upon sound management judgement and decisions. Good decisions require good information and planning for project implementation designed to: (1) construct an informational foundation for project management, and (2) establish information flows to facilitate sound project management and decision-making.

Several types of information are critical to sound project implementation.<sup>1</sup> If systems can be established to provide an adequate information base for project management, the actual work of project execution is made more "manageable". Types of information needed for project management include:

- (1) Project scope information
  - (2) Project work and action plans information
  - (3) Project organization information
  - (4) Project financing information
  - (5) Resource planning and budgeting information
  - (6) Contracting, work authorization and resource control information
  - (7) Project Product Information
  - (8) Project Control Information
  - (9) Environmental Information
- (1) Project Scope Information:

The objectives of a project must be clearly defined and broken into distinct outputs (intermediate and final) so that it is possible to know what a project is to do and test if and when it has been done.

<sup>1</sup> United Nations, The Initiation and Implementation of Industrial Projects in Developing Countries, A Systematic Approach, U.N., New York, 1975.

(2) Project work and action plans information:

The objectives of a project and its output are achieved through the performance of distinct tasks and activities which form the work breakdown of the project. These activities should be planned on a project master schedule which shows the relationships between projects and the major milestones of project achievement.

(3) Project Organization Information:

A systematic way of showing how all organizations are related to the various work elements of a project is critical to the coordination of these organizations and organizational units. This is important so that every project team member or contributor gains a full understanding of the total scope of the project and his/her specific responsibility in relation to other persons on the project.

(4) Project Financing Information:

A financial plan must be developed (and later revised appropriately) to identify and coordinate the various sources of funds and to indicate how each category of funds is to be used as well as the means of repayment. Documents necessary to obtain the release of funds and to control their movement and disbursement must be standardized and consistently used.

(5) Resource Planning and Budgeting Information:

There is a need for a plan showing the flow of all resources, such as funds, equipment, manpower and materials. This plan ensures that these resources are available and accessible to the project when needed.

(6) Contracting, work authorization and resource control information:

Work orders and contracts are standardized formats that authorize expenditure of funds, labour, materials and other resources required to accomplish specific tasks. These are necessary to avoid confusion about responsibility as well as authorization.

(7) Project Product Information:

Every output expected from the project should be clearly identified with specifications for measuring performances for each product.

(8) Project Control Information:

The basic reason for all information is to have data to compare performance on the project against expectations or plans. This requires a formalized and standardized flow of information on a regular and periodic basis to all decision-makers on the project. The information flow should be organized in such a manner that there is not a barrage of irrelevant or unnecessary information but only relevant project information channelled to appropriate decision-makers. This information

can avoid confusion regarding areas of authority as well as providing a basis for better management decisions.

(9) Product Environment Information:

This refers to all available information from outside the project which has an impact on project performance and is the category of information which is least capable of being standardized and defined. It may, for example, relate to information from and about the Ministries, supplies, markets, or even weather conditions. If other categories of information are soundly based, the managers and administrators can put information from this category into better perspective to judge impacts and implications for the project.

The building of an information base for project implementation is the foundation for successful project implementation. These blocks of information are necessary for project management. In the following discussion of the Five Planning Steps for Project Implementation Planning, we shall see how this information is constructed and systems and processes are instituted on the projects for the updating and generation of project information in each of these blocks throughout the duration of the projects.

#### IV. PLANNING FOR PROJECT IMPLEMENTATION - FIVE STEPS

Planning for implementation simply means laying out the managerial and technical framework necessary for actual implementation work on a project. In managerial terms, which is the focus here, this requires the establishment of informational foundations and systems for project execution. The information needs for project management were discussed above. These information "blocks" are related to each other in a logical manner, and if properly developed can assist project administrators and managers to be better prepared to carry out projects successfully. The logical relationships between the "information blocks" permits a very methodical approach which are called the "Five Steps of Planning for Project Implementation". These five steps are:

- (1) Project Activation,
- (2) Specifying and Scheduling the Project Work,
- (3) Clarifying Project Authority, Responsibilities & Relationships,
- (4) Obtaining Project Resources, and
- (5) Establishing Project Information and Control Systems

These five steps incorporate the basic planning activities which precede the actual work or execution of the project. They are followed by Project Implementation (which consists of Project Direction, Execution and Control) and Project Termination.<sup>1</sup> The five steps of planning for project implementation are sequentially related as shown in Illustration 3. They form a sequence of planning activities which build upon each other to form a sound foundation for actual project execution.

One feature of this approach to project implementation is the rigor and logic of the sequence in which implementation planning is carried out for a project. The steps are sequential and the information generated by one step is used in the subsequent steps. Step Two precedes Step Three, and so on. Each of these steps has distinct products or outputs which provide information inputs for subsequent steps. When the stages are completed they form the foundation for project direction, execution and control.

J. Bainbridge and S. Sapirie, Health Project Management, A Manual of Procedures For Formulating and Implementing Health Projects, World Health Organization, Geneva, 1974.

**FIVE STEPS  
OF  
PROJECT IMPLEMENTATION PLANNING**

							<b>PROJECT IMPLEMENTATION</b>
						<b>STEP 5: ESTABLISHING INFORMATION SYSTEM</b>	<b>5: PROJECT CONTROL SYSTEM</b>
						<b>STEP 4: OBTAINING PROJECT RESOURCES</b>	<b>4: PROJECT RESOURCES</b>
						<b>STEP 3: CLARIFYING AUTHORITY &amp; RESPONSIBILITIES</b>	<b>3: PROJECT ORGANIZATION</b>
						<b>STEP 2: SPECIFYING &amp; SCHEDULING THE WORK</b>	<b>2: PROJECT ACTIVITIES &amp; SCHEDULE</b>
						<b>STEP 1: ACTIVATING THE PROJECT</b>	<b>1: PROJECT ACTIVATION</b>
						<b>STEP 0: PROJECT IDENTIFIED &amp; APPROVED</b>	<b>0: PROGRAMME POLICIES &amp; PROJECT APPROVAL</b>
<b>MAJOR TYPES OF PROJECT INFORMATION NEEDED AND GENERATED</b>	<ul style="list-style-type: none"> <li>- Programme Policies</li> <li>- Approval &amp; Guidelines</li> </ul>	<ul style="list-style-type: none"> <li>- Project Scope</li> <li>- Project Purposes &amp; Outputs</li> </ul>	<ul style="list-style-type: none"> <li>- Project Action Plans</li> <li>- Project Schedules</li> </ul>	<ul style="list-style-type: none"> <li>- Project Structure &amp; Organization</li> </ul>	<ul style="list-style-type: none"> <li>- Procedures &amp; Plans for: Resource, Finances &amp; Manpower</li> </ul>	<ul style="list-style-type: none"> <li>- Reporting Plans &amp; Control Systems</li> </ul>	<ul style="list-style-type: none"> <li>- Management Information</li> <li>- Environmental Information</li> </ul>
	<b>PROJECT IMPLEMENTATION PLANNING</b>						

DO NOT DUPLICATE WITHOUT PERMISSION

-12-

(a) Each planning step is composed of a set of activities, actions and decisions which result in the distinct output of some "product". (See Illustration 4). It is important to understand that these "products" are actually the "pieces and blocks of information" which are necessary for a sound foundation for project management. The "products" or output of one step provide the information base for subsequent steps in the sequential logic presented in Illustration 4. This is observed in the later illustrations for each of the planning steps (Illustrations 5 through 9) where the actual planning "products" or documents are cross-referenced between the steps. For example, Document 1-C, a product of Step 1, is a foundation document in Steps 2 and 3 or, Document 2-G becomes a foundation document in Steps 3, 4 and 5. By following the sequences shown by the cross-referencing of these documents, the logic of this methodical approach to project implementation planning is quite evident.

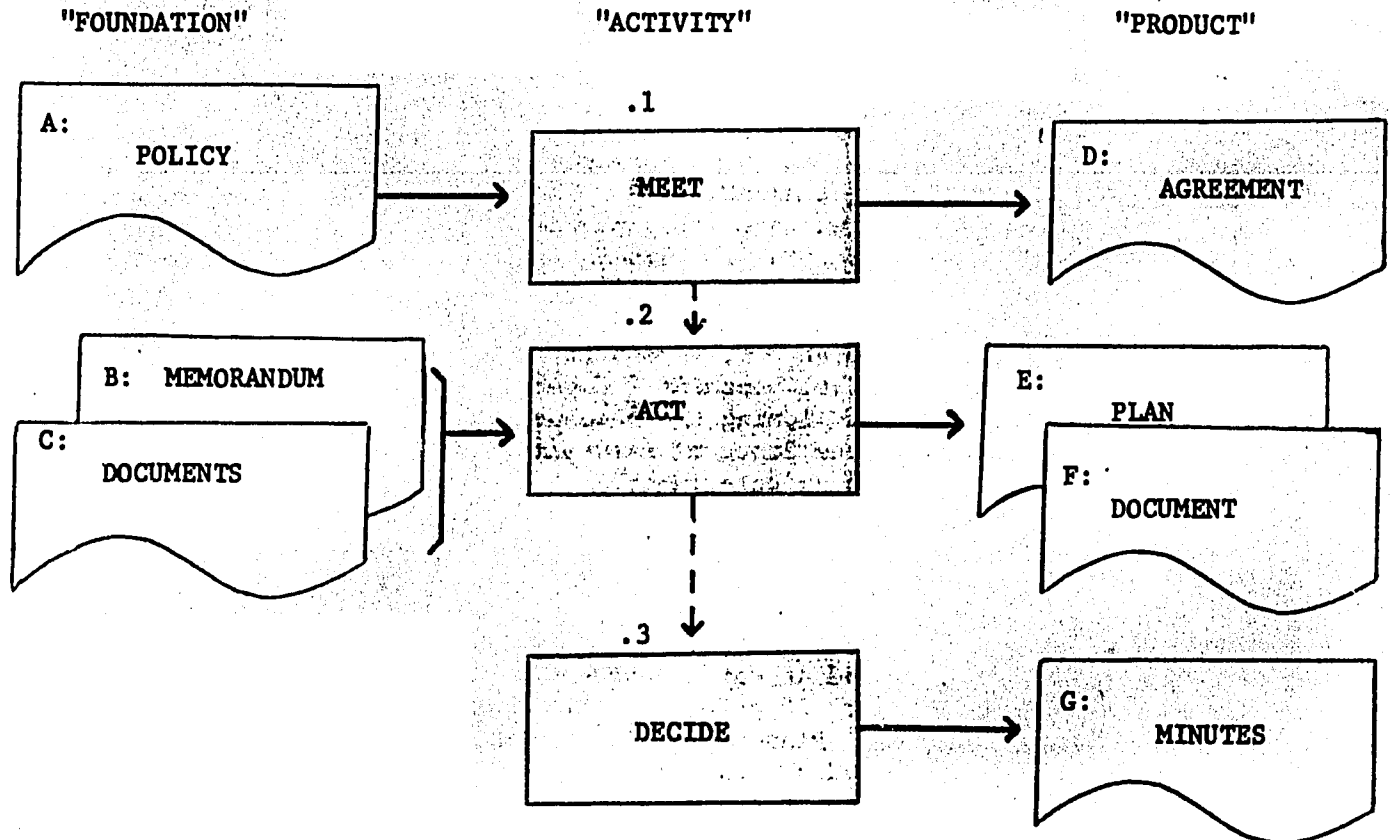
(b) The sequential relationship in constructing this information foundation for the Pioneer Farms as projects can be illustrated by this example: Land Appraisal is an activity in Step One which results in a written statement regarding the result of the land appraisal identifying the characteristics of the site. The Land Appraisal documents are products of Step One and then become inputs into Step Two as part of the informational foundation for the activities of Farm Planning and Work Scheduling resulting in the products of a Farm Plan and a Work Schedule. These products of Step Two, in turn, become inputs or part of the foundation for subsequent steps - Step Three (Clarifying Project Authority, Responsibilities and Relationships) and Step Four (Obtaining Project Resources).

If any of the planning steps or sub-steps are neglected, a project is usually stalled until there is backtracking to complete the omitted portion. This can be observed, for example, on a number of Pioneer Farms where projects were started without all planning having been completed. Pioneers may have been identified and farms started without clearance of land or equipment for them to begin operations; or, operations may have begun without proper attention to training or technical assistance necessary for successful farm operations; or farms may have been 'announced' before approvals were complete. The result is often frustration and disappointment for the Pioneers, the administrators and the technical staff and this may sabotage motivation and subsequent performance on the Pioneer Farms.

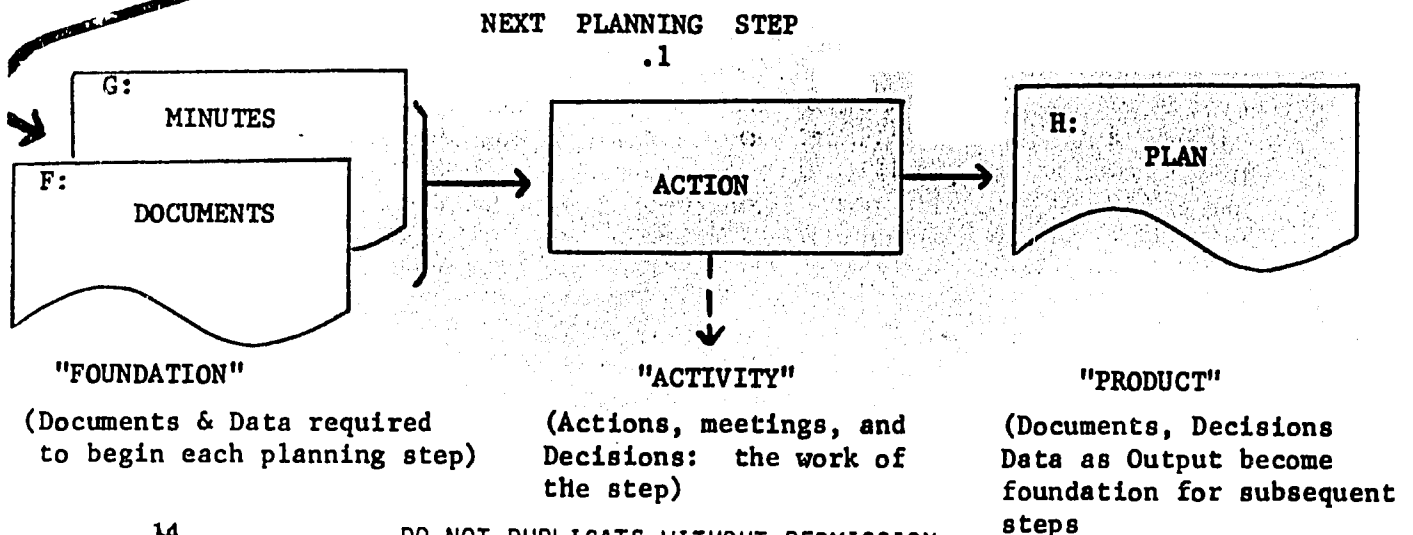
The five planning steps adhere as closely as possible to reality. But in some situations, strict adherence to this step-sequence is not possible or even desirable. Therefore, this approach is seen as a model which requires adjustment to realities which may be encountered for a particular Pioneer Farm. However, none of the steps should be neglected or overlooked in planning to implement a Pioneer Farm.



The Construction of A Planning Step



Each planning step has a "foundation" from some previous planning stages such as policies, and documents which when complete permit that step to begin. Within each planning step there are a number of "activities" or substeps, involving the work in term of actions, meetings and decisions, which result in the output or "products" of that planning step. These products in turn become the "foundation" for subsequent steps. In this way the five planning steps logically build a solid base for realistic project implementation.



## V. DOCUMENTATION FOR PIONEER FARMS

It is clear that the implementation planning recommended by this approach is very dependent upon detailed documentation for the Pioneer Farms. This is not as bulky or difficult as it appears because many of the documents can be and are standardized for all Pioneer Farms. For example, in Step Five the products include a reporting system and formats for the reports and in Step Four they include a Policy Statement on drawdown procedures and documentation. These are "products" which are common to all Pioneer Farms and have already been prepared. In many instances they are standardized for other projects within the Ministry. Examples of many of these are available through the management guidance provided by the Production Unit of the Ministry of Agriculture. (See Appendix 10 for examples) This means that it is not necessary to treat the implementation of each Pioneer Farm as a totally new and unique operation. While some of the particular technical and management information for each Pioneer Farm must be generated with respect to the peculiar characteristics of each farm there are other "products" in the implementation steps which are standardized. Each farm manager should be thoroughly familiar with these standardized informational blocks when planning for the implementation of a specific Pioneer Farm.

Thus, there are two distinct types of products that are outputs of the planning steps:-

- (a) Those which are similar and standardized, such as reporting procedures and accounting practices, and
- (b) Those which are specific to each Pioneer Farm and vary greatly because of the varying resources, physical features, sizes, products of each farm, etc.

Among the illustrations in this manual are examples of both types, documents which are (a) standardized for all Pioneer Farms in the programme, and (b) generated to fit the peculiar characteristics of a specific Pioneer Farm project.

It is very important to be sure that the documentation associated with implementation planning is complete and in place before a Pioneer Farm is inaugurated. The five implementation planning steps should be completed as fully as possible before the project execution, direction and control begins. These form the foundation for successful Pioneer Farms.

From a managerial perspective, this sound implementation foundation has the advantage of alerting the managers and administrators and providing a basis for dealing with the technical and management problems which will inevitably arise during the actual implementation of the Pioneer Farm Project. When a sound foundation is laid, the operational problems encountered are more "manageable". For example, deviations from plans can be interpreted in terms of their implications regarding time, resources or other project activities. The documentation produced through rigorous and logical implementation planning affords a much better chance of successfully attaining the objectives of individual Pioneer Farms and the Pioneer Farm Programme.

## VI. THE FIVE STEPS IN PLANNING FOR IMPLEMENTATION

### VI-1. STEP ONE: PROJECT ACTIVATION

Project Activation involves the confirmation of the Ministry's intention to establish a Pioneer Farm by granting the initial approvals necessary for beginning a serious planning effort. Experience shows that often projects are announced and even undertaken without proper and adequate clearance and approval. Step One, Project Activation, is intended to overcome the problems of belated approvals that delay project implementation. By ensuring that all proper approvals are granted before further planning or operations are undertaken on the project, the first layer of a sound project foundation is established.

Project Activation may take from several weeks to several months, depending upon the readiness of the community, priorities and budget of the Ministry, the data already available on the land, and the work load of relevant Ministry officials.

The Ministry of Agriculture has the major responsibility for the formal initiation of Pioneer Farms. However, a number of other groups and persons may be involved in identification of the project, as noted below. (See Step 1.1. Page ). The primary persons involved within the Ministry in Project Activation include the Regional Director, the Regional Lands Officer, the Parish Manager, and representatives of the Production Unit.

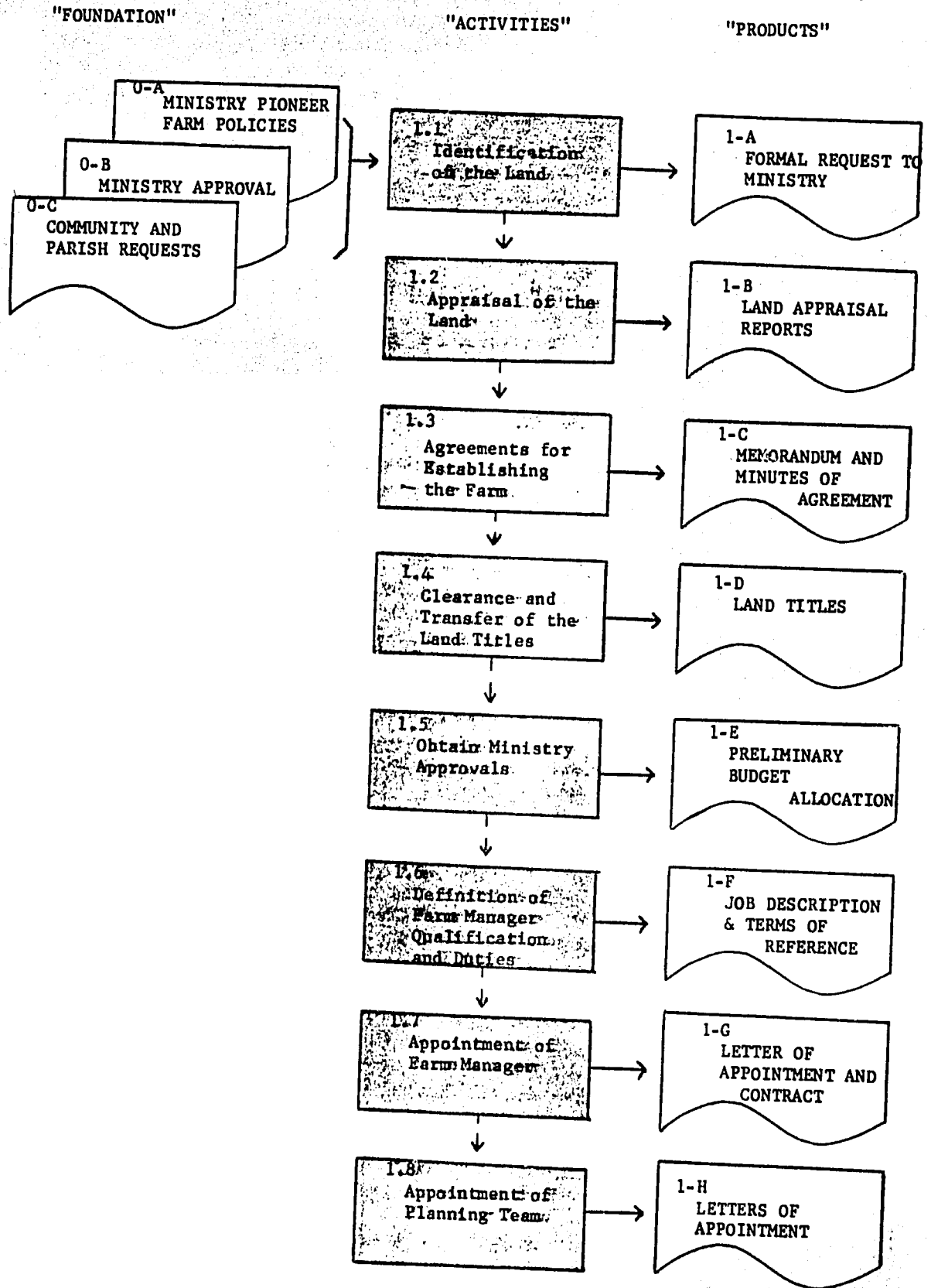
A major danger in the performance of this first step of project implementation planning is that it is often interpreted as the actual beginning of project execution. That is, once the land has been identified and transferred along with an agreement to establish a Pioneer Farm, there is a lot of pressure to immediately "open" the Pioneer Farm. This pressure may be quite intense because of community and political involvement in the identification of the land so that there are often high expectations for immediate farm occupation and operation. Project administrators should guard against permitting these pressures to force them into overlooking any of the subsequent steps in implementation planning.

Another danger is that Pioneer Farms are supported by various groups whose interests in a Pioneer Farm or the total Pioneer Farm programme may differ. So, each may seek to impose his perceptions and desires for the project and the processes upon those laid out by the Ministry of Agriculture, Production Unit, for implementation of these Pioneer Farm projects. For this reason, a well-defined project implementation planning approach is critical.

There may also be a number of vested interests in the communities or other agencies who want to block or divert the planned implementation of a Pioneer Farm for a number of reasons. Overcoming the doubts, fears, and ambitions of these various interest groups requires a considerable amount of skill in interpersonal relations. It may also require a modification of any rigidly preconceived project ideas so that a Pioneer Farm being planned for implementation is actually viable and relevant

STEP 1: PROJECT ACTIVATION

ILLUSTRATION 5



within its immediate community and institutional environment. The perceptions of the programme, its unfavourable identification with past projects in land settlement initiated in the last decade, and general resistance to the type of project, may make it necessary to undertake a programme of community and institutional education to prepare the way for a successful project. It is also necessary to learn from experiences and from the local environment how the project can best be shaped to make it viable in this setting.

The sub-steps in Step One, Activation of a Pioneer Farm Project, are shown in Illustration 5. Again there is a sequential logic of the methodology which is applied to these sub-steps (activities and decisions). It is similar to the logic which was previously applied to the Five Project Implementation Planning Steps. Although, in reality one may deviate from the actual logical sequence as presented, none of the sub-steps should be neglected at this point.

#### Step 1.1 Identification of the Land

Land may be identified by a community group or local organization. In practice, lands to be used are identified by a Member of Parliament, Community Councils, Farmer Advisory Committees, Staff of the Ministries (such as Agriculture or Youth), and so on. The land so identified should be reported to the Ministry of Agriculture through the Regional Director.

#### Step 1.2 Appraisal of Land

When the land has been identified, it must be appraised to determine its characteristics and its appropriateness for inclusion in the Pioneer Farm Programme. This should be done under the guidance of the Regional Director, though Parish personnel may be involved in the actual tasks of appraisal. The result is a Land Appraisal Report, which is the responsibility of the Regional Officer.

#### Step 1.3 Agreement to Establish a Pioneer Farm

If the land is declared suitable and desirable for inclusion in the programme, then discussions must be held between the relevant groups and agencies to determine if a Pioneer Farm should be established. The initiative for this discussion rests with the Regional Director of the Ministry of Agriculture. Discussions must be conducted under his authority with the Community Council or identified local groups, the relevant Member(s) of Parliament, the Cooperative Officers, the representatives of the SDC and other relevant groups. The discussion determines the actual desirability of establishing the Pioneer Farm by making a preliminary assessment of the capacity to provide the necessary institutional support for the project when operations begin. The final agreement (Memorandum and Minutes of Agreement) is written indicating the degree of commitment required and agreed upon to make the project successful.

During the critical approval process, the cooperating groups and

agencies should concentrate on:

- (a) Providing a general understanding of the objectives and benefits of the proposed project;
- (b) Obtaining agreement in principle to the proposed strategies for carrying out the project, including the contributions of each group and their roles in the implementation of the project (in general);
- (c) Avoidance of long discussions on technical details at this point;
- (d) Thorough discussion of the political and social ramifications and budgetary and manpower consequences of the strategies; and
- (e) A discussion of the practical aspects of implementation including identification of who will be generally responsible for various aspects of the project, and how the project will be monitored and evaluated to ensure that it is achieving the proposed benefits upon which the groups are in agreement.

#### Step 1.4 Clearance and Transfer of Land

After there is assurance that the Farm will be established, the Regional Office of MOA, particularly the Regional Lands Officer, is responsible in achieving the legal clearance and transfer of the land. This means that the land has been acquired by Government, that the land is arable (from the appraisal), and that an adequate water supply is available or can be made available through the infrastructure to be installed.

#### Step 1.5 Formal Approval of the Project

Following the agreement of relevant agencies and groups, discussed in Step 1.3, there must be formal approval of the Pioneer Farm within the MOA. This is done through the Production Unit and is completed when there is appropriate documentation that the project is included in the Ministry budgets, although the actual budgeted amounts are not definitely known or determined at this point.

#### Step 1.6 Define the Farm Manager's Functions and Qualifications

There should be a Job Description for the Farm Managers. The job description should clarify the tasks and responsibilities as well as the authority of the Farm Manager. An illustration is provided in Appendix 3. It should also enumerate the various departments, Ministries, Agencies and professional groups with whom he is likely to be dealing and the level of the individuals in each of these with whom he will deal.

The job descriptions assume that the person to fill the position will have certain basic qualifications in experience and education. These basic minimum qualifications should be clear prior to the search for potential candidates for the position.

Step 1.7 Appointment of Farm Manager

As certainty about the project develops, the Parish Manager, with the advice of the Regional Director, should identify potential candidates for the position of Farm Manager. The Parish Manager is finally responsible for identifying and appointing the Farm Manager, with the approval of the Regional Director. The Manager should be appointed at this early stage, if possible, so he will become familiar with the responsibilities for project execution and farm operations. Particularly, he should be involved in the Farm and Physical Planning that follow in Step 2.

It is important to issue a Letter of Appointment to the manager and to brief him on the project. The briefing should include a formal memorandum containing a brief description of the project and its objectives, a statement regarding his appointment and its terms of reference and other details that may be pertinent at this point. It is important to have formal confirmation of the appointment and familiarize the manager with the project proposal, including the rationale for the project and any foreseeable difficulties that may be encountered in the implementation process while carrying out his responsibilities.

Step 1.8 Appointment of the Planning Team

The farm manager will be responsible for the implementation of the Farm Plan, but development of the actual farm plan will be the responsibility of the Regional Land Lease Officer who will work closely with the Farm Manager, Production Unit representatives, and other technical staff in planning the farm. Farm Plans are drawn up by a team including the Regional Land Lease Officer, Parish Lands Officer, Division Extension Officer, and the Farm Manager. Staff and technicians from other Ministerial Departments, such as Soils, Crops and/or Livestock, Engineering, etc., may be included as appropriate. Each of the persons on the Planning Team should receive a letter of their appointment which has a terms of reference with details of their responsibilities and relationship to the project.

This concludes Step 1, Project Initiation. At this point there may be a tendency to feel that the project is ready to begin operations and pressures to move into Pioneer selection quite early. This should be done only when the remaining steps in planning for implementation are completed or nearly completed so there is certainty regarding the mobilization of the support required to make the project successful.

VI-2. STEP TWO: SPECIFYING AND SCHEDULING THE WORK

The purpose of this step is to produce; (a) a detailed Farm Plan, and (b) a plan describing the necessary activities to carry out in a Project Schedule which has specified in detail when, where and how the Project Activities are to be done. Essentially, this means that there must be:

- the completion of a detailed study of the Farm and its characteristics such as water supply, soil types and topography,
- the formulation of a Physical Farm Plan and a Farm Production Plan specifying what will be produced on the farm and the phasing of these crops and/or livestock enterprises during the establishment of the Pioneer Farm,
- the compilation of a detailed list of the resources required to establish the Pioneer Farm and the time scheduling for these resources, and
- the drafting of the initial master schedule for the Pioneer Farm.

The products of this step become the logical foundation for the activities in Steps 3 and 4. By specifying in detail what work is to be done and who should do it, it is possible to identify who is responsible for the various aspects of the project and thus determine the best organizational relationships for the Project (Step 3). Also, specifying in detail the necessary resource requirements and when they must be accessible to the project makes it easier to obtain these when required (Step 4).

Step Two is built upon the foundation established in Step 1. For example, the team for doing the planning has been established, the general strategies for the farm have been agreed upon, an initial budget allocation has been approved, and authorization and agreement for establishing the farm has been granted. The land has been appraised and the title legally established so the boundaries and constraints for further planning are now clear.

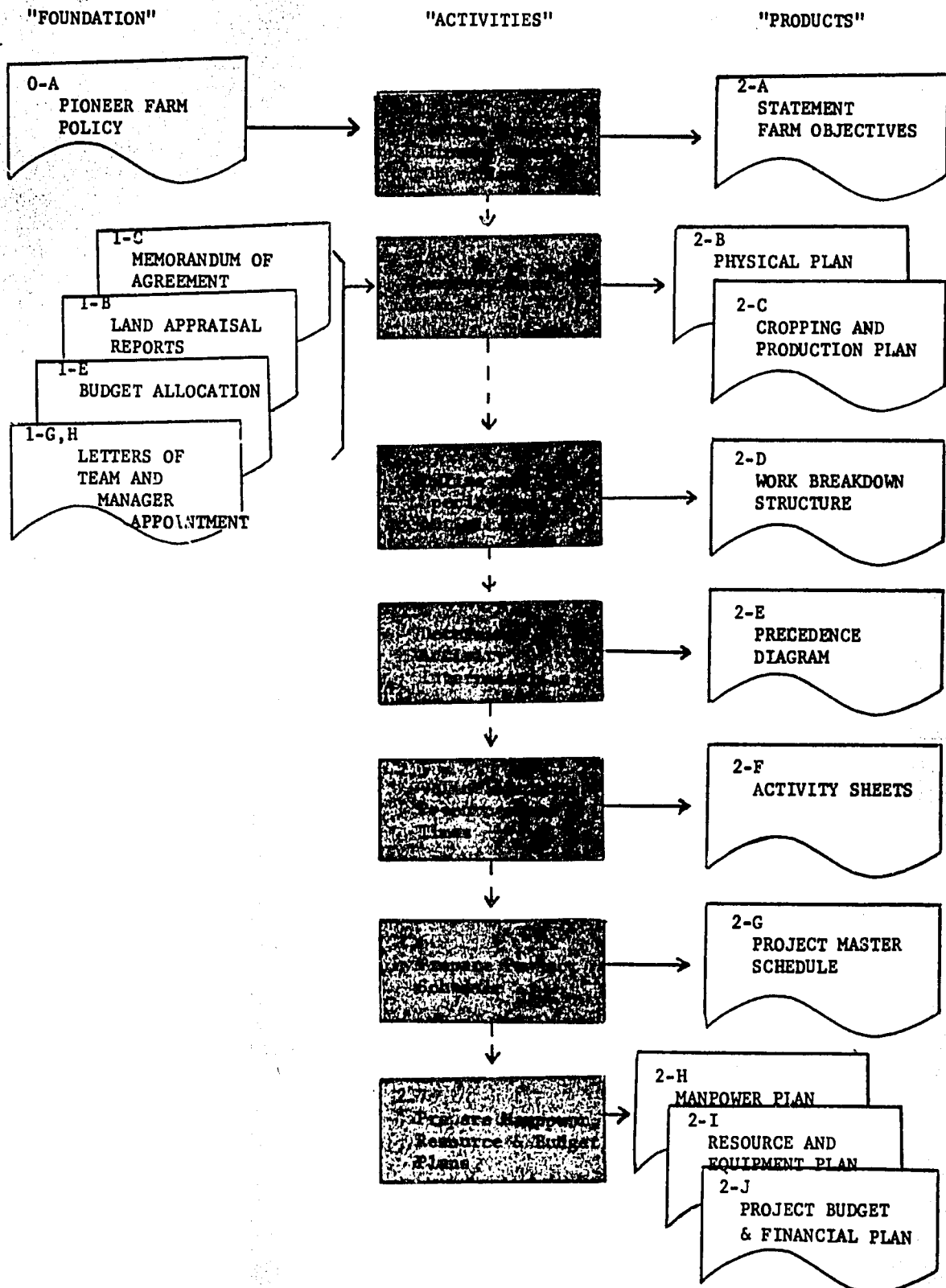
In practice, Steps 2, 3 and 4 are interrelated. Therefore one should be familiar with the contents of each step from the start. However, the logical sequence of these steps is obvious as the work must be specified and scheduled before the organizational aspects can be finalized and formalized and before procuring resources can be well planned and initiated.

The time required for this step is dependent upon the staff available to assist and the time they can devote to the scheduling effort. The time is also dependent upon the degree of detail and refinement required. It is useful to be as realistic and detailed as possible, but on the other hand, it is often necessary to proceed as quickly as possible



STEP 2: SPECIFYING AND SCHEDULING THE WORK

ILLUSTRATION 6



with the project. This management tool will be constantly upgraded, and too much attention to detail at this point, may unnecessarily delay the project. The planners must exercise good judgement to make this tool as useful to the Pioneer Farm as possible. Necessary details should not be neglected but they should not delay implementation. Planning that is too detailed may later prove to be irrelevant in light of evolving project circumstances.

### Step 2.1 Statement of Farm Objectives

The general objectives for Pioneer Farms must be relevant to the specific Pioneer Farm which is being planned. The first sub-step in specifying the work is to develop a clearly stated set of quantitative and qualitative objectives for the Pioneer Farm. This is the initial step in creating a basic understanding of what the project is expected to "produce", using "produce" in the broader sense of the final purposes which the project is expected to achieve by the time the farm is on its own. Thus the written objectives include not only the farm production objectives but also the educational, community and cooperative objectives.

### Step 2.2 Preparation of Farm Plans

The Farm Plans must now be prepared. Farm Planning includes analysis of the farm characteristics, determination of physical infrastructure required on the project, determination of the appropriate crops and distribution of these crops on the farm, planning for appropriate livestock enterprises and estimates of all production phased throughout the life of the project. The farm plan will include all of the components itemized in Appendix 10, Pioneer Farm Concept and Organization, Annex 1: Content of Layout of Farm Plans - Pioneer Farm.

In summary, the most important components for this sub-step are:

- the physical conditions of the farm and a plan for necessary physical infrastructure,
- Farm size, layout and spatial organization,
- Crops and livestock enterprises, production targets, and the phasing and rotation of production during the project.

### Step 2.3 Work Breakdown and Detailed List of Project Activities

When the objectives and outputs for the farm have been specified, it is then possible to begin the work breakdown for the farm. The work for the farm can be broken into the major components, such as Physical Infrastructure, Farm Operations, Farm Management, Pioneers, and so on. Each of these components can, in turn be broken into major elements. And the elements can be broken into the project activities. An illustration is provided in Appendix 4. It is necessary to do a new Work Breakdown for each Pioneer Farm. Each will have a set of characteristics, outputs and pioneers which are unique to that farm, so the total set of activities to

establish the farm is also unique to that farm. The work breakdown gives the detailed list of project activities for establishing the farm. It is noted, however, that it is possible to breakdown the activities into even more finite or discrete tasks. This will be necessary when the implementation actually begins and should be required of the persons responsible for each activity along with a schedule for that activity. At this point, though, the detail of work outlined by the activities need be only specific enough to permit implementation planning.

#### Step 2.4 Determine the interrelationships among Activities

Several alternative methods exist for graphically showing which activities precede others in the project schedule. We recommend the use of the Precedence Diagram Method (See Appendix 6), though in the case of a very simple project (e.g. with less than 20 activities), it might be possible to go directly to the use of a Gantt Chart (See Appendix 7).

The purpose of this sub-step is to sequence the activities into the work logic, i.e., which activities are dependent upon the completion of other activities. The planners must be familiar enough with all the work which has been detailed to judge how activities are related to each other. These relationships are first determined within each grouping of project components, e.g., infrastructural activities, and then, between activities in different components, e.g., between Infrastructure and Pioneer Operation.

#### Step 2.5. Define Activity Duration and Resource Requirements

For each activity which is identified, it is necessary to know its duration and what resources are required to carry it out. This is done by completing an Activity Sheet for each activity. The Activity Sheets can later be used in the actual operation of the project for direction and control, as they provide an information basis for comparing actual operations to plans. (See Appendix 5 for an explanation of Activity Sheets).

#### Step 2.6 Estimate Project Schedule

With the above information on the time necessary to accomplish each activity, and the interrelationships between activities, it is now possible to put the Master Project Schedule into a definite time frame. This is done first as a Precedence Chart where the project duration is determined by the computation of activity durations throughout the life of the project. Each activity in the diagram will have an Early Starting time and a Late Starting time. A "critical path" will be identified by those project activities which have no float time, i.e., no difference between their Early and Late Starts. These activities must be done according to the planned time schedule because any increase in their times will increase the total time for completion of the project.

The Precedence Diagram is then transferred into a Gantt Chart with milestones and resource plans as shown in Appendix 7 and 8. This is the Project Master Schedule, or its first approximation as it will be adjusted

throughout the planning and implementation stages that follow. The Master Schedule lets the manager know, for example, if changes in the times of any activities will have an impact on any subsequent activities or on the project as a whole. It is a basic management tool. The Master Schedule provides information for making decisions regarding any rescheduling necessary to overcome time and resource problems. The Master Schedule is particularly important because so many projects find their staff and equipment resources subject to commitment elsewhere. It is highly unlikely that the project will adhere to the initial Master Schedule. So, the manager must know not only how to construct a Master Schedule, but how to revise and update the schedule with the information resulting from using the initial schedule to measure performance.

### Step 2.7 Prepare Detailed Budgets and Manpower Plans

From the Master Schedule, it is possible to construct detailed Gantt or Bar Chart showing the phasing of costs and resources over time. At this point, it is necessary to prepare a budget and to adjust the schedule if there is need for resource or cost levelling, i.e., to reduce the use of the resources or manpower in one time period and transfer these to another time period because of constraints on resources or manpower. This sub-step is dependent upon the Activity Sheets completed in Sub-step 2.5 and the Master Project Schedule from Sub-step 2.6. The detailed budgets must be submitted through the Parish Manager and the Production Unit for approval and inclusion in the Ministry budget allocations. The manpower plans become the basis for further finalization of the project manpower support in Steps 3 and 4.

A caution about the use of project schedules must be noted here. There is a tendency to see the project master schedule as a rather static and rigid document which the manager should enforce on the project. In fact, detailed work scheduling is not a one-time activity. The schedule must be constantly updated as new information and events which will have an impact on the project become available or happen. During the planning for implementation phase and throughout the life of the project, re-scheduling must be repeated in response to changes in policy, delays in implementation, and so on. The master schedule is a tool which is used to reflect the consequences of these changes on the project. It is not a blueprint to which the project must conform. The purpose of a schedule is not to impose its logic on reality, but to provide a basis for judging the impacts of any real circumstance on all the activities and components of a project. As the scheduling steps are repeated, the manager will find he is in a better position to estimate the necessary activities, time schedule and consequent resource requirements. The rescheduling will result in better comprehension and control of the project and is one of the most basic management tools available to the manager.

**VI-3. STEP THREE: CLARIFYING PROJECT AUTHORITY, RESPONSIBILITIES & RELATIONSHIPS**

This is a very important step in planning for project implementation. Many of the difficulties actually encountered in the implementation of projects result from the lack of a mutual understanding of the roles of the various participants in projects. Often, even if there is agreement at the administrative levels on the participants' roles and responsibilities, this may not be communicated to all levels of staff. Consequently, there may be misunderstanding about what is expected by immediate or higher-level administrators. Depending upon the situation and the personalities of the individuals, this results in personnel either doing what they feel is best in the given situation, what they think the supervisor wants done, or nothing. This can be very critical in relation to a project because it is a "temporary form of organization" in which there are not clear lines of authority and responsibility under one manager. Without a clear organizational plan for the project, there is likely to be duplication and overlapping of effort by some team members or agencies, neglected areas of responsibility, conflicts in the availability of persons and resources, lack of effective coordination of personnel, and, a sense of conflict and competition resulting in ill feelings. For some or all of these reasons the result may be a failure to provide the support for implementation efforts of the project which is required for its success. These difficulties can be partially avoided by the active involvement of all relevant organizational units in the process of clarifying authority, responsibilities and relationships.

From the work in Step 2, the activities necessary to implement the project are carefully defined. It is now possible to identify the units and agencies who will be required to participate in the implementation of the project. For Pioneer Farms, this will include a rather extensive list of units, only some of which are in the Ministry of Agriculture. The persons and units that need to contribute to the implementation of a Pioneer Farm can be seen by examining the Linear Responsibility Chart in Appendix 1 and the Services Available to Pioneer Farms After the Work Day and During the Work Day in Annex 6 of Appendix 10. Over 15 separate agencies/organizations are listed and over 15 distinct units or officials from within the Ministry of Agriculture!

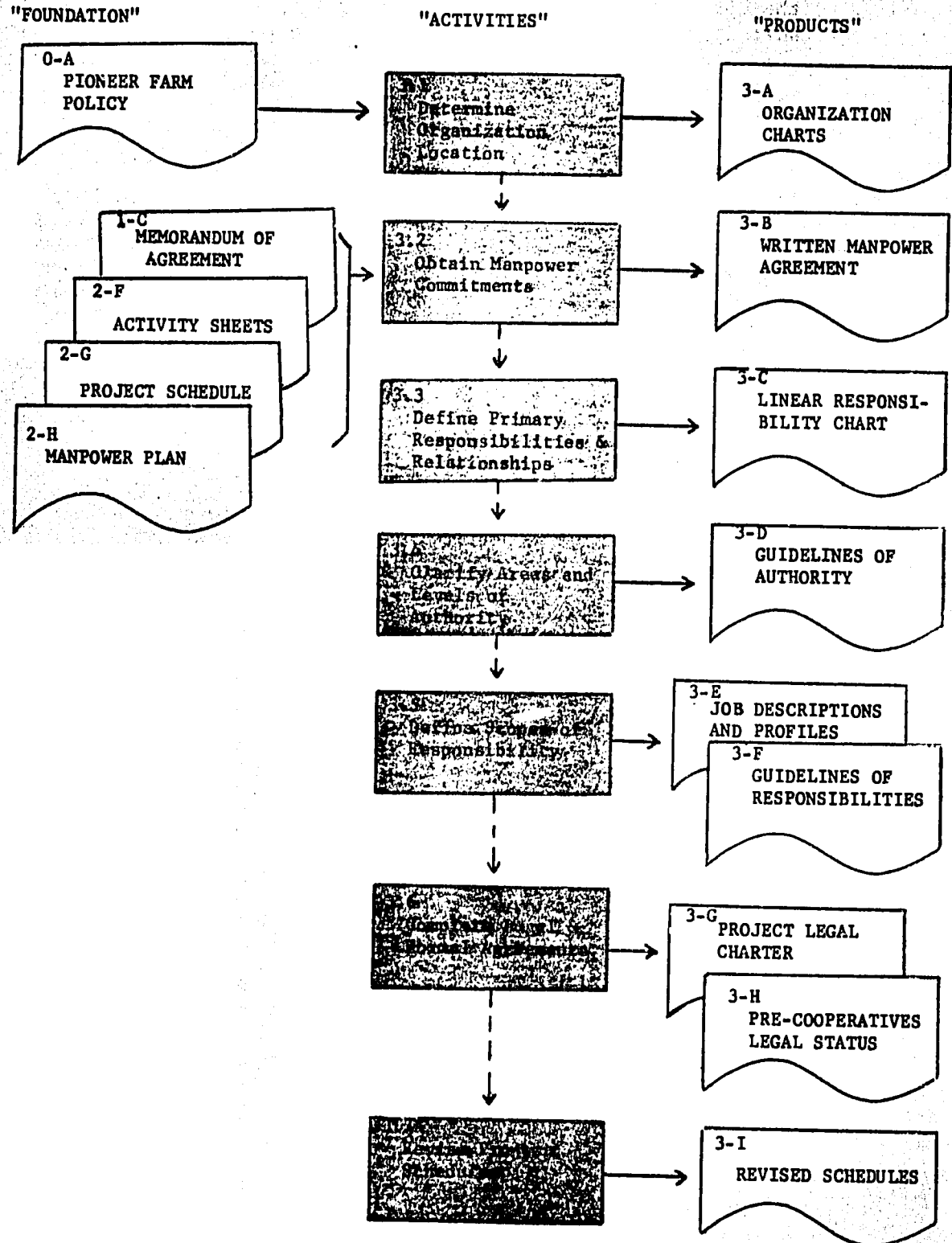
Simply by observing the size of this list of groups and persons who will contribute to the Pioneer Farm, the scope of the task of coordination becomes obvious. Who does what? Who supervises whom? Who decides what? Who is boss? The question and answers about authority and responsibility can become quite confusing. This is why a well defined organizational structure is necessary and a clear understanding of its importance. The following sub-steps provide a basis for the construction of a sound organizational foundation for a Pioneer Farm.

**Step 3.1 Organizational Location**

The organizational location of the project must be determined. For Pioneer Farms, this is clearly within the Parish Manager's office and under his authority. This is shown in the organizational chart in Appendix 2. The Pioneer Farm Manager reports to the Parish Office. It is important that

STEP 3: CLARIFYING AUTHORITY, RESPONSIBILITIES & RELATIONS

ILLUSTRATION 7



each Parish Office determine the exact position of the Pioneer Farm project within its structure. There should also be a formal statement of the supervision and reporting relationships provided for the project personnel.

### Step 3.2 Obtaining Manpower Commitments

Although the Pioneer Farm comes under the authority of the Parish Manager, the Parish Manager does not control all of the resources and manpower that contribute to the project. The Master Schedule, the Activity Sheets and the Manpower and Resource Plans, indicate who must be involved and what their responsibilities are. There must be a meeting of the managers and directors from all contributing units to determine the levels of their commitment to the project -- this is Step 1.3 above. Now, it is the responsibility of the implementation planners to get written manpower agreements from each of these units and agencies. The manpower agreements indicate who will do the work (project staff), their qualifications, the work to be done, the terms of reference for that work, and who directly supervises the persons doing the work. The written manpower agreements are especially important in the coordination of persons not under the direct authority of the manager. The agreements will assist the Directors of the contributing agencies in planning their work, also. The use of part-time staff to contribute to a project makes these agreements an unavoidable and necessary project management tool.

The manpower agreement should include:

- the number of persons agreed upon with specific qualifications;
- the work to be done by them,
- the time periods involved,
- an agreement about what will happen if deviations occur, and
- arrangements for any costs that will be incurred.

When negotiating with certain agencies, such as external bodies, it may be necessary to have legal forms completed for these agreements. But even for related and internal units, the agreements should not be verbal but recorded for clarity of understanding. As noted above, these projects can involve the coordination of a number of agencies and persons, so these agreements should not be neglected.

### Step 3.3 Defining responsibilities and relationships

When the manpower agreements have been reached, it is then possible to construct a Linear Responsibility Chart that formalizes the relationships for all activities on the project. (See Appendix 1). For Pioneer Farms, a preliminary draft of a Linear Responsibility Chart shows the basic activities necessary to establish a Pioneer Farm. This should be refined for each Pioneer Farm so it is clear who has which specific responsibility for each activity on each specific Pioneer Farm project.

### Step 3.4 Clarification of Authority

In addition to the Linear Responsibility Chart, there should be "work descriptions" for all sponsoring agencies and officials. These should be a clear set of guidelines for each group and persons contributing to the project. For example, these questions need answers:

- who has the authority to change the project schedules?
- who has the authority to substitute project resources?
- who can terminate the project or any project activity?
- who has approval and authority over contingency funds?
- who must approve changes in project objectives?
- who is responsible for obtaining resources?
- what reports are required and who is responsible for making them?

In general this means that there should be a written set of guidelines showing the responsibilities and authority of at least the following officials or groups:

- (1) the Parish Manager,
- (2) the Pioneer Farm Manager,
- (3) The Farm Management Committee,
- (4) Local Member of Parliament,
- (5) The Cooperative Officer,
- (6) The SDC Officer,
- (7) The Production Unit, and
- (8) The Technical Advisory Committee

At present no such guidelines are available, and there has been some confusion regarding the relative authority of these, and other, group and persons. These guidelines should be stated clearly for each Pioneer Farm project and distributed for information and clarification to all relevant persons.

### Step 3.5 Scope of Responsibility

All persons indentified as contributors to the Pioneer Farm project should now have a clear definition of their work responsibilities. This is based upon the activity descriptions (Step 2.5) and the manpower agreements (Steps 3.2-3.4) completed above. The scope of work should also be written



into job descriptions for all full-time project personnel and a job profile completed when the persons are actually recruited for the project. (See Appendix 3). For part-time personnel, the manpower agreement is sufficient to clarify their work responsibility, but job profiles for each person are also recommended.

#### Step 3.6 Completion of Legal Formal Agreements

At this stage the Pioneer Farm is a pre-cooperative, so, it is necessary to identify the Pioneer Farm as a legal entity. The Cooperative Officer is responsible to see that the legal formation of the project occurs on time and proceeds throughout the life of the project until cooperative status is achieved. At this point, the legal documentation base for the project should be established along with a plan for evolving other necessary legal documents for the project.

#### Step 3.7 Revision of Project Schedules

There may be changes in the initial plan estimates resulting from the detailed organization planning. If this occurs it may now be necessary to revise the original project schedule. This is a sub-step that must be repeated regularly and periodically throughout the life of the project.

VI-4. STEP FOUR: OBTAINING PROJECT RESOURCES

From Steps 2 and 3, the planning team including the Farm Manager, now have firm estimates of the total resources requirements to establish the Pioneer Farm and the sources of these resources including equipment, materials and manpower or technical assistance. Step Four provides the necessary guidance to help ensure that the kind and quantity of project resources are available at the place and time they are needed. This means that:

- the necessary project funds are to be allotted and made available for project expenditures;
- full-time and part-time project staff are to be in place, at the appropriate places and times, to work on the project activities; and
- project supplies, equipment, and materials are to be procured and in place as needed.

Specific responsibilities for these activities should have been clarified when project authority, responsibility and relationships were defined (Step 3).

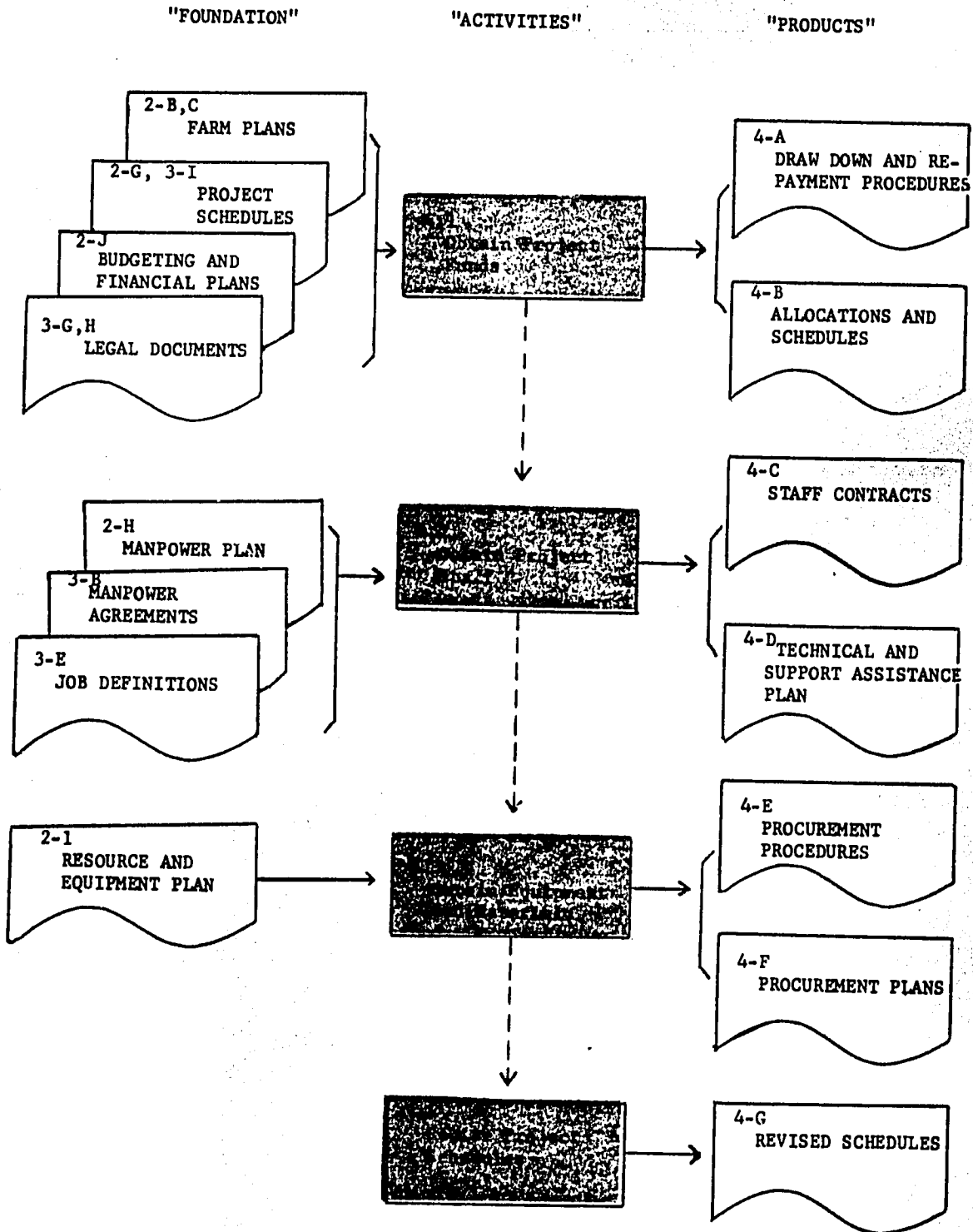
Normally, there are administrative units within the Ministry of Agriculture that are responsible and will do much of the work associated with obtaining these resources. In general, the Pioneer Farm Manager must be in a position to closely monitor and control the various administrative processes to ensure that the resources are available when and where needed. This requires familiarity with the processes and documentation for procurement and contracting and with the procedures followed within the Ministry of Agriculture. The Parish Manager should provide guidance on all of these matters because the Pioneer Farm Manager and the Parish Office will be primarily responsible for obtaining most of the resources. But the Manager must monitor procurement as measured by the schedule because he is ultimately the person who will be responsible for performance on the project.

The responsibilities of the Pioneer Farm Manager in relation to this step may seem both obvious and logical, but too often are not clearly defined. These include:

- advance planning work with the relevant and administrative units to see that a realistic timetable is worked out and the necessary administrative steps are taken to obtain the resources;
- monitoring the performance in relationship to the planned timetable for obtaining resources to see that the administrative steps are accomplished on time; and
- taking of corrective action and proposing appropriate actions by other administrative units to adjust the project as necessary when needed.

STEP 4: OBTAINING PROJECT RESOURCES

ILLUSTRATION 8



Obtaining resources is a process that occurs periodically and regularly throughout the life of the project but must be planned before implementation can begin. For example, obtaining funds occurs at the beginning of the project, especially for certain capital and loan items, and these capital items must be annually related to the budget cycle for the project. Some of the routine budget details are handled by the Production and Finance Units, MOA, but the Parish Manager and the Pioneer Farm Manager must be able to monitor the progress by familiarity with the budgeting and auditing processes. There are other expenditures which are obtained through routinized procedures in the Parish Office and still other expenditures or funds which must be obtained through the procedures used by other agencies, which may differ greatly from the Ministry of Agriculture procedures. Obtaining funds as needed only exemplifies the resource coordinating problems encountered by the managers. Problems related to obtaining personnel and technical assistance are similar. Thorough knowledge of personnel, finance, and procurement processes and procedures cannot be underestimated as a farm manager strives to be a superior project manager.

#### Step 4.1 Obtaining Project Funds

A real test of project management is whether funds are available as needed and are used as intended. Often it is necessary to manage the varying sources of funds for the good of the project in line with its needs, rather than the conveniences of the other agencies. This requires a great deal of expertise, particularly when the financial picture and cash flows within the Government and the Ministry may change during a fiscal year, necessitating adjustments in various allocations. In addition, the rates of inflation may impact a project making the original budget estimates no longer adequate for the personnel or the equipment required. Implementation planning should build the informational basis for anticipating the financial problems to be encountered.

When obtaining funds, the Manager in consultation with the Parish Officer should:

- select a good liaison person in the relevant administrative units. This will provide needed information for remedial action, when it can be taken, how much time is involved, the necessary documentation, when funds are likely to be available, and, very important, how to manage and shift funds between project categories for the benefit of the total project. The manager must understand the operations and constraints of the units and must acquaint them with his farm operations and constraints;
- prepare a schedule of the administrative steps and be familiar with the documentation required for making funds and other resources available;
- prepare contingency plans if funds are not available when needed;

- monitor the performance against the schedule to ensure that the administrative steps are followed and the funds are obtained according to the schedule.

Some examples of drawdown and repayment procedures are referenced in Appendix 10, e.g., Pioneer Farm Accounting Procedures, Work Authorization Documentation, And Analysis of Expenditure Documentation. All relevant procedures for drawdown, loans and repayments should be carefully documented before project implementation begins. The planning team should be responsible to see that these are in place and all relevant persons properly and fully informed. A schedule of the use of project budget and monies including sources and repayment should be drawn up for each Pioneer Farm project.

#### Step 4.2 Obtaining Project Staff

Project Staff is composed of all persons (full-time and part-time personnel) who will be contributing to the project throughout the establishment of a Pioneer Farm and also temporary and part-time persons from units throughout the Ministry of Agriculture, including the Production Unit, the Parish Offices, Technical Divisions such as Soils and Livestock or Engineering, persons from outside the Ministry including persons from Cooperatives, SDC, a Member of Parliament persons from the local community and so on. Basically the same steps as outlined above should be followed. The manager should identify liaison persons in all units cooperating on the project, so that they have the appropriate information for preparing a technical assistance and manpower plan enabling them to monitor the project performance. The persons should be prepared in case of deviation from the plans. (See Appendix 1 and Appendix 10, Annex VI for a partial list of officials, Divisions, Agencies and Organizations who will supply contributing Project Staff).

#### Step 4.3 Obtaining Supplies and Equipment

This will be normally done through the Parish Offices. The Farm Manager must be familiar with the acquisition processes and the schedules for obtaining supplies. As suggested above, the manager should prepare a procurement plan based on realistic times for starting the administrative and supply procedures to assure supplies arriving when necessary. This includes the identification of liaison persons and the cooperation of persons in the relevant units who support the project who must be familiar with the supply plan if they are to give maximum assistance to the project.

Of particular interest in the establishment of a Pioneer Farm are the resources, primarily educational, which are available to the Pioneers. Some of these are outlined in Appendix 10 Annex VI. This provides still another illustration of the extent to which it will be necessary to coordinate personnel and resources from outside the Ministry of Agriculture for the project. The Farm or Parish Manager should work together closely in establishing liaison with all these groups and agencies and use them in a planned manner on the project. A responsibility chart may be prepared (as in Step 3.3) for all groups or agencies having any major input into the

Pioneer Farm Educational Programme so that the roles and authorities are clarified. Examples of a Plan for a Training Programme is shown in Appendix 9 and in Appendix 10, Annex V and VIII.

**VI-5. STEP FIVE: ESTABLISHING THE PROJECT INFORMATION & CONTROL SYSTEM**

Project Control, the managerial function that keeps the project functioning and on target, assumes that there is a plan, instead of merely ambiguous expectations for the project. The plan is based on the previous steps of implementation planning. The first four steps of implementation planning are not "eternal", but they should be revised throughout the project based upon experience and realities that are encountered. One expects deviations from plans so their value, beyond providing a basis for evaluating the real performance of the project, is to give administrators and decision-makers a basis for making contingency decisions and plans when deviations do occur.

The purposes of project control are, (a) to be aware of the deviations if they occur, (b) to prevent these deviations from falling outside allowable limits, and (c) to be able to take appropriate corrective action if needed.

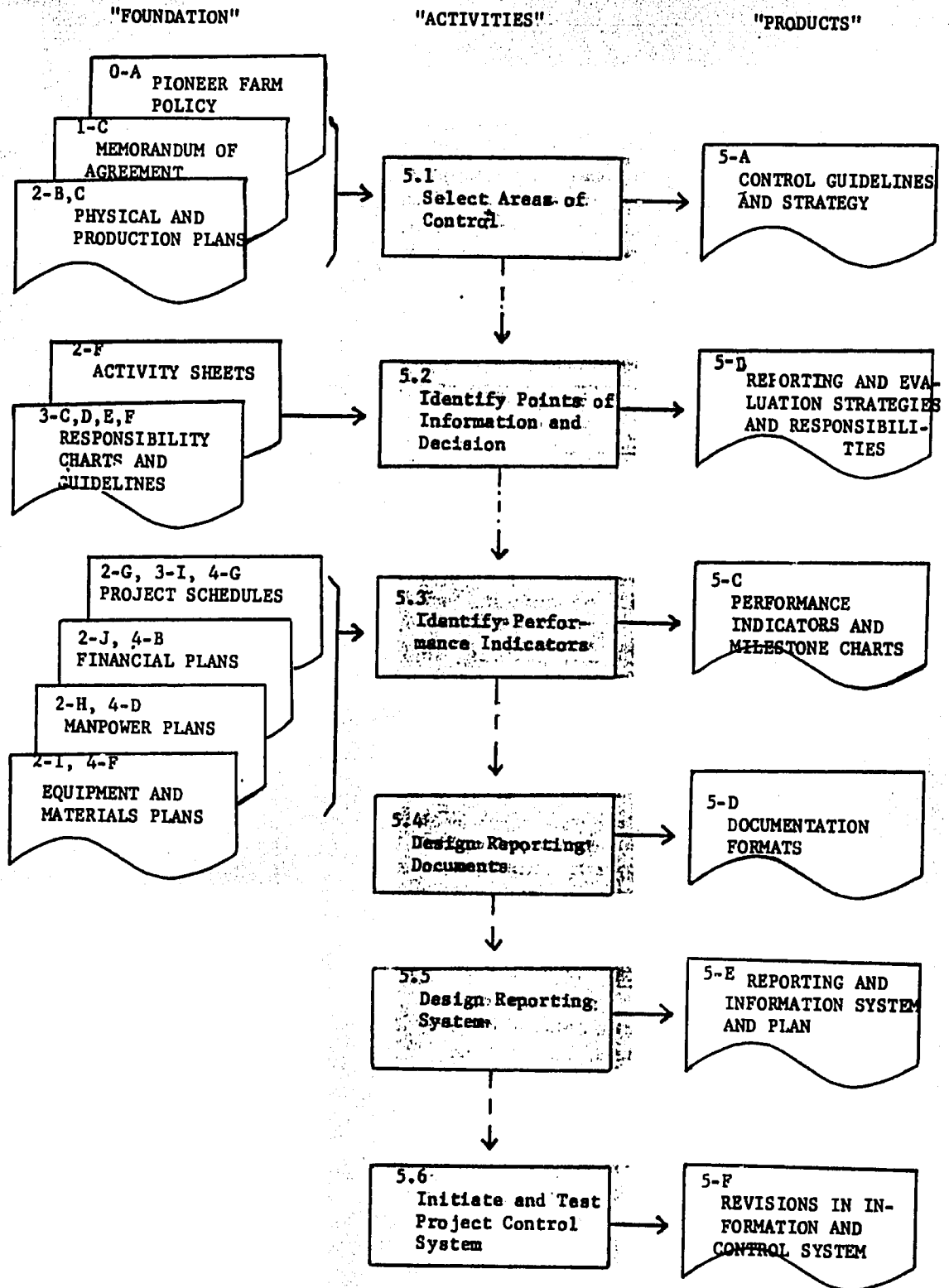
Essentially project control involves:

- selecting control indicators and milestones that reflect the actual performance of the project;
- gathering information on the performance of the project and comparing this information with the planned indicators and milestones;
- establishing most of the processes and procedures for taking corrective actions if excessive deviations from the plan do occur.

There is always a question of who is in control of the Pioneer Farms -- the Parish Manager, the Farm Manager, the Farm Management Committee, the Regional Director, the Production Unit, or who? There is no one answer. However, as seen in the Linear Responsibility Chart, there is no single point of control for the total project or programme. At the level of various activities, control is directed at ensuring the achievement of the objectives of the specific activities by the persons or their immediate supervisors who are directly responsible for these activities. On the Pioneer Farm, the Farm Manager has primary responsibility for monitoring and controlling the performances of all activities on the farm, but he does not have the authority to make all decisions necessary if there are unacceptable deviations. By systematically gathering the needed control information and comparing it with the plans, the farm manager is able to inform those who are responsible for corrective action and contingency plans, such as the Parish Manager, the Farm Management Committee, the Production Unit or Directors of other agencies or units contributing to the project. The establishment of a sound information system is in the best interest of the Pioneer Farm and particularly the Pioneer Farm Manager. It will provide information on deviations from the plan so that this information can be passed on to the appropriate place and persons for corrective decisions and

**STEP 5: ESTABLISHING THE INFORMATION AND CONTROL SYSTEM**

**ILLUSTRATION 9**





actions.

Project Control focuses mainly on the immediate and short-term project and activity objectives, to ensure the inputs for the projects are available and adequate when needed, that the projected outputs are on target, that the operational purposes of the Pioneer Farm are being achieved, and that problems in the implementation and operations of the project are expediently identified and resolved. This continuous process of analysis and monitoring should be based upon information systematically and formally collected as well as informal information gathered at all levels of the project.

Project Control is sometimes confused with evaluation. The term project evaluation refers to the measurement of the impact of the project, i.e., the longer term achievements of the projects, or the comprehensive effects of the project outputs. Project Control is concerned with comparing actual performance with the expected performance. Thus control is concerned with achieving the shorter-run outputs and purposes of the project, while evaluation is concerned with achieving the longer-run goals and objectives of the project, i.e., determining if the project results have the desired impact or effect upon the target group and their environment.

#### Step 5.1 Select Areas for Control

The major areas of control for a project include time, cost and performance. There are three levels whose indicators reveal project progress:

- the project level of outputs and purposes;
- the schedule with milestones, and
- the activity level with activity output.

The expectations for each of these levels are taken from (a) the Project Profile or Study, (b) the Project Schedule, and (c) Activity descriptions. At each level, time, cost and performance indicators are integrated so it is possible to assess whether inputs are available, decisions are made, costs are monitored, and products are up to standard in quality and quantity. This is the monitoring necessary to ascertain whether the project is achieving its purpose.

#### Step 5.2 Identify Sources of Information

When the control indicators have been identified, an information strategy is assumed and must be explicit. This begins by identifying the sources of the information to be collected in relation to each of the indicators identified in Step 5.1.

In some cases, the sources of information may already exist. For example, information regarding expenditures or payment on loans can be collected from already established records of loan disbursement and repay-

ment or from the financial units of the Ministry. In some cases, it is necessary to establish a new source of information, such as, establishing a Farm Committee to review and report on farm production by designing a simple form for some of the persons who are assisting with the Pioneer Farm to complete concerning their activities and roles on the project.

Finally, it may be necessary to request that the Data and Evaluation Unit establish some new ways of collecting information needed to measure project performance if there is no clear and established source of information. A new source of information for measuring the effectiveness of individual Pioneer Farms in achieving their respective outputs may need to be devised.

### Step 5.3 Identifying Performance Indicators

The identification of performance indicators throughout the project permits the project managers and administrators to measure actual performance against planned or expected performances. Where deviations occur, corrective management decisions are necessary and should be made in accordance with the appropriate decision strategies designed for the project. The performance indicators should deal with all levels of the project, including, project inputs, project outputs, and project objectives. It is necessary to have monitoring and evaluation information throughout the project if monitoring is to be complete enough for administrative decisions to be made in time to avoid disastrous consequences of deviations from project plans. The indicators can be related to a wide variety of activities that must be performed in the project:

- administrative and external decision making,
- procurement procedures and documentation,
- completion of specific activities and tasks,
- impact of project in terms of purposes and objectives
- environmental characteristics
- project inputs and resources

In some cases, it is necessary to identify quantitative and qualitative characteristics of the milestones. An example of a milestone and bar chart is given in Appendix 7.

### Step 5.4 Design All Reporting Documents

There should be some standardized forms for the presentation of control and monitoring information. If activity sheets have been prepared, they can be used to report progress, because they contain output, resource inputs and costs, and times for comparison. Another useful monitoring tool is the milestone charts and the project master schedule with modification for monitoring progress (Note PDRT Paper).

In addition to documents that compare actual with expected performances, there must also be standardized reports to be submitted by the project staff to their supervisors and the project manager, from the project manager to the Parish Manager, and from all of the project levels officers to the higher administrative officials. At all project levels, required information should be identified and a memorandum sent to relevant officers and project staff indicating the required content and format for presentation of the information. (See Appendix 10, Monthly Financial Report, Monthly Placement Report and Monthly Production Reports as examples. More detailed work on this step of Pioneer Farm Planning is needed and should be completed for each Pioneer Farm).

#### Step 5.5 Design the Information System

The foundation is now laid for the information system necessary for controlling the project. The information needs have been identified along with the sources and the required reporting formats. A Linear Responsibility Chart can be designed showing: (a) who must make reports, (b) who must receive reports, (c) who must approve reports, and (d) who must be consulted or informed. This should show responsibility for reporting at all levels of the project.

The main purpose of this sub-step is to be sure that the information that is collected is placed in the hands of the persons responsible for decisions related to those pieces of information. Not all information needs to be sent to everyone. Some information is necessary only to the Farm Manager and some is relevant to the Farm Manager and the Parish Manager. Less detailed information is normally required at the higher levels of administration, so only the total project information is summarized for review by the Production Unit, Regional Directors and the higher levels of administration to whom it is sent.

It may be necessary to adjust the information system in light of the experience of a particular project or Pioneer Farm. Some important pieces of information may have been omitted. Some reporting procedure may not be timely enough or as detailed as desirable. The system should be adapted to the project, not the project to the system. The test of the system is its value to inform, and keep informed, decision-makers at all project levels so they can take corrective action as appropriate for the particular project or Pioneer Farm. Some general guidelines of financial and production reporting are contained in Appendix 10, but these should be refined for each project and periodically modified by each project team as need and experience dictate.

## VII: SUMMARY

Based on normal difficulties experienced in the implementation of projects, five steps of project implementation planning are designed to form a foundation of project information and management systems required for sound project implementation. The five steps represent a systems approach, forming a logical sequence for constructing a sound project.

Each of the planning steps has three components:

- (a) Foundation documents and data,
- (b) Required actions and/or decisions, and
- (c) Output or products which are the result of the actions/decisions of that step.

Each planning step fits into a logical sequence for project implementation planning by building upon the "products" of the previous planning step(s) that form the foundation for the actions and decisions required in that step. Every step also results in distinct "products" which are outputs in the form of documentation and data. These, in turn, become the foundation for subsequent planning steps.

Taken as a whole, the planning steps produce, in a consistent and comprehensive manner, the information required to begin project implementation including: project scope, work and action plans, output targets and standards, organization and structure, financing and budgeting, personnel and resources, control, and environmental characteristics. Illustration 10, is an overview of the planning steps with the activities/decisions and products of each of the steps, and a summarization of the sequential logic of this implementation planning approach.

There are two distinct types of information and documentation which must be generated for each Pioneer Farm project. The first is the information and documentation which is general and common to all Pioneer Farm projects, such as, the reporting documentation for financial expenditures or the procurement procedures for supplies. The second type is that information and documentation which is specific to each Pioneer Farm project, such as, the particular physical make-up and farm plan for each project, the technical assistance plan, the work breakdown structure and the Pioneer training plan. General models for these may be provided for the planning team or the farm manager. Illustrations are shown in the Appendices of this manual. But, these must be adapted to the specific and peculiar circumstances of each Pioneer Farm project to make them relevant and usable. A list of the documentation required for project implementation which is produced from each of the five implementation planning steps is shown in the summary chart, Illustration 10.

This approach to project implementation planning is methodical and logical. However, in many circumstances, the actual sequence of the activities and decisions may have to be adapted by the manager or planning team to

the real world circumstances encountered on each project. It is important that each step be as nearly complete as possible before the project implementation actually begins. For example, before Pioneers are selected, trained and placed on a Pioneer Farm, every component of each of the five planning steps should be addressed, that is, there should be some documentation regarding the products of each activity or decision that is required for each planning step. The detail included in the documentation is, of course, dependent upon the circumstances and the judgement of the planning team. But, none of the planning steps can be neglected. If any of the foundation blocks for implementation are overlooked, it is likely that the project will be delayed at a later point until that particular step or sub-step is completed.

The Appendices which follow are illustrations of the direct application of some of the tools and techniques of project management. The application was done in the Project Management Training Courses conducted by the Project Development Resource Team. The content of the Appendices is the result of the work of the Pioneer Farm Managers in those courses. They should be regarded as illustrations but do provide relatively realistic models to be followed for the preparation of materials specific to other Pioneer Farms.

Finally, this manual is intended to be useful and relevant for Pioneer Farm Managers. As experiences are encountered that require changes, modifications, additions, or clarifications of any of the steps or sub-steps, which are of value to future farm managers, these should be recorded and forwarded to the Production Unit of the Ministry of Agriculture so they can be incorporated in future planning and training activities related to the Pioneer Farm Programme.

# Best Available Document

PAMCO, PDRT  
Resource  
Material

Illustration 10: SUMMARY OF IMPLEMENTATION PLANNING STEPS, ACTIVITIES, AND DOCUMENTS

IMPLEMENTATION PLANNING STEPS	ACTIVITIES AND DECISIONS	DOCUMENTATION (PLANNING PRODUCTS)	APPENDICES WITH RELEVANT PROJECT TOOLS AND TECHNIQUES
Pre-Implementation Planning		O-A Ministry Policy Papers on Pioneer Farms O-B Approval for Pioneer Farm Projects O-C Community or Parish Requests	Appendix 1: Linear Responsibility Chart Appendix 10 Section 1: Background Concept of Pioneer Farm
Step 1: Project Activation	1.1 Land Identification 1.2 Land Appraisal 1.3 Agreement on Farm Establishment 1.4 Clearance and Transfer of Land 1.5 Ministry Approval of Project 1.6 Definition of Manager's Responsibilities and Qualifications 1.7 Appointment of Farm Manager 1.8 Appointment of Planning Team	1-A Formal Request for Land Appraisal Report 1-B Memorandum and Minutes of Agreement 1-C Land Titles and Clearances 1-D Preliminary Budget Allocations 1-E Job Description and Terms of Reference 1-F Letter of Appointment or Contract (Manager) 1-H Letters of Assignment - for Planning Team	Appendix 3: Job Description for Pioneer Farm Manager Appendix 10 Section 1: Background and Concept of Pioneer Farm " 10 Section 3: Steps in Establishing Pioneer Farms " 10 Annexes 5, 6, 8, 9 : (Showing agreements of other agencies to support Pioneer Farm training activities)
Step 2: Specifying and Scheduling the Work	2.1 Definition of Farm Objectives 2.2 Completion of Farm Plans 2.3 Specification of Work Activities 2.4 Determination of Work Relationships 2.5 Definition of Resource Requirements 2.6 Preparation of Project Schedules 2.7 Preparation of Manpower, Resource, and Financial Plans	2-A Statement of Farm Objectives 2-B Physical Farm Plan 2-C Cropping and Production Plan 2-D Work Breakdown Structure 2-E Precedence Diagram 2-F Activity Sheets 2-G Project Master Schedule 2-H Manpower Plan 2-I Resource and Equip-Plan 2-J Budget and Financial Plan	Appendix 4: Work Breakdown Structure Appendix 5: Activity Descriptions Appendix 6: Precedence Diagrams Appendix 7: Bar Charts Appendix 8: Resource and Manpower Plans Appendix 10 Annex 1 & 2: Pioneer Farm Plans
Step 3: Clarifying Authority, Responsibilities and Relationships	3.1 Determination of Organization Location 3.2 Obtaining Manpower Commitments 3.3 Definition of Primary Responsibilities 3.4 Clarification of Authority 3.5 Definition of Scopes of Work 3.6 Completion of Legal Documentation 3.7 Revision of Schedules	3-A Organization Charts 3-B Manpower Agreements 3-C Linear Responsibility Chart 3-D Authority Guidelines 3-E Job Descriptions 3-F Scopes of Responsibility 3-G Project Legal Documents 3-H Pre-Cooperative Legal Charter 3-I Revised Project Schedules	Appendix 1: Linear Responsibility Chart Appendix 2: Organizational Charts Appendix 3: Job Descriptions and Job Profiles Appendix 10 Section 3: Responsibilities for Steps in Establishing Pioneer Farms Appendix 10 Annexes 3, 4, 5, 6 : Agencies with support functions for Pioneer
Step 4: Obtaining Project Resources	4.1 Obtaining Project Funds 4.2 Obtaining Project Staff 4.3 Obtaining Equipment, Supplies and Materials 4.4 Revision of Schedules	4-A Drawdown and Repayment Procedures 4-B Allocations and Financial Schedules 4-C Staff Contracts & Assignments 4-D Technical Assistance/Support Plan 4-E Procurement Procedures and Documentation 4-F Procurement Plans 4-G Revised Schedules	Appendix 8: Resource and Manpower Planning Appendix 9: Training Plan for Pioneer Farm Appendix 10 Section 2: Pioneer Farms Accounting Procedures Appendix 10 Section 3: Steps in Establishing Pioneer Farms Appendix 10 Annexes 5, 6, 8, 9 : Support Services available to Pioneer Farms
Step 5: Establishing Information	5.1 Select Areas of Control 5.2 Identification of Information and Decision Points 5.3 Identification of Performance Indicators 5.4 Designing of Reporting Documents 5.5 Designing of Reporting System 5.6 Initiation and Testing of Control System	5-A Control Guidelines & Strategy 5-B Reporting & Evaluation Strategies and Responsibilities 5-C Performance Indicators & Milestone Charts 5-D Reporting Documentation Formats 5-E Reporting & Information System and Plans/Schedules 5-F Revisions in Information & Control Systems	Appendix 1: Linear Responsibility Chart Appendix 2: Organizational Charts Appendix 7: Bar Charts and Milestones Appendix 8: Resource and Manpower Plans Appendix 10 Section 2: Pioneer Farm Accounting Procedures Appendix 10 Section 3: Steps in Establishing Pioneer Farms Appendix 10 Annex 1 & 2: Farm Plans Appendix 10 Annex 7: Monthly Financial Production & Placement Reports

APPENDIX 1.

MODEL OF A LINEAR RESPONSIBILITY CHART FOR THE START-UP OF A  
PIONEER FARM PROJECT

Purpose of a Linear Responsibility Chart

A linear responsibility chart for any project should be developed during the planning stages of the project. It shows the persons or groups involved in the necessary activities, and the level of their involvement to move the total project towards its objectives. There are four separate and distinct elements incorporated in an LRC. They are as follows:-

1. All of the persons or groups involved,
2. All of the activities to be carried out,
3. The level of responsibility of each person or group in relation to each activity, and
4. The responsibility and relationship of each person to all others who are involved in each of the activities.

Construction of LRC

A LRC lists the person or groups involved in the project across the top of the chart, with a column for each person or group. The activities are listed down the left hand side of the chart, with a line for each activity. A letter or numerical code is used to show the level of responsibility that the persons or groups have for each of the activities. If a person or group does not have any responsibility for a certain activity, nothing appears in the intercept under the person or group.

Reference to Illustration 2, at the end of this Appendix, shows the persons or groups involved across the top of the chart, the activities on the left hand margin, and the responsibility code at the bottom of the chart, which is needed to fill in the intercepts.

An example of the construction of a simple linear responsibility chart for four activities, with four persons or groups who are involved, and the level of their involvement for establishing a Pioneer Farm is shown on the next page.

Construction of a Linear Responsibility Chart

Illustration 1

PERSONS OR GROUPS INVOLVED

ACTIVITIES	PRODUCTION UNIT MOA	REGIONAL DIRECTOR	PARISH MANAGER	FARM MANAGER
Land Identifi- cation		I	R	
Land Appraisal		A	I	
Selection of Manager		A	R	
Farm Plan Implementation	M			R

CODE: (Used to specify level of responsibility or involvement)

- R - Responsibility to perform
- S - Responsibility to supervise
- A - Must approve
- C - Must consult
- I - Must be informed
- P - Will participate in performance
- D - May be consulted
- M - Will monitor or review
- T - Provide technical assistance
- G - Member of Committee
- RG - Chairman of Committee



There are other persons/groups involved in each of these activities. The others are shown in Illustration 2, which follows, along with the remaining activities and those who have responsibilities.

#### Discussion of LRC for starting a Pioneer Farm Project

The linear responsibility chart (LRC) (See Appendix 1, Illustration 1) for starting a Pioneer Farm Project shows the interrelationships between all of the people required to accomplish all of the activities necessary for the successful advent of a Pioneer Farm in Jamaica. This is a first attempt to show the organizational intercouplings that must take place in order to accomplish the task of establishing a Pioneer Farm. This chart depicts the interfacing that follows the confirmation of the action by the Government approving a Pioneer Farm and terminates with the beginning of operation of the farm.

The linear responsibility chart visualizes the activities that must take place on the project, and the job responsibilities and level of responsibility of those persons who occupy specific positions.

In the model shown for the initiation of a Pioneer Farm, (See Illustration 2), required activities are shown. For example, to complete the acquisition of land, this LRC shows that the Production Unit of MOA, the Parish Officers and Local Members of Parliament must be informed about the acquisition of the land, and the Regional Land Lease Officer acquires the land after the acquisition is approved by the Regional Director. For this activity, land acquisition, the model clearly shows that five different groups or persons are involved and their level of involvement by the use of an alphabetical key shown at the bottom of the chart. Each responsibility shown in the left hand column of the key, is keyed with a letter, i.e., R, I, C, P, etc. These letters are entered in the columns under those persons or groups to indicate a level of responsibility for carrying out each activity, i.e., be informed, consult, monitor, review, be a member of a team of consultants, act as a member of committees, chair committees, and provide technical advice and assistance. Some of the activities require the input of as many as twelve different individuals or representatives of different groups while other activities require the input of as few as four persons or representatives of different groups.

The LRC is job specific. This means that it covers only one phase of getting the total project done. In this case, it is the action necessary to establish the Pioneer Farm. A similar chart involving fewer persons could be devised for different farm operations including specific crop and animal production enterprises, marketing of specific crops, or training phases after the farm is operational. It does not replace the internal organization chart which shows the administrative structure of an organization. The LRC is simply a tool for defining the activities involved and the necessary interrelationships across administrative lines, if a specific phase of the total project is to be successfully completed.

The LRC model shown has not been tested. It was devised during a discussion in a workshop setting where the opinions and suggestions of most of the persons and groups, shown across the top of this LRC chart, reached a consensus that these are the persons who should be involved, the activities that should be included, and the level of responsibility that each should take in relation to each of these activities. However, until this LRC is tested it is not known how effective it is. Other groups and/or persons may need to be added and the addition of some activities may be necessary. The same is true of the keyed level of job responsibilities relative to each activity. This is only a model. It can be revised and strengthened with use and understanding about how this very useful management tool can reduce a complicated coordination problem to a manageable level.

When the group who has the prime responsibility for the Pioneer Farm Programme has tested this or a similar model, the result should be the best LRC model for establishing a Pioneer Farm in Jamaica. It will be the responsibility of that unit actually to use the model. The following steps are visualized as necessary steps to make this a part of the Pioneer Farm implementation procedures in Jamaica:-

1. Test the model on one or two Pioneer Farm projects,
2. Revise and clarify if necessary,
3. Meet with personnel who were involved when the LRC was being brought into the Pioneer Farm Development Scheme, with an explanation of what the LRC is and how it is used. Co-operation is the key word in this discussion. A large group of different administrative level people are involved and their co-operation and input is necessary if this programme is to succeed. Seek their ideas, input, and suggestions,
4. Incorporate new ideas and distribute the LRC draft to all individuals and groups involved, and
5. Develop a time schedule for completion of each activity with each of the persons that have a "R" responsibility keyed in the column under their position on the LRC. Be sure that they understand clearly what they are to do, who else is involved, and what the level of involvement is for the others. These "R" people are the key to the successful use of this management tool.

Appendix I, FIGURE 2: MODEL OF LINEAR RESPONSIBILITY CHART FOR SETTING-UP PIONEER FARMS IN JAMAICA

ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
	Minister	Production Unit	Regional Director	Regional Land-Lease Officer	Regional Lands Officer	Soils Department	Other Regional Officers	Training Division	Other Central Departments	Parish Manager	Parish Land-Lease Officer	Parish Lands Officer	Parish Works Manager	Divisional Extension Officer	Technical Coordinating Committee	Farm Advisory Committee	Community Council or representative	Central SDC Office	Local SDC Office	Cooperative Development Centre	Local Member of Parliament	Farm Manager	Pioneer Farm Committee	Pioneers	
Land Identification		I								R	C	C													
Land Appraisal		A	R	L	C	C				I	C										I				
Land Acquisition		I	A		R					I															
Selection of Manager			A							R	C	C									I				
Farm Plan	A	A	A			C	C				C				A								C		
Initial Infrastructure										A			R										C		
Pioneer Selection		M								RG						G	G		G		I	G			
Pioneer Orientation	S		P		P	P	R				F	P										P			
Technical Training					T	T	T	T	A		S	T	T	T	A							R	C		
Cooperative Training															A			M	P	R		A	C		
Community Government											M											S	R	C	
Discipline											M											S	R	C	
Farm Plan Implementation	M				T	T		T			S		T	T	C	C						R	C	P	
Farm Work & Work Plans	M										S			D								A	R	P	
Money Management	M										S											A	R	F	
Marketing & Sales											M			D								S	R	P	
Loans and Repayment	M									A												R	C		
Local Trouble-Shooting	C	C								R												C			
Central Trouble-Shooting	R	C								C												C			
Pre-Seed Structures										A					I			I	C	C	I	R	C	P	
Cooperative Launching										A	R								C	C	I				

CODE: R = Responsible to Perform  
 S = Responsible to Supervise  
 A = Must Approve

C = Must be Consulted  
 I = Must be Informed  
 P = Will Participate in Performance

D = May be Consulted  
 M = Will Monitor or Review  
 T = Provide Technical Advice or Assistance

G = Member of Committee  
 RG = Chairman of Committee

The Organization Chart for Pioneer Farm Projects

An organizational chart is a picture of the structure of an organization. It shows the basic formal relationships in an organization and defines the formal structures and divisions that perform the work of the organization. The basic components of organizational structures show the lines of authority, responsibility, reporting and power.

The Ministry of Agriculture has a very definite organizational structure. This is shown in Illustration 1 in the Ministry's Organizational Chart. This structure is designed to show the relationships between the various units and departments of the Ministry and puts the work of these into a functional-formal hierarchy of authority. Recent re-structuring of the Ministry is intended to reorganize and clarify areas of responsibility and scopes of authority so that the Ministry can perform even more effectively and efficiently.

The Ministry is organized into units of persons and positions based upon professional or functional areas. It is also broken into regional and Parish offices. The basic component of the organizational structure is functional units or divisions where people with similar skills, training and work are brought together to perform particular assignments of a departmental unit, e.g., engineering, soils, livestock, planning, etc. Bureaucratic organizational structures put stress on the efficiency and control of routine operations of these departments.

In summary, the organizational structure of the Ministry of Agriculture, as shown in the organization chart as shown in Illustration 1, is based on a traditional hierarchical division of work with specialized departments undertaking corresponding specialized tasks. The functional structures are then adapted to the regional and parish levels of the organization as appropriate or are centrally located for the use of the field units of the Ministry.

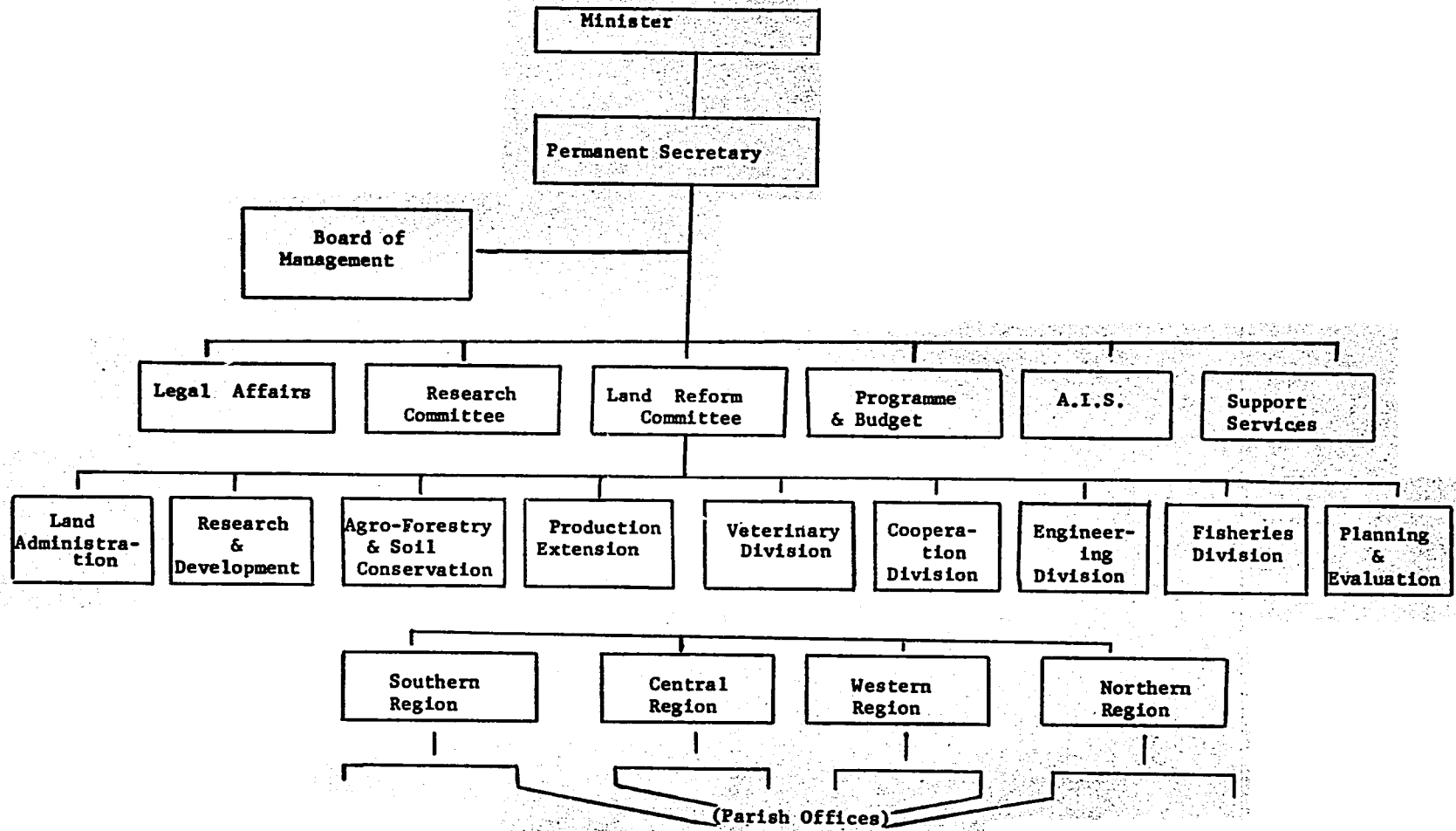
Projects are often a special case within an existing organization. Pioneer Farms are typical of projects in the sense that they are a sub-unit of the Parish Office, but require the coordinated inputs of other functional departments of the Ministry for their implementation. A Pioneer Farm is under the control of a Pioneer Farm Manager who is under the authority of the Parish Manager. However, a Pioneer Farm requires contributions and assistance from other departments and units which are not functionally or formally under the authority of either the Farm Manager or the Parish Manager. In some instances, authority over contributing personnel is not even within the Ministry of Agriculture. This means that projects, such as Pioneer Farms, the manager does not have authority over all the project staff or personnel, but yet has the responsibility to direct their work on the project. This example of a manager having high responsibility but low authority demonstrates a main difference between project management and traditional hierarchical management.

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ORGANIZATION CHART

MINISTRY OF AGRICULTURE

Illustration 1.



50

DO NOT DUPLICATE WITHOUT PERMISSION

PAMCO, PDRT  
Resource  
Material

Illustration 1 is a chart of the formal organization of the Ministry of Agriculture. It shows three distinct levels of organization below the Permanent Secretary - the administrative functions, the technical and operational functions, and the regional and parish structures. Within the formal structures the flows of authority are vertical in terms of traditional hierarchical system. Although Pioneer Farms are under the Parish Office, which is the lowest level of the organization chart, the Farm Managers must coordinate resource from many of the divisions/departments which are administratively above even the Parish Manager in the Ministry's formal organization.

The organizational chart of a specific Pioneer Farm reflects the extent to which authority over persons who are working on the project is not under the authority of the Farm Manager, nor even the Parish Manager, but is spread through the organization (and even into other organizations such as SDC or Cooperatives). Illustration 2, is an organizational chart for a Pioneer Farm. Authority, coordination and decision-making on the project is much more complicated than it is in the traditional hierarchy reflected in Illustration 1. Authority is shared between the functional departments of the Ministry, but the responsibility for the project is centered on the Farm Manager. The project organizational chart shows the horizontal as well as the vertical linkages which must be developed throughout the existing formal organizational structures for the project to be successfully implemented.

Looking at Illustration 2, we observe that there must be some coordination with units which are hierarchically under the authority of the Parish Manager. For units and persons within the Parish Office, the Parish Manager has the authority for coordination, conflict resolution and project decision-making. However, some authority rests with the Regional Director and some rests with central government units located in Kingston and some of the authority rests ultimately at the level of the Permanent Secretary. This spread of authority among a number of persons within the formal organizational structure who will be contributing to the project as project personnel (usually on a part-time basis) illustrates the complex nature of project management. The coordination is more difficult and critical than for ongoing, normal or routine activities of the Ministry. For this reason, project management in instances such as this is called Matrix Project Management. It requires the coordination of authority and responsibility cutting across the traditional lines of authority and communication in the organization.

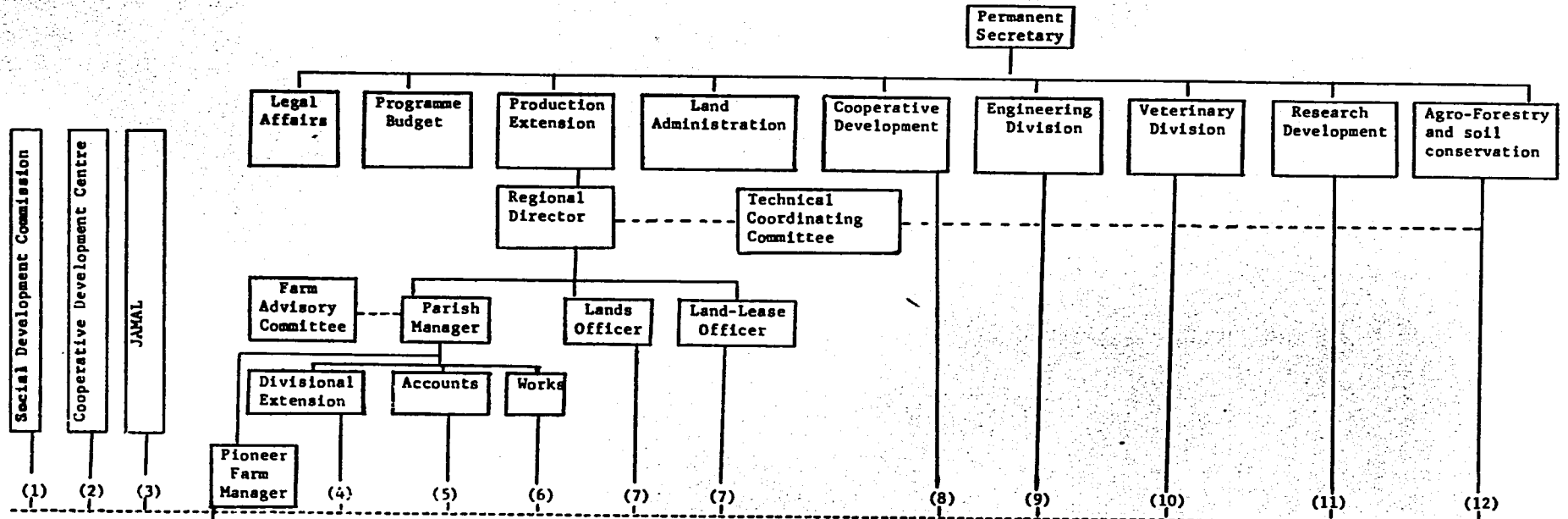
Matrix Project Management is characterized by the drawing of persons into the project staff who are under the authority of another department in the Ministry or organization. The result is that some authority is vested in the Manager, but some is vested in functional department heads. That means that some of the responsibilities of coordination, conflict resolution, authority and decision-making are effective only when done at organizational levels above the project, such as, the Regional Director, Ministerial Departmental Heads or even the Permanent Secretary.

A project such as a Pioneer Farm is rather small, but this is deceptive because it is organizationally very complex to administer because of the matrix management arrangements demonstrated in the project organizational chart. Because approvals and coordination are spread throughout the Ministry and into other organizations, the management of a Pioneer Farm Project

# PIONEER FARM PROJECT ORGANIZATION CHART

"NON-MINISTRY OF  
AGRICULTURE RESOURCES

"MINISTRY OF AGRICULTURE RESOURCES"



DO NOT DUPLICATE WITHOUT PERMISSION

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Code: — : Lines of Authority; --- Lines of Coordination; (O) Project Work Units requiring persons and time for project in Ministry of Agriculture:

- |  |                                |
|--|--------------------------------|
| 1 Orientation & Training                           | 10 Veterinary Assistance       |
| 2 Cooperative & Accounts Training                  | 11 Crops and Livestock Testing |
| 3 Literacy Training                                | 12 Soils Conservation Measures |
| 4 Advisory Support & Training                      |                                |
| 5 Reporting and Monitoring                         |                                |
| 6 Infrastructure & Equipment Plans and Procurement |                                |
| 7 Land Appraisal & Acquisition, Land-lease Plans   |                                |
| 8 Cooperative Structuring & Support                |                                |
| 9 Physical & Topographical Survey and Plans        |                                |

PAMCO, PDRT  
Resource  
Material

requires a clarification of authority and responsibility which goes beyond that of the usual organizational chart of the Ministry. It is important to develop additional guidelines and tools of project management as explained in Step 3 of the text. The Linear Responsibility Chart, explained in Appendix 1, is one of the major project management tools applicable to matrix management situations such as Pioneer Farms.

Finally, it is important to add a caution about organizational charts. They are useful as a means of visualizing the basic formal authority relationships, groupings and functions of the Ministry of a particular project. They acquaint one with the nature of the organizational structure and help identify how persons, positions, and work are interrelated. This is important for the project manager, but it is too limited because only formal lines of authority and responsibility are outlined. The organizational charts (for the Ministry or for the project) do not tell how those that are involved actually operate on the job. It does not reflect the informal influences and relationships which make the organization or the project actually work. The complex reciprocal, personal and professional relationships which evolve within the Ministry over time, determine to a great extent how the actual work and decision-making are done and are not shown at all. Thus, organizational charts tend to overemphasize the hierarchical structure and it is easy to confuse organizational position with status, prestige and/or influence. Knowledge and understanding of the hierarchy of authority as shown in organization charts is important information. For projects, it is the basis for designing a flow of project information and coordination that facilitates the work of the project. It is crucial that Pioneer Farms be integrated within the formal organizational structures of the Ministry of Agriculture and that the vertical and horizontal linkages of authority be identified and defined. But the informal relationships which underlay organizational performance are equally important and must be understood and appreciated if the higher levels and other contributing organizations are to be effectively used to achieve the objectives of the Pioneer Farm projects.



APPENDIX 3.

JOB DESCRIPTION AND JOB PROFILE

The best way to bring specific employment purpose and responsibilities into sharp focus, is to draft job descriptions for each job that must be done.

A written document, the job description, is primarily concerned with the job to be done and not the person doing the job. Job descriptions are part of managements' permanent records. They serve as a future reference for hiring, training, promoting, grievance settlement and other personnel related matters.

Basically a job description outlines the specific things to be done by each person on each job. It is a general statement outlining the duties responsibilities and skill requirement of each job to be done. To this end, a pre-requisite of drafting the job description is the need for a detailed job analysis.

The content of the job description varies from job to job. It may be simple or complex and stated in a simple sentence or several paragraphs. It may be formal or informal. The following specific headings will assist the project manager in writing a job description.

TITLE & DEPARTMENT

The main purpose here is identification of the job and the unit it is a part of.

FUNCTION

Since titles in some instances do not clearly define the general scope and purpose of the job, a statement of function will enhance an identification of the similarity or the diversity between jobs of the same title. A general overview of the job that is to be done is also useful in the briefing of the new or prospective employee.

AREAS OF RESPONSIBILITY

It is important to the employee that the formal organization of the unit is properly defined. Under this heading not only is this definition made but also the employee is made aware of how his position and his job relate to the entire organization or unit. Statements characteristic to this heading usually start with "Responsibility to", "Responsibility for", and "Authority". This also helps to define the organization structure and lines of authority.

### DUTIES & RESPONSIBILITIES

This heading forms the main body of the job description.

A duty is a recognizable major part of a "job", and may be comprised of several items called "tasks".

While respective titles, functions, duties and responsibilities might be clearly defined, occasionally tasks might vary within the same job description. In drafting the job description the detailed job analysis - (referred to in paragraph three above) can take the form of a JOB SPECIFICATION. This specifies the skills and knowledge required to perform specific tasks. Illustration 1 outlines a sample job description for a farm manager. Although the headings are not the same as outlined in the foregoing paragraphs the general principles have been incorporated.

### JOB PROFILE

Because job descriptions are primarily concerned with the job and not the man; managers have found them very rigid documents to work with especially in day to day supervision. Today more managers are using Job Profiles to supplement Job descriptions.

A job profile incorporates all the aspects of job definition as stated in a job description, but it retains more flexibility as it is more concerned with the man than the job. The job profile has one main advantage for the modern manager. It allows for meeting and agreement between the employee and employer.

The job profile is a job agreement between the manager and the worker and the final output is made relevant to the stated needs and goals of the worker and of the organization. Because this is a collaborative document, it allows both worker and management jointly to review the purpose and goals of each job. Also from the beginning the worker understands and agrees on what is expected of him and management knows and agrees on what to expect from the worker. This reduces the possibility of conflict over misunderstandings that can result in wasted time and effort needed to resolve these conflicts.

The job profile seeks to match the man with the job to be done. The job description forms the framework or foundation for the manager and the employee to construct a job profile. Because the job profile is more flexible and its creation is a result of worker and employer participation, the job profile can easily be adapted to fit in with personnel and job changes.

A Job Profile consists of two parts, (1) Relationships and (2) Results as seen and agreed upon by the manager and the employee:

Under Relationships are:

- (a) What the person is responsible for,

- (b) Who he is responsible to,
- (c) Who is responsible to him, and
- (d) What authority he has.

Under Results are:

- (a) What are the goals for the job,
- (b) What activities shall be engaged in to meet these goals, and
- (c) What means shall be used to evaluate accomplishment.

Illustration 2 shows a Job Profile for the Farm Manager of a Pioneer Farm.

ILLUSTRATION 1.

JOB DESCRIPTION

Proposed for Discussion

Name of Post: Farm Manager

Description of Post:

The Farm Manager works under the general direction of the Parish Manager or a designated representative and is responsible for the management of an individual project or several adjacent small projects within the cooperative organization promoted by the Production Unit of the Ministry of Agriculture. These units are known as Pioneer Farm Cooperatives.

Duties and Responsibilities:

1. To assume primary responsibility for farm management, including planning, directing, coordinating, controlling and monitoring all aspects of project operations.
2. To participate in the interviewing and selection of the Pioneers.
3. To attend the initial (one month) orientation of the Pioneers for the farm.
4. To plan and organize, with the Cooperative Officer, the development of the Pioneer Farm into a Cooperative by:
  - (a) organizing the Pioneers into appropriate governing and operating committees such as the Farm Management Committee, Marketing and Work Committees, etc.;
  - (b) developing and assisting with the Cooperative Education Plan;
  - (c) developing guidelines for operations and functions of all Committees;
  - (d) monitoring the functioning of Committees and the pre-cooperatives;
  - (e) acting as an Advisor to all Committees as to and for their proper functioning; and
  - (f) meeting regularly with all Committees, at least monthly with the Farm Management Committee, and attending other meetings as appropriate or as requested.

5. To ensure that a system of Farm Records is established and maintained and to submit to the Parish Manager's Office reports and records on all investments and returns made by and on behalf of the government on the farm.
6. To assist the Pioneers in the updating of the Farm Plan.
7. To ensure the implementation of proper cultural and husbandry practices on the farm under the guidance of the Farm Management Committee and the Parish Farm Planning Team.
8. To plan, organize and execute the technical training of the Pioneers with the assistance of the Parish Training Committee.
9. To identify other training needs and assist the Pioneers in planning and organizing such training.
10. To attend courses, seminars and conferences relevant to functions and development of Farm Managers and Pioneers Farms, as approved by the Production Unit and the Parish Manager, such as the Farm Managers' courses and proposed meetings of Farm Managers at the National level on a quarterly basis.
11. To ensure that official regulations of Pioneer Farms are enforced.
12. To submit monthly reports to the Parish Manager on the performance and activities of individual projects under his or her supervision.

ILLUSTRATION 2.

JOB PROFILE - FARM MANAGER

1. Responsible for:
  - (a) Planning, organizing, directing, coordinating and controlling all activities of farm;
  - (b) Communicate to all levels all activities of farm;
  - (c) Motivate planned activities of farm.
  
2. Responsible to:
  - (a) Production Unit - through:
    - (1) Parish Agricultural Officer (Parish Manager)
    - (2) Parish Land Reform Officer
    - (3) Regional Director (Ministry of Agriculture)
  
3. Who is Responsible to him:
  - (1) Field Assistant
  - (2) Group leaders and pioneers
  
4. Authority Conferred:

To delegate duties to field assistants.
  
5. Goals:
  - (1) To improve socio-economic standard of Pioneers (Community)
  - (2) To increase production of agricultural products
  - (3) To increase employment
  
6. Activities:
  - (1) Co-ordinate and participate in continuous education of Pioneers and community (e.g., political, cooperative, academic, technical, social, financial, education, etc.)

APPENDIX 4

Work Breakdown Structure for a Pioneer Farm

A systematic, understandable and useful presentation of a Pioneer Farm project is needed. This can be accomplished by developing a Project Work Breakdown Structure that shows all of the components, elements, and activities that are included in the project. The scope of the project is also clearly defined by this document.

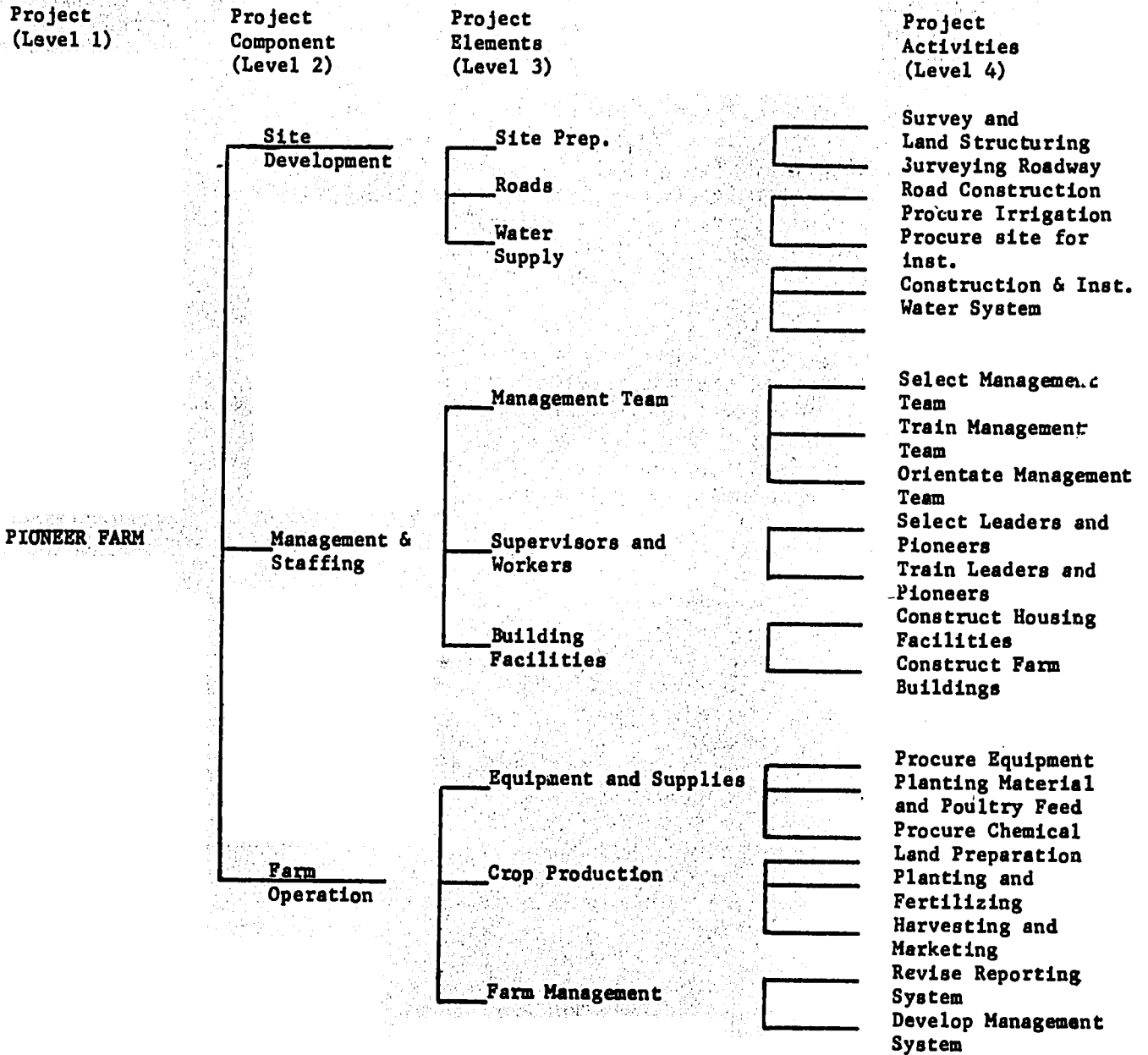
The work breakdown structure is not an organizational chart for the project. But, it is a logical division of the project into its natural managerial parts. The parts include all of the manageable components, elements, and activities that are included in the project. Initially, no effort is made to identify organizations who are responsible for the work involved in these project components, elements, and activities. These can be included later if the project manager wants to show how the different organizations are related to the different parts of the project by developing a Linear Responsibility Chart, (See Appendix 1) An example of a Linear Responsibility Chart that can be developed to assign varying levels of responsibility for the management of all parts of the project is shown in Appendix 1, Illustration 1 of this manual. The names of organizations in the LRC constitutes the project team to carry out the project work breakdown. Each team member can view the project work breakdown structure chart and gain a fuller understanding of the project's scope.

Illustration 1, shows an example of a Work Breakdown Structure chart for developing a Pioneer Farm. The project chart is divided into four levels: Level 1, in this example, is a Pioneer Farm; Level 2 is a breakdown of the project into three major developmental components, i.e., Site Development, Management and Staffing, and Farm Operation. The components are the initial division of a project into its major managerial parts which can then be broken down further into elements and activities, as shown in Level 3 and Level 4, respectively. The project elements are the parts of each component part break down. In this example, "Site development" is an arrangement that is broken down into three elements "Site Preparation", "Roads", and "Water Supply." Electrical supply and other utilities could be added to this list of project elements as a further breakdown of the component "Site Development", if electricity and sewage is also a part of "Site Development". This last level of project work breakdown in this example is Project Activities, shown as Level 4. Activities are the lowest level of managerial responsibilities shown for the project. Project Activities are delegated to others who may break them down into tasks and sub-tasks, but, this is not shown on the Project Work Breakdown Chart. In the example the project element, "Site Preparation" is broken down into these work activities; "Survey of Land" and "Land Structuring". Thus project element, "Roads", is broken down into two elements, "Surveying Roadway" and "Road Construction". Each element in Level 3 is broken down into the managerial activities, shown in Level 4, which are necessary to move the project to successful conclusion.

The model developed here is an illustration of a tool that management can use to implement a project. This tool can be modified to develop a Project Structure for any project.

MODEL OF A WORK BREAKDOWN STRUCTURE FOR A PIONEER FARM

Illustration 1





Appendix 5

ACTIVITY DESCRIPTIONS SHEETS

When all the activities have been identified from the Work Breakdown Structure, it is very important to complete the detailed descriptions of the requirements for each activity. This is critical to the overall feasibility of the project because implementation is dependent upon the likelihood of obtaining the necessary resources for the project and being able to coordinate these when needed in relation to other activities and resources.

The planning team and the team manager should spend the time necessary for accurate completion of Activity Descriptions. It may be necessary to involve professionals and technicians to incorporate information not existing in the project planning team. In general, at least eight types of information should be required for each activity. These include:

- (a) Activity title;
- (b) Activity duration;
- (c) Responsible and performing organizations and individuals;
- (d) Resources (manpower especially but also equipment and other operational inputs required to implement the activity);
- (e) Pre-requisites for starting the work;
- (f) The defined output(s) or product(s) of each activity and its characteristics;
- (g) criteria for the performance of the activity and specifications for the project output;
- (h) any relevant notes that may be useful to the performance of the activity, e.g. any milestone/Key events or decisions.

The Activity Descriptions are very important as they become the basis for resource and financial planning and scheduling. They are also the basis for setting realistic participative levels and inputs from all contributing agencies. It is at this point that realism must prevail. Often previous studies may have sacrificed detail for speed of preparation or for brevity of documentation. Also, planning studies, such as feasibility studies, are often based on assumed or existing data and do not reflect actual project requirements. The implementation team must assure that the plans are now as realistic as possible and any unrealistic projections of costs or resources will seriously hamper implementation. This has been a problem for many projects as there is often general ideas about resource requirements which cannot be met when the manager must actually call upon these for the execution of the project. The importance of this step in planning and the stress upon accuracy cannot be exaggerated.

The activities defined in the Work Breakdown Structure are the lowest level of project planning and control for the administration or management of the project. Each activity manager will later be responsible to take each activity and break it down into even more discrete tasks for scheduling and planning. From the management level, it is important that each activity description be as accurate as possible to ensure its completion and its contribution to the total project. An Activity Sheet is to be completed for each Activity. It can be designed to be useful for the project management. Illustration 1 shows a work sheet for an activity involving output of a detailed farmplan. Illustration 2 shows a sheet for an activity with the output of an established Farm Advisory committee. Both of these are hypothetical and are used to show the formats which Activity Description Sheets can take to incorporate the necessary information for an activity.

It is important to note that each activity is expected to have some specific output or product. This is true, even of administrative activities. Too often, outputs are neglected in certain types of activities. Even committee meetings should have identified outputs or products, such as certain decisions or evaluations (See Illustration 2) period. These products should be clearly specified for each activity so the manager can later determine if the milestones in later schedules.

The Activity Description Sheets also become the basis for project control and monitoring during actual implementation. Especially if they have detailed information against which deviations in performance, resource use, time, etc. can be measured, they can be used as a log of the project accomplishments throughout the project. Although the construction of the Activity Sheets is a very tedious and time-consuming task, it is very important and is a primary block in constructing timely implementable project as opposed to a dream project based upon supposed or hypothetical resources needs and biases.

Illustration 1: ACTIVITY DESCRIPTION SHEET

**Activity:** Prepare farm Production Layout Plan

**Responsible:** Farm Manager

**Support:** Technical officers as required from Engineering and Research & Development Divisions.  
Divisional Extension Officer

**Work Statement:**

Prepare a detailed scale layout of the farm area production plan including fields and boundaries, paths, storage areas, buildings and user, and infrastructure.

**Information or inputs required:**

1. Farm Production Plan
2. Farm Physical Plan
3. Infrastructure and Equipment Specifications

**Resources:**

- |   |             |                        |   |
|---|-------------|------------------------|---|
| 1. Farm Manager                             | 2 weeks     |                        |   |
| 2. Draftsman                                | 1 week      | Engineering Department |   |
| 3. Paper                                    | \$100 (est) | "                      | " |
| 4. Travel four trips<br>Kingston to Project | \$100 (est) | Production Extension   |   |

**Output:**

1. Detailed farm layout on 1-50 scale
2. List of equipment items required
3. Infrastructure (e.g. roads; paths,) and utilities specifications (water & electricity)

**Duration:** 2 weeks

**Schedule:** Start ..... Finish .....  
Actual Start ..... Finish .....

**Comments on performance:**

Plan must be approved by the Parish Manager and Regional Director. Examples of these plans are available from the Production Extension Unit.

Activity Manager Regional Land-Lease Officer		Date		
Activity Name Establish Farm Advisory Committee		Activity Duration: 3 1/2 months		
Starting date (planned) (actual)		Completion date (planned) (actual)		
<b>Resource Inputs and Costs</b>				
Sources	Names, other identification	Quantities	Unit price	Cost
Regional & Parish Offices	Regional Land-Lease Officer	3 man-weeks		
	Parish Manager	2 man-weeks		
	Regional Director	1 man-weeks		
Production Extension	Pioneer Farm Programme Officer	4 man-weeks		
	Support Staff	2 man-weeks		
Local Community	Mr. E. Representatives of Community Council	1-2 man-days		
SDC	Mr. H. Representative, SDC	1-2 man-days		
Parish Council	One representative	1-2 man-days		
<b>Activity Purpose/Product and Criteria for Assessing Product</b>				
<p><b>PRODUCT:</b> a permanent Farm Advisory Committee for this project.</p> <p><b>SPECIFICATIONS:</b></p> <p>a. The Committee is to have representatives from:</p> <ol style="list-style-type: none"> <li>(1) the various government agencies active in the Province (SDC, Coups)</li> <li>(2) the local government</li> <li>(3) the community council</li> <li>(4) voluntary and benevolent organizations such as JAS</li> <li>(5) training agencies; JAMAL</li> <li>(6) Pioneer Farms</li> </ol> <p>b. The Committee is to be chaired by the Parish Manager</p> <p>c. It is to meet approximately monthly to discuss:</p> <ol style="list-style-type: none"> <li>(1) problems as expressed by the Pioneers</li> <li>(2) complaints about or requests for services;</li> <li>(3) ideas for improvement;</li> <li>(4) support required for current implementation and service activities.</li> </ol> <p>d. The agenda and minutes of these meetings are to be published and circulated to all contributing groups and agencies.</p> <p><b>HOW TO PERFORM ACTIVITY:</b></p> <p>a. The Regional Lands Officer manages the detailed activities with strong support from the Production Extension Unit and the Parish Office.</p> <p>b. The Ministry will budget and pay for expenses incurred through normal procedures, including travel costs.</p> <p>c. Members will be formally appointed by the Minister</p> <p>d. Considerable public information must be generated in regard to the project.</p>				

Authorization date: \_\_\_\_\_ Signature: \_\_\_\_\_

APPENDIX 6

NETWORK PLANNING

PRECEDENCE DIAGRAM METHOD (P.D.M.)

P.D.M. is a network technique for planning and managing projects.

P.D.M. begins by describing the activities necessary to complete the project. The time required to complete each activity is estimated taking into consideration the resources available to undertake each activity.

By arranging the activities in a sequence a network diagram is produced. This diagram will show the logical sequence of all activities from the start to finish of the project.

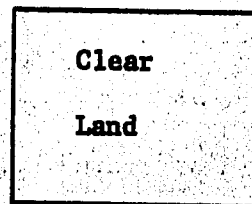
BASIC TERMS

DEFINITION:

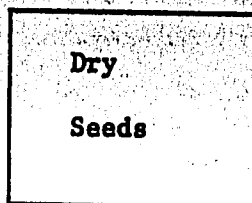
An activity is any portion of a project which consumes time or resources and has a definable beginning and ending. Activities may involve labour, paper work, contractual negotiations and machinery operations. Activities also include waiting periods such as drying, growing or curing processes. Commonly used terms synonymous with "activity" are "task" and "job". In P.D.M. boxes are used to represent activities. Illustration 1.

Illustration 1.

(a)



(b)



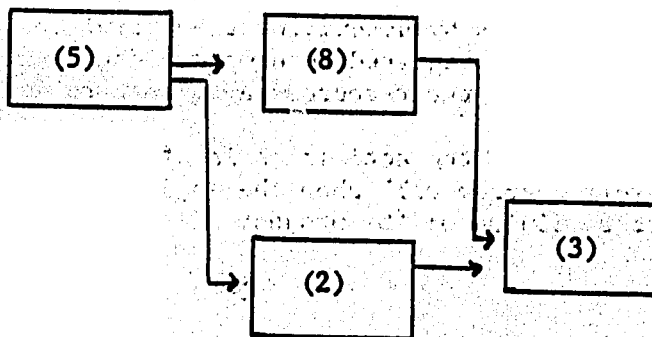
Arrows are used to join boxes. In P.D.M. arrows have no other significance but to join boxes. They imply logical sequence only.

NETWORK

A network is a graphical presentation of a project plan, showing the interrelationships of various activities. When the results of time estimates and computations have been added to a network, it may be used as a project schedule.

Illustration 2

A Simple precedence  
Network



Jobs in the network are identified by numbers (Illustration 2).

The left hand side of a box is always taken to represent the start of an activity and the right hand side, the completion. Before an activity may begin, all activities preceding it must be completed.

In constructing the network, it is as well to follow a systematic plan. For example, consider the case of building foundations for which the activity list (in the order in which the items occurred to the planner) might be:

1. set out lines
2. excavate trenches
3. place form work
4. obtain steel for reinforcing
5. cut and bend steel
6. fix steel
7. obtain concrete components
8. mix concrete
9. cast foundations

From this list, three obvious groupings appear.

(A) From the standpoint of the foundations themselves:

- 1) set outlines
- 2) excavate trenches
- 3) place form work
- 9) cast foundations

(B) From the standpoint of steel reinforcing:

- 4) obtain steel for reinforcing
- 5) cut and bend steel
- 6) fix steel
- 9) cast foundations

(C) From the standpoint of the concrete:

- 7) obtain concrete components
- 8) mix concrete
- 9) cast foundations

The next stage is sequencing.

There are two major approaches to this stage:

(a) To start at the beginning which would always be indicated as an event called START and work through the network from left to right and from top to bottom - asking each time the question: NOW that the activity is completed, what other activities may start?

(b) To start at the end (which would always be indicated by as an event called FINISH) and work through the network from left to right and from top to bottom asking each time the question: BEFORE this activity may start, what other activity must have been finished?

In the example above there are three separate paths through the network containing the activities of the three groupings established. However, each group cannot be treated entirely separately otherwise the situation shown in Illustration 3 would result. In this case certain activities are duplicated. At these points obviously the points must merge as shown in Illustration 4.

Illustration 3.

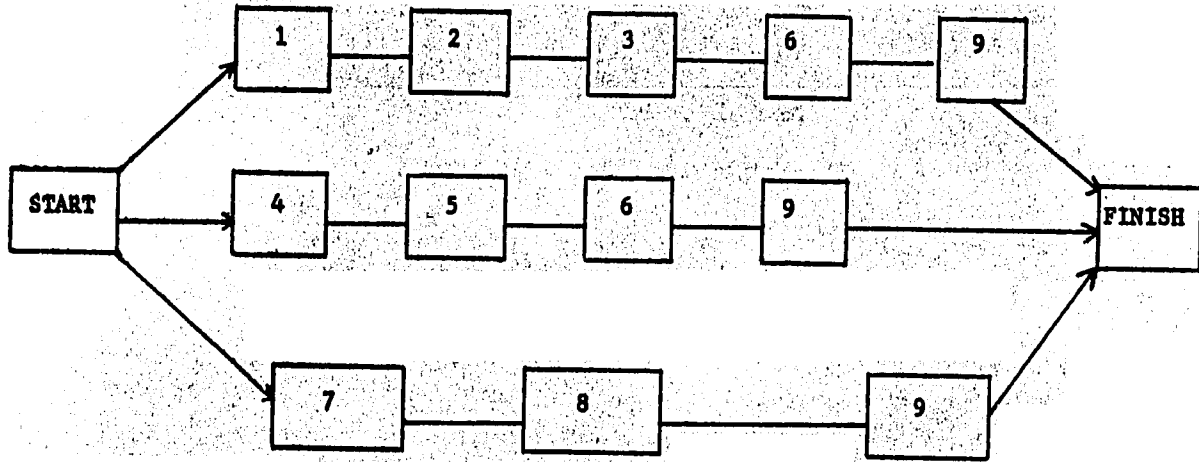
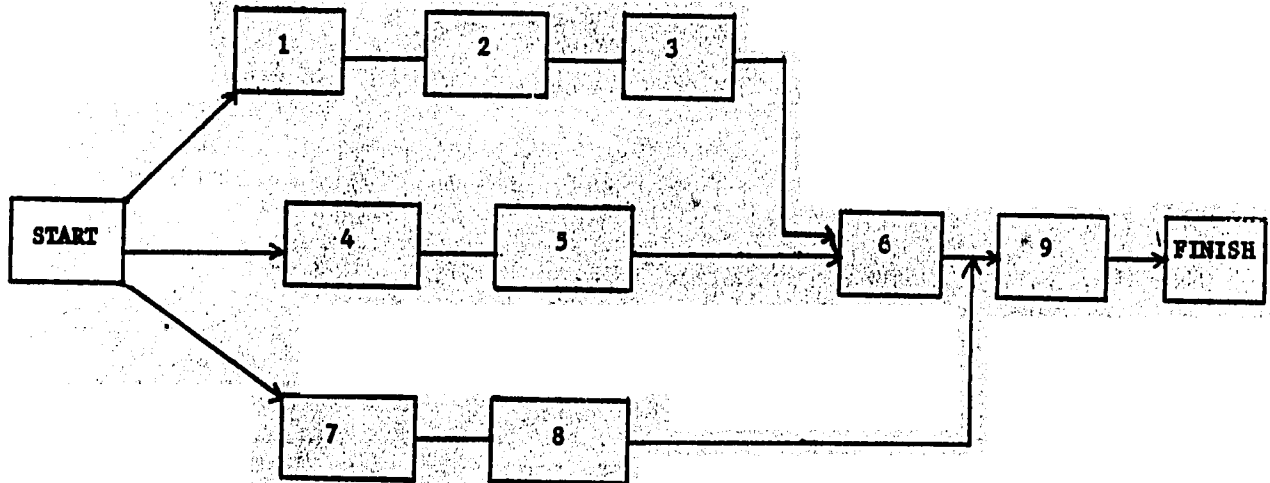


Illustration 4.





Once the network has been prepared the next step is to add time estimate to each activity. The time estimate to be made for each activity is called the activity duration. It represents the duration of time over which the activity will be completed. This time duration may be expressed in any unit that is convenient; hours, days, weeks, months or years. Note also that time estimates are based on the available resources to complete each task.

#### ANALYSING THE NETWORK

The prepared network is then analysed on the basis of a FORWARD and a BACKWARD PASS.

The purpose of the forward pass is to compute the earliest start and finish times for each activity in the project on an elapsed working day basis. To get "the ball rolling", an arbitrary earliest start time must be assigned to the (START) initial event. A value of zero is usually used for this start time since subsequent earliest times can then be interpreted as the project duration up to the point in question.

The forward pass computations then proceed by assuming that each activity starts as soon as possible, i.e., as soon as all of its predecessor activities are completed.

Forward Pass Rules:- Computation of Early Start and Finish Times.

- Rule 1      The initial project event is assumed to occur at time zero.
- Rule 2      All activities are assumed to start as soon as possible, i.e., as soon as all of their predecessor activities are completed.
- Rule 3      The early finish time is merely the sum of its early start time and the estimated activity duration.

#### Backward Pass Computations

The purpose of the backward pass is to compute the latest allowable start and finish times for each activity. These computations are precisely the "mirror image" of the forward pass computations. The term "latest allowable" is used in the sense that the project terminal event must occur on or before some arbitrary schedule time. Thus the backward pass computations are started "rolling" by arbitrarily specifying the latest allowable occurrence time for the project terminal event. If no schedule date for the completion of the project is specified, then the convention of setting latest allowable time for terminal event equal to its earliest time determined in the forward pass.

Backward Pass Rules :- Computation of latest allowable Start and Finish Times.

- Rule 1      The latest allowable finish time for the project terminal event is set equal to either an arbitrary scheduled completion

time for the project or else equal to its earliest occurrence time computed in the forward pass computation.

- Rule 2 The latest allowable finish time for an arbitrary activity is equal to the smallest, or earliest, of the allowable start times of its successor activities.
- Rule 3 The latest allowable start time for an arbitrary activity is merely its latest allowable finish time minus the estimated duration time.

#### Activity Slack or Float

Activity Slack is equal to the difference between the earliest and latest allowable start or finish times for the activity in question. It is the amount of time by which the actual completion time of an activity can exceed its earliest expected completion time without causing the duration of the over-all project to exceed its scheduled completion time.

#### Critical Path Identification

Usually there is more than one path in a network between the START and FINISH events. One or more of these paths may be critical. All activities with zero total float are critical, in that no delay is permissible in their execution. The critical path follows the sequence lines linking the critical activities and is obviously the longest path to which the Project Manager ought to devote closest attention.

An activity which is found to be critical is important in that it contributes to the overall project duration but is not necessarily essential. Network analysis therefore enables the Project Manager to select certain activities - the critical ones - the improvement or elimination of which would contribute materially to advancing the completion date of the project.

## APPLICATION

Illustration 6 and 7 show the application of precedence diagramming to a Pioneer Farm Project. In this case, the project involves the establishment of a Poultry Project on the Pioneer Farm. It was necessary first of all to do a Work Breakdown to establish the activities necessary for all the components of establishing the Poultry project. The list of activities taken from the Work Breakdown and the planned duration for these activities are shown in Illustration 6.

In actual practice, first one would take each of the major groupings of activities and find the sequence and relation within that group, e.g., those activities dealing with planning and management, those dealing with site preparation and construction, those dealing with procurement, those dealing with production, and so on. The activities within each of these components would be diagrammed sequentially. Secondly, the planner would examine for any relationship gaps between the activities between different components. Finally, a master schedule would be constructed showing all the activities for the project.

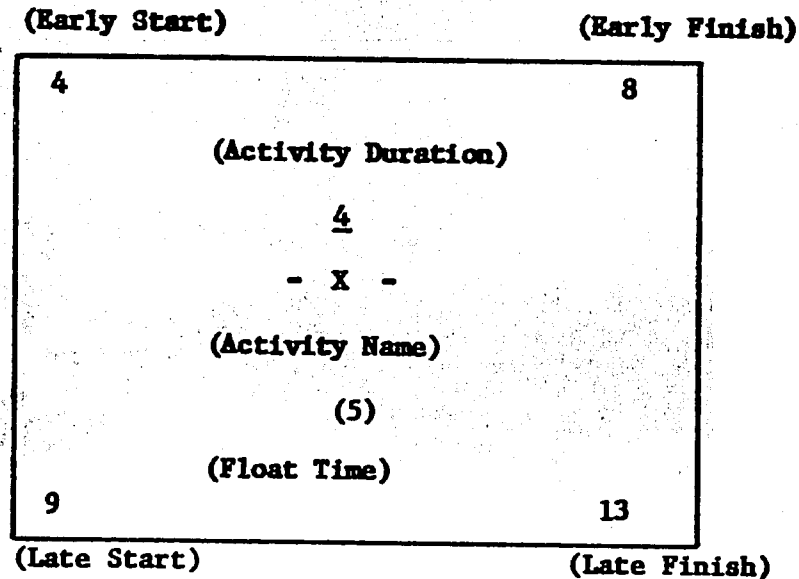
The Forward Pass and the Backward Pass would then be performed to establish the total times for the project, the Float Times for all activities and the Critical Path activities. The Master Schedule (PDM) for the Poultry Project is shown in Illustration 6. It can be seen that during the early part of the project there are two parallel critical paths; one includes Activities B and D preceding Activity E and one includes Activities A and C before Activity E. This may occur in a project, but too many parallel Critical Paths should be avoided if possible.

In Illustration 6, the Forward Pass is first completed to establish the total project time and the Early Finish and Start for each activity. The formula is, "Early Start + Duration = Early Finish". Then using the Early Finish time for the total project, the Backward Pass is completed to determine Late Finish and Late Start for each activity. The formula is "Late Finish - Duration = Late Start".

The Float Time or Slack Time for each activity is then found by subtracting the Early Start from the Late Start, "Float Time = Late Start - Early Start". Those activities which have zero Float Time are activities on a Critical Path. Note that Critical Path refers not to the importance of the task in terms of work priorities, but in terms of TIME priorities. It is time urgencies which are indicated.

Illustration 5

An activity box shows the following pieces of information. The form is arbitrary)but the following pattern used in Illustration 5 is very common.



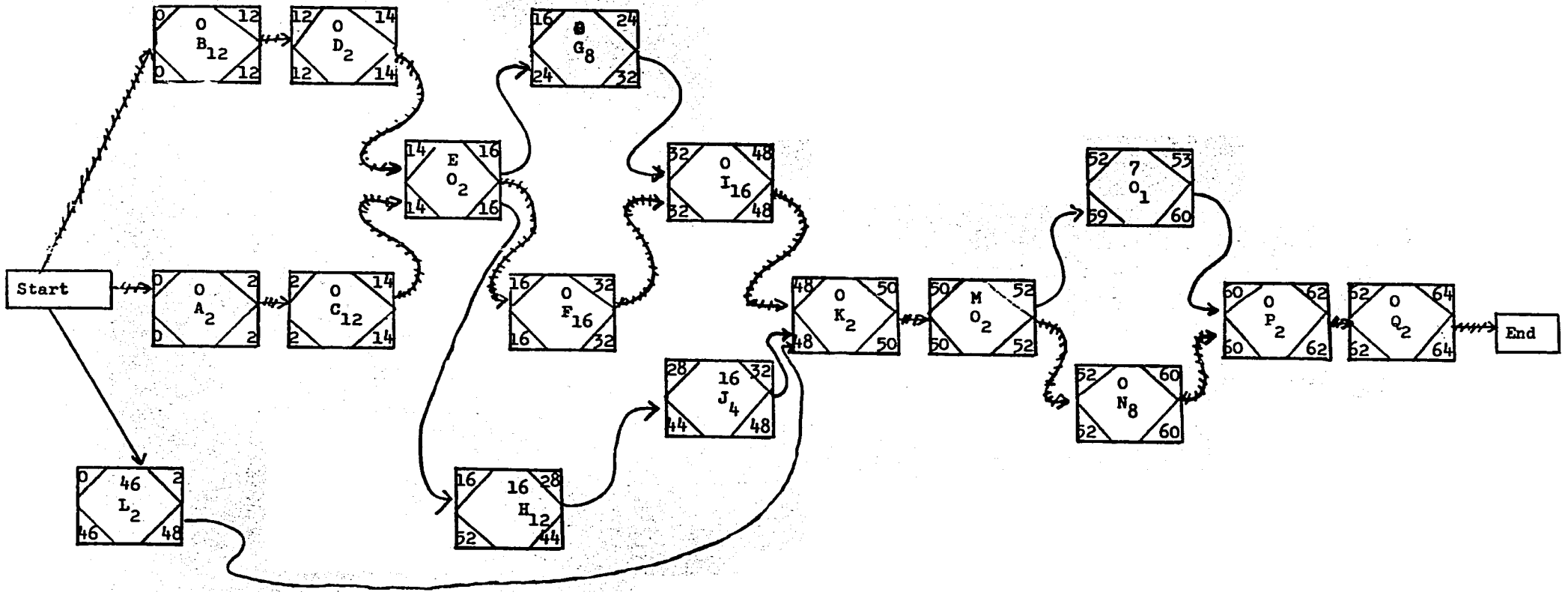
Finally, the Precedence Diagram or the Master Schedule is a tool. It is to be used with the judgement of the manager. It does not "control" the project and a project cannot be "forced" to conform to the schedule. The schedule does tell the original plan. It must be continually updated based upon the experience of the project and as often the planned times do not conform to actual times. Changes must be made frequently in the schedule to reflect these changes, such as delay or early completions, or additional activities. The value of the Master Schedule is that it can be used to determine the implications of deviations from the plans. If activity times exceed their planned durations, one can determine if this will have an effect on the overall time for the project or if the slippage still falls within the Float Times for those activities. When Float Times are exceeded, it is possible for the Critical Paths of a project to change during the life of that project. So the value of the Schedule is in its use, not its original construction. A schedule which is not updated and changed is not a tool, but a wall decoration -- a work of art, but not a tool of management. It must be used properly throughout the project to be a management tool, not just constructed at the beginning and abandoned.

Illustration 6

<u>LIST OF ACTIVITIES</u>	<u>DURATION - WEEKS</u>
A. Site Identification	2
B. Preparation of Project Plan	1.2
C. Construction and Installation of Road and Water Systems	12
D. Recruitment of Project Team (operational)	2
E. Land preparation for Building Construction	2
F. Construction of Poultry House	16
G. Procurement of Equipment	8
H. Construction of Storeroom	12
I. Electrical, water and Equipment Installation	16
J. Procurement of Feed, Medical and Sanitary Supplies	4
K. Planning of Husbandry Practices	2
L. Arrangement of Marketing System	2
M. Purchase Day-old Chicks	2
N. Maintenance of Husbandry Practices	8
O. Recheck on Market System	1
P. Marketing	2
Q. Clean and Fumigate House for New Birds	2

PRECEDENCE DIAGRAM

Illustration 7



APPENDIX 7

USING BAR CHARTS AND MILESTONES IN PLANNING AND MANAGING

A PIONEER FARM PROJECT

Purpose

The purpose for the use of a bar chart and milestones is to facilitate the planning and management of the project activities and resources.

Use

The management and planning uses of bar charts and milestones are;

- (1) to schedule activities that are necessary to carry out the project,
- (2) to visualize the project plan in a time frame and activity sequence, and
- (3) to mark specific points in time for completion, approval or decision making in relation to an activity or sequence of project activities.

Project managers can also use bar charts and milestones to record actual progress against the planned performance of activities on a project.

Construction

A bar chart displays the schedule of activities to be carried out on a project. Each activity is represented by a bar that extends along a time scale. The length of time needed to complete the activity is shown by the length of the bar for each activity. The starting and ending time of each activity is denoted by the position of the bar along the time scale. The time scale used covers the life of the project which is divided into time units, e.g., working days, weeks, or months. The activities are sequenced along the left hand margin of the bar chart and the time scale is arranged across the top of the bar chart.

Milestones

Milestones are selected points along the time scale when an activity or group of activities are planned for completion, decisions are to be made, or approvals of subsequent actions are done. They clearly show important intermediate stages of the project. A milestone is designated as an important point for completion of an activity or taking some specific action. If the planned activity is not completed at the time that the planned milestone is reached, then corrective action is indicated.

### Project Activities Breakdown

For any project planning activity, including bar charting, a breakdown of the project into a sequence of logical and distinct activities is required. Estimates of the length of time required for each activity must be made. When the project has been broken into the sequence of activities necessary to complete it and the estimation of time needed to complete each activity has been made, then the time scale can be determined and a bar chart beginning and ending time is determined. Bar Chart construction assumes that a project can be broken down into clearly defined activities with a definite beginning and ending. This permits an accurate determination of the time required for each activity in the planning stage of the project.

### Cautions to Users of Bar Charts

The person or persons involved in constructing a bar chart must have a good understanding of the activities necessary to complete the project and the logical sequencing of these activities. These requirements are also pre-conditions for successfully using a bar chart as a planning tool.

Bar charts do not enable the project planner to attain optimum allocations of resources, but, they do permit the user to graphical sequence the planned activities. As a result, they can avoid excessive use of available key resources, e.g., labour, money, and time.

### Summary for Bar Chart Construction

In summary, a bar chart is constructed by

- (1) Identifying all of the distinct activities in the project,
- (2) Logically sequencing the activities,
- (3) Estimating the time required for each of the activities.
- (4) Arranging the activities in planned sequence i.e., 1, 2, 3, order along the left hand margin of the bar chart.
- (5) Laying out the time scale across the top of the chart to include enough time so all of the activities can be completed. Addition of the individual times for each activity and the use of the total time to devise a time scale, is a useful technique for laying out a time scale.
- (6) Drawing each activity as a bar, using the estimated time lapse for the activity, as a beginning and ending time for each activity. The length of the bar denotes the duration of the activity and the position



of the bar shows its scheduled beginning and ending time.

Note: It is not necessary for one activity to be completed before any other activity is started. Several activities may be in progress simultaneously. The ability to perform several activities at the same time depends on

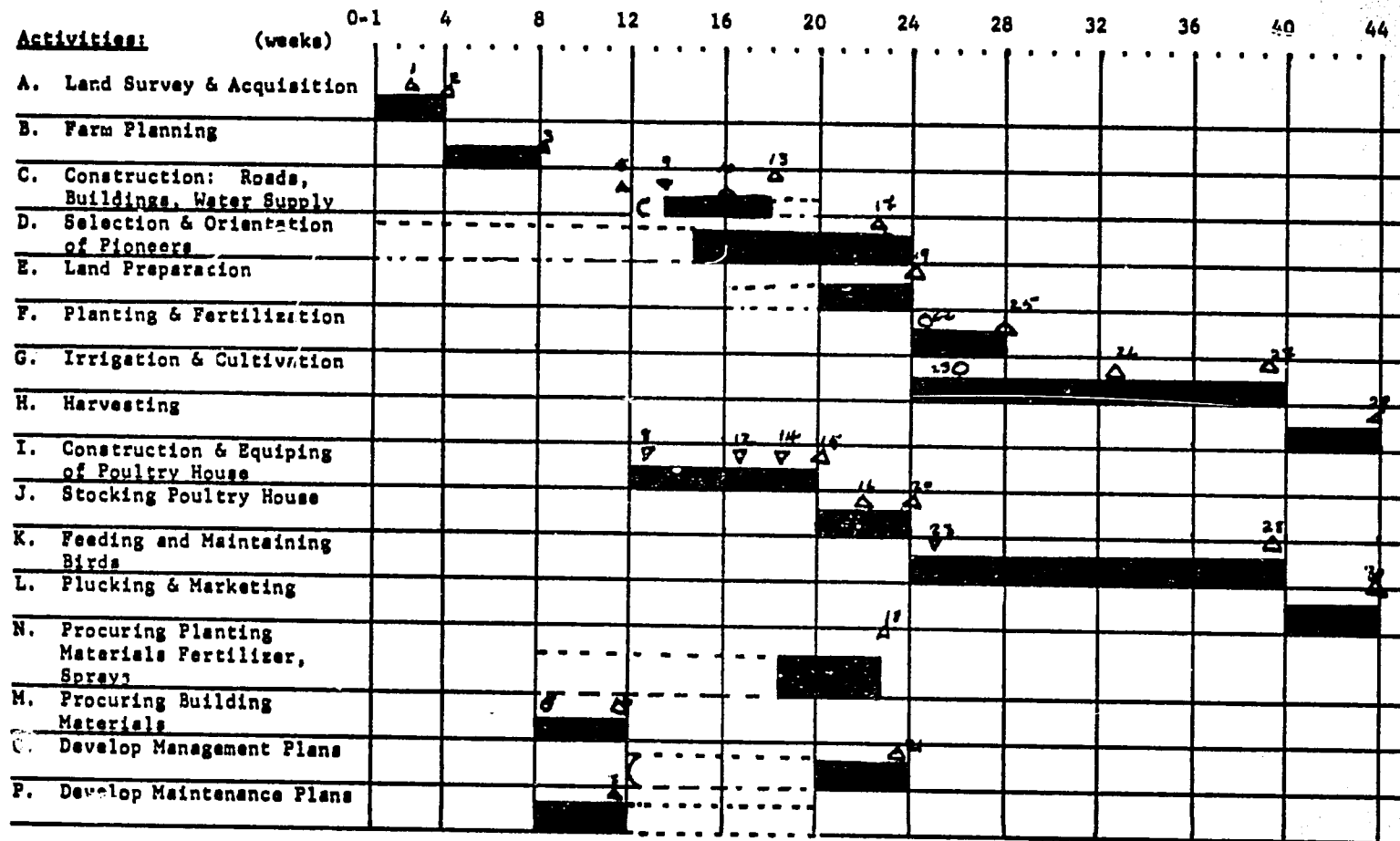
- (a) available resources, and
- (b) the nature of the activities, which dictates their sequencing.

For example, if you have only limited manpower you must take this into consideration in deciding how many activities you can begin at once. If you have one activity, e.g., to pump water, and you are pumping water from a well you cannot pump the water until you have a well. So you must complete the well before beginning to pump the water. On the other hand you might begin installing the pump in a pump house before the well is completed or while constructing the well.

#### Example of Bar Chart Activity Breakdown and Milestone Charting for Pioneer Farm

An example of a bar chart with milestones is shown in Illustration 1. The sequence of activities is not in the order shown on the activities breakdown chart, shown as Illustration 2 but, their sequence is shown by location of the bars on the chart in relation to the time scale at the top of the chart. There is a milestone key at the bottom of the chart. This key denotes the different kind of actions that are taken on each activity over the length of the project. When a decision is to be made a circle (O) is used; when an approval is needed an inverted triangle (▽) is used; when a certain point in the work is reached a triangle (△) is used. These are Planned milestones which can then be matched against actual performance by entering the actual date on the "Milestone Planning Chart", shown as Illustration 3.

Illustration 1. Bar Chart and Planned Milestones for Starting a Pioneer Farm With a Poultry House



Milestone Key: O --Decision; ▽ --Approval; △ --Work

Illustration 2. LIST OF ACTIVITIES FOR STARTING A PIONEER FARM  
WITH A POULTRY HOUSE

<u>ACTIVITIES</u>	<u>DURATION</u>	<u>(WKS)</u>
A. Land Acquisition and survey	4	"
B. Farm planning	4	"
C. Construction, farm roads, buildings, water supply etc.	8	"
D. Selection and orientation of farmers	8	"
E. Land preparation	4	"
F. Planting and fertilising	4	"
G. Irrigation and cultivation	12	"
H. Harvesting	4	"
I. Constructing and equipping poultry house	8	"
J. Stocking poultry house	4	"
K. Feeding and maintaining birds	16	"
L. Plucking and marketing birds	4	"
M. Procuring building materials	4	"
N. Procuring planting materials, fertilizer spray etc.	4	"
O. Develop management plans	4	"
P. Develop management plans	4	"

Illustration 3; Milestone Planning Chart: Pioneer Farm with a Poultry House

Milestone	Description	Date (Planned)	Actual
1	Land Acquisition Completed		
2	Survey Completed		
3	Farm Plan Completed		
4	Decision---orders for Building Materials		
5	Farm Roads Completed		
6	Building Materials Procured		
7	Maintenance Plan Complete		
8	Approval of awarding of contract for Poultry House		
9	Approval of awarding of contract for Farm Buildings		
10	Farm Buildings Completed		
11	Selection of Pioneers Completed		
12	Approval of Poultry House Building (foundation and walls)		
13	Water Supply Completed		
14	Approval of Equipment Installation		
15	Poultry House Completed		
16	Approval of Stocking of Poultry House		
17	Orientation of Pioneers completed		
18	Procurement of Fertilizers, spray planting materials, etc. complete		
19	Land Preparation completed		
20	Stocking of Poultry House complete		
21	Development of Management Plan complete		
22	Decision on cropping/fertilization complete (population, frequency)		
23	Approval of Maintenance system for Birds		
24	Decision on Irrigation (level and frequency) and cultivation		
25	Planting and fertilizing complete		
26	Weeding completed		
27	Irrigation completed		
28	Feeding and maintenance of birds completed		
29	Harvesting completed		
30	Plucking and Marketing of Birds completed		

Note: The usefulness of this as a recording and monitoring tool also.

APPENDIX 8

Resource Planning and Budgeting Information

The resource planning and budgeting technique combines the standard Bar Chart with cost estimates of manpower as well as of physical resources. The Chart thus prepared provides day to day information not only on the task being undertaken but also on the resource requirement and the cost of these resources for undertaking each task over given periods of time.

Preparing the chart

1. Each project activity is further broken down into tasks.
2. List the required manpower necessary to accomplish each task; specifying the type of skill and the number of mandays required.
3. Make an estimate of the manpower cost, for each task, in terms of cost per manday and total cost.
4. Identify and list the required physical resources necessary to accomplish each task; specifying the type of resource as well as the quantities required.
5. Make an estimate of the costs of these physical resources in terms of cost per unit and total cost.
6. Combine the Bar Chart with the quantities and costs of the resources, so that tasks, time, type and quantities of resources as well as cost of resources are all linked.
7. Prepare a chart for each project component.

Figure 1. shows a Resource Planning and Budgeting Information Chart for the vegetable component of a pioneer farm.

- Assumptions:
1. Herbicide will be used to clear the land of weeds and low shrubs.
  2. Tractor will plough and harrow.
  3. Sowing of seeds and planting of seedlings will be done by manual labour.

Resource Levelling

A resource is defined as a variable quantity of men, materials, i.e. of equipment, space or money which is required in order to carry out a project.

"Levelling" is the action of allocating the resources to the project in such a pattern that the quantity in use at any time is acceptable. Resource levelling therefore is a critical consideration in preparing the Resource Planning and Budgeting chart. This process of resource levelling gives due consideration to resource constraints and ensures that resources are not over-loaded or the project delayed.

In the example given in Illustration 1. there is only one field supervisor who will have to supervise all the tasks in the given project component; i.e. clearing, ploughing, harrowing, sowing and planting. By scheduling the tasks so that they are all not being undertaken at the same time and therefore the field supervisor is not over-loaded we have in fact "levelled" the resource-field supervisor. The practice of resource levelling should be closely followed when preparing the Resource Planning and Budgeting Chart.

It is possible also that during actual implementation one or more of the resources in the plan may be subjected to further constraint. For example, the plan in Illustration 1. has two tractors but for some reason only one may become available to the project during implementation. In this case it will be necessary to re-schedule the tasks and level the resources as is necessary. It is also likely that there will be a need for periodic re-scheduling and updating of the plan.

#### APPLICATION

Illustration 2 shows the application of Resource Planning to the Poultry Project which was scheduled in Appendix 6. The manpower, the finances and the equipment needed for a project can be placed quickly into a resource plan if a master schedule has been completed and activity sheets completed for each activity detailing the necessary resources and finances for each activity. The activities as planned are placed on a Bar Chart and the totals for each month (or whatever time unit is used) is totalled by the totals for all activities in that time period. The final plan shows the flow of resources along the bottom lines (e.g., monthly budgets according to planned expenditures) and the vertical left-hand column shows the budget expenditures by items, e.g., labour, equipment, etc. This column should have the same total as the bottom row, which is, in fact, the total expenditures planned for the project.

The resource plan can also be used to judge the impact of deviations from planned uses of resources or costs as the project progresses. The manager should use this as a tool to examine the progress of the project throughout its duration. An additional manual on use of the bar chart for project analysis and management is available from PDRT, PAMCO. upon request. The title is Project Control/Scheduling By Bar Charting.

**Poultry Project .../2**

**Manpower and Resource Plan:**

	Time in Months																Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
<b>Manpower Plan (M/days)</b>																	
Farm Manager	19	15	15		10	4		5					7	2		5	82
Planning Team (3)	45	45	45														155
Tractor Operator	3	6	6	5													20
Plumber	4	8	8	4					5	4							33
Pioneers (4)	.75	1.5	1.5	2.75									40	40	40	16	141.5
Electrician								8	3								11
Contractor				10	20	10	10	10									60
<b>Manpower Cost</b>																	
Tractor Operator	45	90	90	75													\$300
Plumber	100	200	200	100													\$600
Pioneers	24	45	48	88													\$205
Electrician									160	60							\$220
Contractor				1000	2000	1000	1000	1000									\$6000
<b>TOTAL Manpower Costs</b>	<b>169</b>	<b>335</b>	<b>338</b>	<b>1263</b>	<b>2000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>160</b>	<b>60</b>							<b>\$7325</b>
<b>Resource Plan</b>																	
Tractor Days	3	6	6	5													20
<b>Resource Costs</b>																	
Tractor @ \$30/d	90	180	180	150													\$500
<b>TOTAL Resource Costs</b>	<b>90</b>	<b>180</b>	<b>180</b>	<b>150</b>													<b>\$500</b>
<b>TOTAL COSTS</b>	<b>259</b>	<b>415</b>	<b>418</b>	<b>1413</b>	<b>2000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>160</b>	<b>60</b>							<b>\$7825</b>

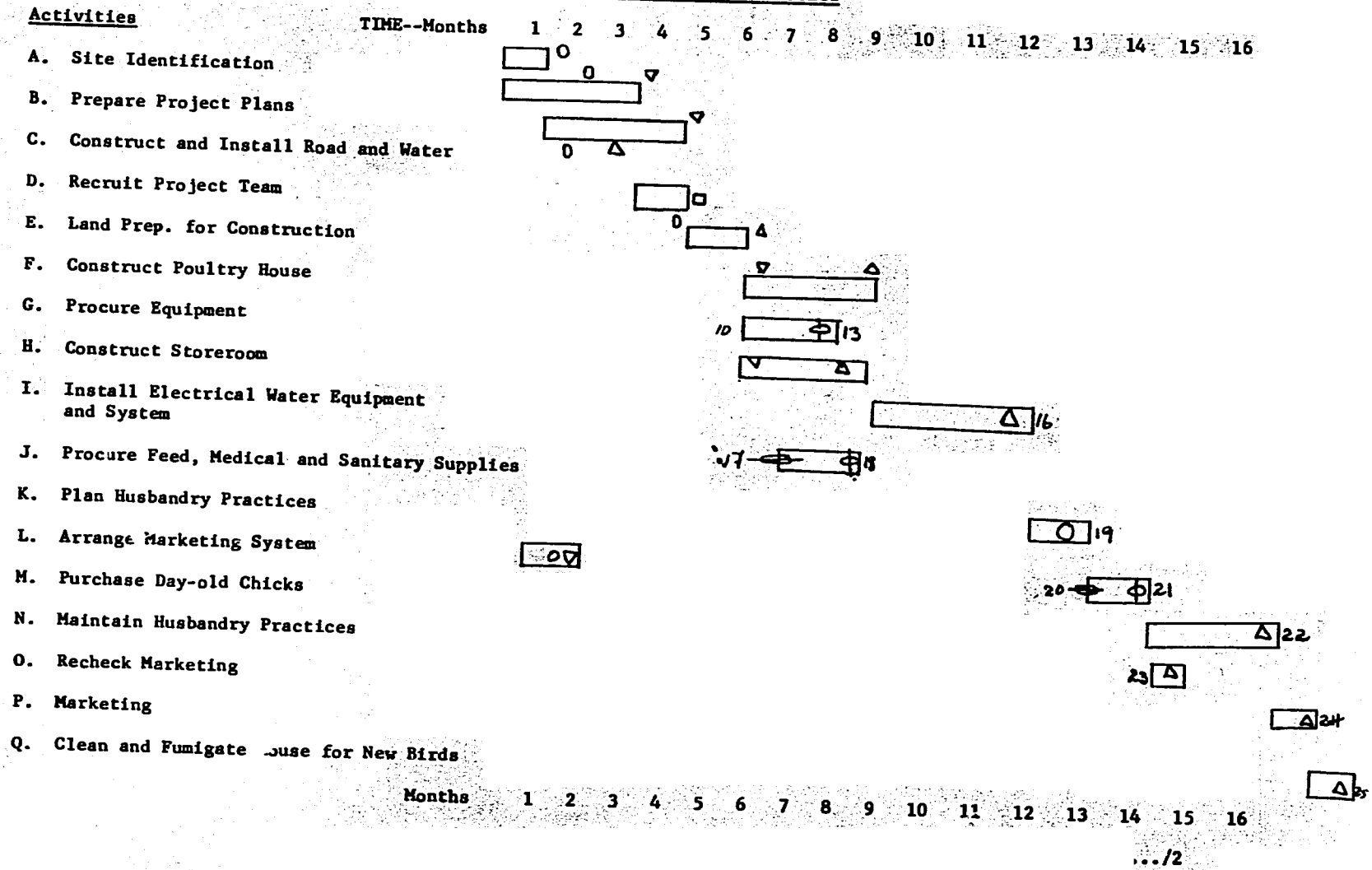
Milestone Key: O--Decision; V--Approval; Δ--Work; □--Selection; ⊖--Order; ⊕--Receive

Group 007

PAMCO, PDRT  
Resource  
Material

DO NOT DUPLICATE WITHOUT PERMISSION

**BAR CHART - POULTRY PROJECT**



PAMCO, PDRT  
Resource  
Material



FIGURE 1. RESOURCE PLAN AND BUDGET

Project Component: PREPARE 5 ACRES OF LAND AND ESTABLISH IN VEGETABLES

GANTT CHART

		weeks -							
		1	2	3	4	5	6	7	TOTAL
TASKS	Clear Land	■							
	Plough Land		■	■	■				
	Harrow Land			■	■	■			
	Sow Seeds and Plant Seedlings					■	■	■	
<u>MANPOWER REQUIREMENT</u>									
	1) Field Supervisor (mandays)	2	2	2	2	4	4	4	20 md.
	5) Labourers "	4	-	-	-	25	25	25	75 md.
	2) Tractor Drivers "	-	4	8	8	8	5	5	38 md.
<u>MANPOWER COST</u>									
	Field Supervisor @ \$20/md.	40	40	40	40	80	80	80	\$400
	Labourers @ \$ 8/md.	32	-	-	-	200	200	200	\$632
	Tractor Drivers @ \$12/md.	-	48	96	96	60	60	60	\$456
	<u>TOTAL MANPOWER COST</u>	72	88	136	136	376	340	340	\$1488
<u>MATERIALS</u>									
	a) Herbicides:- 2 litre @ \$60/litre	120	-	-	-	-	-	-	\$120
	b) Fertilizers:- 2½ tons @ 260/ton				217	217	217		\$651
	c) Fuel:-		20	40	40	40	20	20	\$180
<u>OTHER COSTS</u>									
	Travelling expenses	50	50	50	50	50	50	50	\$350
	Long Distance Telephone calls	-	-	-	-	-	-	-	
	Other	10	10	10	10	10	10	10	\$ 70
	<u>TOTAL MATERIAL &amp; OTHER COSTS-\$</u>	180	80	100	317	317	317	80	\$1991
	<u>TOTAL MANPOWER &amp; MATERIAL COSTS</u>	252	168	236	453	693	657	420	\$3229

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RESOURCE REQUIREMENT AND COSTS

PAMCO, PDR  
Resource  
Material

APPENDIX 9.

A MODEL FOR THE DEVELOPMENT OF A TRAINING  
PROGRAMME FOR PIONEER FARMERS IN JAMAICA

Purpose

One of the job responsibilities of the Pioneer Farm Manager is to develop and carry out a training program for the Pioneers. The model designed in Illustration 1, was developed to assist farm managers in their planning efforts to meet this responsibility.

This model is only a working model that contains the elements that should be included in the training plan that is developed. It can and should be used only as a guide with changes being made to fit the needs of each training situation that arises on the individual Pioneer Farms.

The production and marketing goals of each Pioneer Farm requires the upgrading of the production and marketing skills of the Pioneer Farmers. The technical knowledge and skills of many of the farmers who have been selected for the farms are often lacking and must be upgraded if the goals of increased marketings and higher quality produce are to be reached. Because these farms are organized as cooperatives the involved farmers must also be conversant with the how and why of cooperative operations and their responsibilities as cooperative members. The Pioneer Farms are considered to be economic units. This requires that the farmers on these units have the ability to organize and keep simple enterprise accounts that reveal the changes necessary to make the farm a profitable operation. These skills and others must be given to the Pioneers because many of the farms will not reach the goals that they are expecting to reach unless the necessary training is given to the Pioneer Farmers. Even such a basic program as teaching the farmers how to read and write may be required and should be developed if needed.

Approach

The education programmes listed above must be approached in the form of smaller projects. For example, if an increase in farm production is the goal, the objective must centre on specific crops or livestock enterprises, if a successful effort is going to result. The planned education programme must be specifically identified with a particular crop, livestock class or input-output service. If this is not done the training materials are likely to be so general that they are of little value. Therefore the education program can only be effective if it is focused on a specific job. Each of the job - specific education programmes require a particular set of resources and resource persons, that are necessary for a successful program. A specific definition of the problem to be attacked is also necessary before undertaking the development of an education program.

## Developing the Training Plan

### A. Questions to be Answered

There are several questions that the farm manager needs to answer before undertaking the development of an education plan and the subsequent efforts necessary to put the plan in action.

1. Is the problem to be attacked clearly defined and job-specific and an education program on that problem justified from the viewpoint of your staff and the Pioneer Farmers?
2. Will this training program result in tangible and real benefits to the Pioneers?
3. Are the resources, money, equipment and technical assistance available and sufficient to do the things that are necessary to ensure the conduct of a successful education program?
4. Is the problem, that the education program is being designed to deal with, one of the farmers high priority needs for training?
5. Are you, your staff, and the Pioneers, ready, willing and able to devote the time and effort necessary to plan and carry out this specific education program?

If these questions can be answered affirmatively and the farm manager is convinced that his staff, the Pioneer Farmers, resource persons, and his supervisors all favour the education program being proposed, then the manager and his staff are ready to plan and carry out an education program for the Pioneer Farmers.

### B. The Plan's Framework

The framework of the plan is put into place only when the Farm Manager has sufficient assurance that the proposed education program is wanted and needed by the Pioneers, will yield the desired results if undertaken, and the needed resources to execute the plan are available. When the problem to be focused on by the education program is clearly specified and supported by all those who are involved, the Farm Manager then proceeds to develop a plan for the education program for the Pioneers.

An education plan contains two distinct phases:

#### Phase 1. Pre-Program Planning Steps

1. Define the problem on which an education program will be developed to give Pioneer Farmers the needed information. The statement must be clear and job-specific.

2. Be certain that this program is necessary. This includes a written statement that it has been explored with all concerned and approved by them. Statistics showing the probable costs and benefits are also useful. These may be largely hypothetical at this point, but an estimate should be made.
3. Prepare a list of resources needed, total cost figures for carrying out the program to overcome the problem, including special equipment, and a list of technicians who will probably be needed to assist with the training.
4. Re-examine the problem and redefine it if necessary, to fit the justification and resources statements.

Phase 11. Steps in Planning the Activities for the Education Program.

- A. Develop the action plan.
  1. Review progress and program ideas with staff and selected Pioneers.
  2. Decide on specific skills that are to be developed by program.
  3. Assemble and review tentative plan with staff and selected Pioneers.
  4. Finalize plan in writing.
- B. Determine activities to be carried out and make a list of these activities with specific persons assigned to take responsibility for these activities. The list of activities will include the following:
  1. Set date(s) for training.
  2. Set venue for training.
  3. Review resource needs and set up a budget to meet needs.
  4. Contact resource persons who will deliver education material to Pioneers and ask for confirmation.
  5. Arrange for needed transport.
  6. Acquire and/or develop needed training aids for use by the persons who will do the training, i.e., chalkboard, chalk, eraser, chart stand, overhead

projector, slide projector, opaque projector, screen, paper, pencils, etc.

Ask the resource persons what teaching aids they will need and if these are not available advise them that they are not available.

7. Arrange for any meals or refreshment breaks that may be needed. Include additional meals and refreshments for special guests and program participants.
8. Prepare program agenda showing topics, speakers, and times. Make a sufficient number of copies to permit distribution of trainees, special guests, and others who may attend the meetings.
9. Send a copy of the agenda to the Parish Manager, Production Unit of MOA, and others who have an interest in the Pioneer Farm project, along with a special invitation to attend the training.
10. Send a copy of the agenda to each person who is involved on the program, i.e., the speakers, demonstrators, etc.
11. Review final plans for training with staff, and selected Pioneers to be sure that all of the necessary planning activities have been done.
12. Conduct training.
13. Evaluate training.
14. Write thank you letters to persons who taught material on program.
15. Review results and evaluation forms and write them up for use in planning and carrying out other education programmes that may be contemplated.

Appendix 9, Fig. 1. A Model for Developing an Education Program for Pioneer Farmers

Phase I. Pre-Program Planning Steps:							
1 Jobs to be done	2 Who is responsible	3 Who is involved	4 How Job is done	5 Venue and Time required	6 Date Begun	7 Date Begun	8 Estimate Cost
1. Define the problem on which program is to be conducted.	Farm Manager.	Farm Manager, Fieldman Group Leaders, Selected Pioneers.	Committee Meeting of those involved (as shown in Col. 3). Prepare written Problem Statement.	One-half day at farm office.			
2. Justify the problem defined as the priority problem for training and redefine problem if necessary.	Farm Manager.	Farm Manager, Parish Manager, Prod. Unit, MOA.	Meeting of those shown in Col. 3.	One-half day at farm office			
3. Prepare probable list of resources needed - Equip. ment, Technicians, and money (estimate)	Farm Manager.	Farm Manager, Parish Manager, Reg. Ext. Officer, Prod Unit, MOA, Training Unit, MOA.	Meeting of those shown in Col. 3.	One day at farm or Parish Office			
Phase II. Steps in Developing and Carrying-out the necessary activities							
A. Review Action Plan							
1. Review Progress on Plan for education program.	Farm Manager.	Farm Manager, Fieldman, Group Leaders, Selected Pioneers.	Meeting of those shown in Col. 3.	One-half day at farm office			
2. Decide on skills to be developed.	Farm Manager.	Farm Manager, Fieldman, Training Unit, MOA.	Meeting of those shown in Col. 3.	One-half day at farm office			

Phase II. Steps in Developing and Carrying-out the necessary activities (Contd)

1	2	3	4	5	6	7	8
Jobs to be done	Who is responsible	Who is involved	How Job is done	Venue and Time required	Date Begun	Date Begun	Estimate Cost
3. Assign responsibilities to staff for developing education program.	Farm Manager.	Farm Manager, Fieldman, Group leaders, Regional Extension Officer.	Meeting of those shown in Col. 3.	One day at farm office.			
4. Assemble and review proposed Program - revise and finalize Program.	Farm Manager.	Farm Manager, Fieldman, Group leaders, Selected Pioneer Farmers.	Meeting of those shown in Col. 3.	One day at farm office.			
B. Program Activities to be done.							
1. Set date(s) for Training and Venue.	Farm Manager.	Farm Manager, Parish Manager, Prod. Unit MOA	Telephone	One-fourth day office on farm.			
2. Contact resource persons who are on program and ask for confirmation.	Farm Manager.	Farm Manager Office Manager.	Letters.	One day office on farm.			
3. Confirm resource persons.	Farm Manager.	Farm Manager, Office Manager.	Telephone and Letters.	One-half day office on farm.			
4. Complete budget for program.	Office Manager.	Office Manager, Farm Manager, Fieldman.	Meeting.	One-half day office on farm.			
5. Arrange for Transport, if needed.	Office Manager.	Office Manager, Parish Manager.	Telephone.	One hour office on farm.			
6. Determine visual aids needed by program resource persons	Office Manager.	Office Manager, Farm Manager.	Letters.	One-half day office on farm.			
7. Acquire Training aids and materials needed after checking with resource persons.	Office Manager.	Office Manager, Farm Manager, Training Unit, MOA.	Letters.	One-half day office on farm.			

A MODEL FOR A JOB-SPECIFIC TRAINING PROGRAM ON PIONEER FARM\*

Appendix 9 . Figure 2  
Phase I. Developing the Plan

JOBS TO BE DONE	WHO IS RESPONSIBLE	WHO IS INVOLVED	HOW TO DO THE JOB	START	END	COST
<p><b>Problem Definition:</b></p> <p>To improve skill, working knowledge and productivity in the production for sale on a commercial scale.</p>	Farm Manager.	Farm Manager, Fieldman and Group Leaders.	Meeting of Committee made up of Farm Manager, Fieldman, and Group Leader.	March 19, 8 a.m.	March 19, 4 p.m.	
<p><b>Specific Skills to be Developed:</b></p> <p>Farmers knowledge in the production skills necessary in the commercial production of tomato.</p>						
<p>Improved cultural practices of Pioneers to increase production.</p>						
<p>Arrange Training of Pioneers through demonstrations on their farms.</p>						
<p>Conduct experiments on demonstration plots on farms.</p>						
<p><b>Phase II : Training Activities</b></p> <p>Planning, organizing and budgeting for the training programme.</p>	Farm Manager	Farm Manager, Fieldman, Group Leader & 3 Pioneers Secretary in office	Meeting	23rd March	27th March	

\* Model developed by Pioneer Farm Managers during a Management Training session.



## Phase II. Cont'd

JOB TO BE DONE	WHO IS RESPONSIBLE	WHO IS INVOLVED	HOW TO DO THE JOB	START	END	COST
Lecture on tomato cultivation.	Farm Manager.	Specialist, Farm Manager, Fieldman and Pioneers.	Invite Specialist to give lecture on tomato cultivation.	30th March 10 a.m.	30th March 3.30 p.m.	\$25.00
Nursery Preparation.	Fieldman.	Farm Manager Specialist, Fieldman and Pioneers.	Invite specialist to demonstrate nursery preparation (for 2 days).	9th April	13th April	\$150.00
Sowing of Seeds.	Fieldman.	- do -	Request Specialist to demonstrate sowing of seeds.	18th April 9 a.m.	18th April 5 p.m.	\$90.00
Maintenance of Seedlings.	Fieldman..	- do -	Farm Manager, demonstrate approved spraying and irrigation practices for seedlings.	19th April	31st May	\$100.00
Plot preparation for transplanting.	Farm Manager.	Fieldman and Pioneers.	Fieldman instructs and supervises farm operators.	10th May	24th May	\$250.00
Soil treatment of Plot.	Fieldman.	- do -	Request specialist to demonstrate rates of application of chemicals for soil treatment.	28th May	1st June	
Transplanting Seedlings.	- do -	- do -	Request specialist to demonstrate transplanting (for one day) after which the Farm Manager will supervise.	4th June	18th June	\$300.00

Phase II, Cont'd.

JOB TO BE DONE	WHO IS RESPONSIBLE	WHO IS INVOLVED	HOW TO DO THE JOB	START	END	COST
Crop Maintenance	Fieldman	Fieldman and Pioneers	Request specialist to demonstrate fertilizing, spraying, weeding, pruning and staking (2 days/month for 4 months).	20th June	15th October	\$100.00
Harvesting	- do -	Farm Manager, Fieldman and Pioneers.	Fieldman demonstrates proper reaping of mature fruits.	25th October	5th November	\$30.00
Packaging	Farm Manager.	- do -	Request specialist from Agricultural Marketing Cooperation to demonstrate and discuss proper packaging methods.	6th November 10 a.m.	6th November 2.30 p.m.	
Evaluation	Farm Manager.	Farm Manager Fieldman				

APPENDIX 10.

BACKGROUND AND CONCEPT OF PIONEER FARM

The Emergency Production Plan called for the establishment of Community Enterprise Organizations. Essentially, these organizations are to take the land as their central point of departure, concentrating on getting young men and women to organize themselves into special communities to perform a whole cluster of different kinds of local economic activities. As a practical first step towards the establishment of these Community Enterprises throughout the country, a Pioneer Farms Programme has been launched in 1977/78 which, starting in 1978/79 for the five years of the Plan, will come directly under the responsibility of the Ministry of Agriculture. Thus, Land Settlements, Project Land Lease and Pioneer Farms will together constitute to these basic components of the Government's overall Land Reform Programme with each having within the Ministry's Regional/Parish structure, its own budgets and implementation structure.

The Pioneer Farms therefore, represent a means of accelerating the Land Reform Process, while dealing with the problem of rural unemployed youth and setting the stage for the future Community Enterprise Organization. In areas of "social pressure" where there is a high incidence of unemployed rural youth, Pioneer Farms will be set up to be run on a co-operative basis with an emphasis on production, discipline and self-reliance within the group.

Each farm will be organized by its members (with a Committee of Management) under the supervision of a Farm Manager assigned from the Ministry of Agriculture's Extension Service in the parish and assisted by a Field Assistant and Youth Service Worker. Given the nature of the programme, this deliberately strong presence will continue until such time as the farm becomes an independently operating unit qualifying for service and assistance from the normal extension service structure.

At the Parish and Regional levels the programme will be monitored and supported by a Co-ordinator for each Parish and the Regional P.L.L. Officer at the Region responsible for farm planning, achieving production and placement targets and ensuring all necessary inputs including the proper selection and training of members of the Pioneer Farms. In particular:

- each Pioneer Farm will benefit from an injection of seed money (Subsidy for labour input to a maximum of \$350 per farmer) for the first three to six months of its establishment, allowing for the group as a whole to meet its requirements for working capital and recurrent expenditure until production begins;
- at the same time, the Pioneer Farm will qualify for the same level of services and development financing as under Project Land Lease, i.e., a combination of infrastructural (non recoverable) investment and credit (recoverable) averaging \$320 per acre;

- additional assistance will be sought, where appropriate from Government institutions such as the Jamaica Defence Force and voluntary groups at the parish level;
- final evaluation and selection of Pioneer Farmers will be the responsibility of the Ministry of Agriculture, following recommendations received by the Ministry of Youth and other community representatives at the local level. Candidates will come from rural farming communities or through Agricultural Training Institutions designed to provide a minimum of farm training to Urban Youth;
- each Pioneer Farm would have a Work/Study and Recreational Programme designed to improve agricultural and other skills of the members and ensure sporting and other recreational activities. The local representative of the Ministry of Youth would be responsible for servicing each Pioneer Farm as regards their non-agricultural training programme and sporting and recreational activities.

So far, seven Pioneer Farms have been established (Wentworth and Cape Clear in St. Mary, Gimme-me-bit in Clarendon, York, Paul Bogle and Springfield in St. Thomas and Moylersfield in Westmoreland with two more soon to be operational at Hague in Trelawny and Darley in Portland. The target for the Five-Year Development period is an average of 3,000 Pioneer Farmers being placed each year - an overall target of 15,000, commencing this Financial Year with 1,600 farmers on 4,000 acres and gradually increasing to the Five-Year target. The size of the ideal farm will vary from 100 to 200 acres, depending on the class of land available for establishment of viable units. Each Pioneer Group will average 50 farmers per co-operative with ages ranging from 18-25, male and female.

Excerpts from Presentation in Parliament.

PIONEER FARMS ACCOUNTING PROCEDURES

I set out hereunder guidelines as to the above:

1. Pay Bills

The policy is that for the first thirteen (13) weeks from the date of launching, Labour Bills will be charged as subsidy (Object Classification 09) and thereafter these will be regarded as Loan (Object Classification 19/04). Specimen bill form is attached. The following should be observed:-

- (a) Bills when prepared by Project Overseer (Extension Officer) should be submitted to the Parish Officer for approval and payment.
- (b) Cheque Requisition (same as used by Project Land Lease - P.L.L.) must cover all bills submitted for payment, signed by Project Overseer and approved by Parish Manager.
- (c) Cheques should be drawn in the name of the respective Pioneer Farm and should be handed over to an approved committee member of the Farm who with his other committee members and the Project Overseer will determine the use of same. Other expenditure for goods and services during this period and thereafter should be charged as Loans, except for what could outrightly be regarded as non-recoverable expenditure.

2. Loan Entries

(a) Loans should be covered by "Authorization Loans" (same as used by PLL) and signed by Chairman or Secretary as tenant on behalf of the Pioneer Farm.

(b) Loan amounts should then be entered on Ledger card (same as used by PLL).

3. Ledger Keeping

Separate Ledger leaves should be kept for each farm as under:

(a) Recoverable (Loan)

(b) Non-Recoverable

(Specimen are attached).

4. Reporting

A monthly report is required and should be submitted by the Parish Office to the Regional Office and then to the Production Unit as under:

- (a) Placement )
- (b) Production ) These forms have already been distributed.
- (c) Financial )

5. Banking

At the out-set of launching and commencement of subsidy payments and issuing of loans, banking arrangements should be made.

In order to effect some measure of financial control during the period prior to registration as a Co-operative when a considerable investment of Public Funds will be made, it is recommended that a Savings Account be opened.

The holder of the following positions should be submitted to the Bank:-

- (a) Chairman
- (b) Treasurer
- (c) Secretary
- (d) Extension Officer

Withdrawals should be made on the signing of the Extension Officer and one of the other three names. All funds received by the Farm should be lodged.

6. FARM BOOK-KEEPING

A seminar has been planned to take place at Eltham Training Centre, July 31 - August 3, 1978 to train the undermentioned persons in this area:-

- (a) Two Pioneers from each Farm
- (b) Project Managers
- (c) Project Land Lease Clerk
- (d) Parish Project Land Lease Officers

Prepared by - K.A. Neita

ACCELERATED LAND REFORM UNIT  
MINISTRY OF AGRICULTURE,  
34 OLD HOPE ROAD,  
KINGSTON 5,

Dr. To.....PIONEER FARM

For work done at .....Pioneer Farm  
as listed below:

ITEM	DESCRIPTION AND AMOUNT OF WORK	RATE	COST

I hereby certify that the above is a correct statement of the amount payable to the person named in respect of the service for the purpose stated and the gross amount.....

.....  
Signature of Project Overseer

Date.....

.....  
Signature of Parish Manager

Date.....

.....  
Signature of Chairman

Date.....

.....  
Pioneer Farm

Date.....

Signature Secretary or Treasurer.....Pioneer Farm

Date.....





ANALYSIS OF EXPENDITURE - PIONEER FARM

HEAD: MINISTRY OF AGRICULTURE

SUBHEAD: \_\_\_\_\_

PROGRAMME \_\_\_\_\_

CODE NO. OBJECT ACC. 19/94

PROVISION \_\_\_\_\_

DATE	VR. NO.	AMT. OF EXP.	PARTICULARS	LABOUR PLANTING ETC.		LAND CLEAR-ING PREP.		PLANTING MATERIALS		FERT.		EQUIPMENT MATERIAL (CHEMICAL)		SPRAY		LEASE		BUILDING		IRRIG.	

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STEPS IN ESTABLISHING PIONEER FARMS

PROCEDURE	ACTION BY	REMARKS
1. Identification of Land	Member of Parliament, any local organization e.g. Community Councils, Farmer Advisory Committees, Staff of Ministry of Agriculture	Land identified should be reported by a member of Parliament, any local organization e.g., Community Councils, Farmer Advisory Committees, Staff of Ministry of Agriculture.
2. Agreement of Establishing Pioneer Farm	Regional Director	Regional Director to discuss with Political Directorate.
3. Clearance and Transfer	Regional Lands Officer	This means that the land has been acquired by Government, water supply is available and the land is arable.
4. Appointment of Farm Manager	Parish Manager	
5. Preparation of Farm Plan and Physical when necessary (See Annex 1, 11)	Farm Manager, Divisional Extension Officer, Parish Land Lease Officer and Parish Manager coordinated by Regional Land Lease Office	Team should include a local representative S.D.C., Copy of Plan sent to S.D.C., Minister, Parliamentary Secretary, Member of Parliament. Farm Plans at Production Unit to be involved at all stages of Planning.
6. Community Education	Social Development Commission	Before embarking on Community Education, the S.D.C. Officer should be briefed on the concept of Pioneer Farms and the Programme of the particular farm by the Ministry of Agriculture - Rural Sociologist.

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PROCEDURE	ACTION BY	REMARKS
7. Placing of Basic Infrastructure on Farm (temporary shed, toilet, water supply)	Ministry of Agriculture (Parish Office)	Priority should be given this. Pioneers will be familiarised at an early stage with their new surroundings and so reduce the adjustment period when replacement is done.
8. Briefing of Interviewing Panel and setting date of interview	Ministry of Agriculture (Rural Sociologist)	In order for Step 7 to begin the following must be done:-  (a) Completion of the Preliminary Farm Plan so that the Interviewing Panel will know how many Pioneers to select.  (b) Local Officer S.D.C. must indicate that the Community Education Programme has been completed.
9. Interview and Selection (See Annex III and IV)	Interviewing panel chaired by Ministry of Agriculture (Parish Office)	Panel includes Local S.D.C. Representative, Farm Manager, Community Council Representatives, Farmer Advisory Committee Representatives.
10. Initiate and direct Orientation Programme	Social Development Commission	
11. Discussion of Orientation Programme (See Annex V) with Resource Personnel and confirmation of all arrangements	Social Development Commission, Farm Manager, Rural Sociologist	Objectives of Orientation  (a) To motivate Pioneers (b) To initiate correct work attitudes- (c) To develop group participation (d) To introduce the Pioneers to the National Objectives of the programme and thereby develop patriotism, self-respect and National Consciousness.

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PROCEDURE	ACTION BY	REMARKS
12. Running of Orientation Programme on Farm	Farm Manager to ensure smooth running and attendance of resource personnel	
13. Placement on Farm and Implementation of Work Programme	Farm Manager	
14. On the Farm Study Programme (See Annex VI)	Prepared by Rural Sociologist	

Prepared by - J. Smart (Miss)

PAMCO, PDRT  
Resource  
Material

CONTENT OF LAYOUT OF FARM PLANS - PIONEER FARM

In interpreting the information set out below the content must be regarded as more important than the layout. Moreover comments on both content and layout will be appreciated.

1.

Summary

This section must be written after a complete analysis of the whole plan. Why? Because it says something about all the other sections. Where your farm is located, its capital investment, its cost, its outputs/income, whether it is a good venture.

It should not be more than a page (or better still half a page) but should give a good idea of what the farm is all about.

2.

History and Background

i) This section should say where your farm is and should present information as to why it was located there as well as data which would enable someone to guess about its chances of success or failure.

ii) Yet it should be short. A good approach is to use maps/diagrams and appendix and to comment on here in the text.

iii) The following should be dealt with:

- a) Physical conditions
  - i) Soil
  - ii) Topography
  - iii) drainage
  - iv) rainfall or any other aspect of climate which will affect - for good or ill the farm
  - v) Infrastructure (roads, irrigation works, etc.)

b) Social/Economic Conditions

i) History of Agriculture - and especially of the enterprise you plan on doing in the area.

ii) Agricultural marketing and farmer's organization.

iii) Social and other constraints on agriculture -  
 Praedial larceny, conflicting farming systems e.g., grazing system as they may affect crop production; Religion as it affects demand for products such as Pork products (if you are raising pigs).

Output Targets - Simply state what will be achieved in terms of physical output by a given time period.

Product	Annual Output	Period Of Achievement
Red Peas	20,000 lbs.	1980
Eggs	10,000 dozs.	1981

You may list activities as follows:

	Time	Depend On	Independent
1) Selection of Pioneers	4 weeks		
2) Training of pioneers	2 weeks	1	
3) Application farm layout	4 weeks	2	
4) Establish Management system X appointment	5 weeks	1	
5) Establish accounting control system	4 weeks	4	
6) Make preliminary marketing analysts	4 weeks	4	
7) Construct temporary farm buildings	5 weeks	4	
8) Establish Irrigation System	7 weeks	4	
9) Clear 1st 20 acres land	6 weeks	7	
10) Prepare 1st 20 acres land	6 weeks	8,9	
11) Plant 1st 20 acres land	5 weeks	10	

Let us summarise your farm plan:

Section 1 - Summary

Section 2 - History and Background  
A. Physical Conditions  
B. Social and economic conditions

N.B. This section may be supported by appendices.

Section 3: Output targets

Section 4: Farm size, layout and rotation

Section 5: Cost Estimates

i) Capital - Discuss with support appendix

ii) Operating Cost -

- i) No. of pioneer - put calculation in appendix
- ii) Labour schedule
- iii) Discussion of all operating cost items. (With supporting appendix).

Section 6: Estimates of Income

Section 7: Financial Projections

Section 8: Farm Organization

Section 9: Implementation Schedule

Prepared by A. Antoine

4.

Farm size layout and Rotation. Present a picture (map) of the farm in an appendix. It should show areas reserved for buildings, (ii) permanent roads, (iii) tree crop area, (iv) pasture area, (v) vegetable area.

You should discuss a possible rotation - or point out the need for crop rotation.

5.

Cost Estimates

- 1) Capital - you should discuss briefly the Capital investment: But more importantly you should prepare a capital budget for the appendix. It is this budget you will refer to in your brief discussion. Here is what the capital budget may look like.

Appendix

Capital Budget for ABC Pioneer Farm, 2/8/78

ITEM	Description Cost	Estimated Life	Depreciation		Source
			%	amt.	
Tractor	20,000	10 years at 1200 hrs. per year	10	2000	Robinson's Limited
Poultry House	10,000	15 years			Built/ Pioneers

- ii) Operating Costs. In several ways your most important item here will be labour - under this heading discuss the number of pioneers providing the permanent persons and the amount set aside for casual employment - e.g., harvesting. Attempt to reduce casual employment to a minimum.

- No. of pioneers (A) data required include
- i) gross income for the farm
  - ii) labour cost
  - iii) other input cost
  - iv) an estimate of the labour supplied by pioneers. This is expected to be 95% of the total labour requirement your labour schedule will test you this further.



(B) Procedure

$$\text{No. of Pioneers} = \frac{\text{GI} + \text{P} - \text{TC}}{\text{TI}}$$

Where GI = Gross farm income  
P = Payment Pioneers  
TC = Total cost of production  
(including payments to  
Pioneers)  
TI = Target Income

The Entire Operating Cost Budget

Now build your entire operating cost budget and put into an appendix.

APPENDIX XXX

Operating Cost Budget X Pioneer Farm

<u>ITEM</u>	<u>VOLUME/DESCRIPTION</u>	<u>COST</u>	<u>SOURCE</u>
Labour	10 pioneers	30,000	Pioneers
Casual labour		1,500	ABC Village
<u>Material</u>			
Fertilizer	20,000	5,000	T. Geddes
Etc.			Grant
Etc.			

Now please not what you're doing: You're explaining what your total cost would be - what the main cost in that totals are; the labour content; the number of Pioneers; period of labour shortage and excesses in the main text. But you're putting support detailed data in the appendix.

6.

Estimates of Income

This section points out the gross increase from the farm, the enterprises which yield the income throughout the year and the distribution of income over time (table will show estimates of income).

TABLE XX

PROJECTED INCOME MAXIMUM PIONEER FARM

Product	Unit/Yield Per Unit	No. Unit	Total Yield	Price	Total Income
Red Peas	1,000	2	2,000	\$1.00	2,000

In the case of livestock, you'll put herd develop table, etc., in appendix.

7.

Financial Projections: You are now ready to make a financial summary. A possible format has already been presented. You will use this as a springboard for comment on the viability of the enterprise.

8.

Farm Organization: Discuss how the whole work will get done (in detail) comment strongly on any weak areas.

9.

Implementation Schedule:

Here you must list all activities necessary to get the farm operational and put a time estimate on each activity. Note certain activities can go together while others are dependent.

For Example:

If gross income (GI)	=	\$50,000
Payment to Pioneers (P)	=	\$10,000
Total Cost (TC)	=	\$30,000
Target Increase (TI)	=	\$ 3,000
No. of Pioneers	=	?

No/Pioneer in this example will be:

$$\frac{GI + P - TC}{TI} = \frac{50,000 + 10,000 - 30,000}{3,000}$$

$$= \frac{60,000 - 30,000}{3,000}$$

$$= \frac{30,000}{3,000} = 10$$

All these calculations you may put into an Appendix

Now you know that farm incomes can fluctuate terribly. If the pioneers are not to be below the bread line in several years then we must add some margin to the target income. My suggestion: 20%.

The Labour Schedule: Now you know the total labour requirement for the year but not the distribution. It is vital to know when you need the labour, when you'll have excess and shortages. This is where the labour schedule is strong.

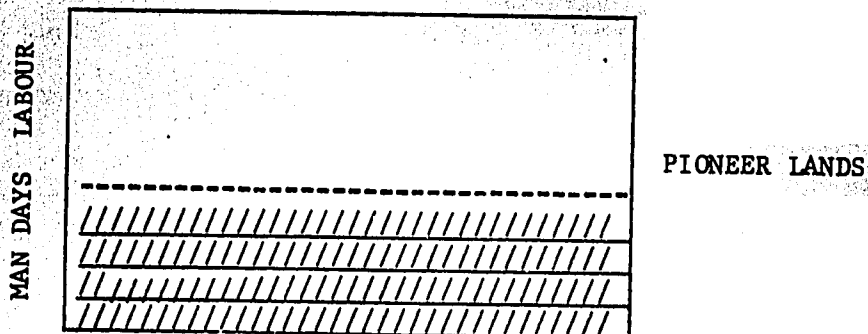
Procedure: You know the number of pioneers and thus the number of man days/hours for the year.

- i) Now sum the labour required for all activities for each month.
- ii) Note whether it is more or less than your pioneers have working normally. If they work longer hours that's juice for them. But you should put a provision for casual labour where the pioneers labour is insufficient.

Your labour schedule is so vital that you should put it in the main text. You may also present it as shown below:

TABLE XYZ

LABOUR DISTRIBUTION AND PIONEER FARM



Annex v

ORIENTATION PROGRAMME FOR  
PIONEER FARMERS

INTRODUCTION

As is well known, the Pioneer Farm Programme was launched as a first step in the establishment of Community Enterprise Organizations. The aim of the programme is to accelerate the Land Reform Process.

It is also hoped that the programme will constitute one way of dealing with the problem of rural unemployed youth.

In an effort to make the Pioneer Farms as successful as possible a programme of orientation has been developed as the first stage of an on-going training programme.

OBJECTIVES

The orientation is intended to accomplish the following:

- 1) To serve as the final step in the selection process.
- 2) To give the selectees a broader view of what it means to be a pioneer farmer.
- 3) To appraise the selectees of potential problems and to help them to plan contingencies.
- 4) To present the farm plan to the selectees.
- 5) To clarify what is expected of the selectees.
- 6) To help pioneer farmers to set realistic objectives.
- 7) To outline and discuss the on-going training programme.
- 8) To help pioneer farmers to deal with the dynamics of inter-group relations.
- 9) To help pioneer farmers to identify their roles in community development as well as national development.
- 10) To identify specific needs of the farmers that must be met in the training programme if they are to succeed.

CURRICULUM:

1. Pioneer Farms
  - a) Definition and background
  - b) Objectives
  - c) Problems
  - d) Potential
  
2. Community Development
  - a) Definition
  - b) Role of Community Enterprise Organization
  - c) Role of Pioneer Farms in Community Development
  - d) Community Councils and Pioneer Farms
  - e) Community Development as an element in National Development
  - f) Role of the various service organizations, e.g., Police, Public Health, etc.
  
3. Land Use In Jamaica
  - a) History and evolution of land use
  - b) Land reform - past and present
  - c) Government's policy on land use and land reform
  - d) The Pioneer Farmer and land use
  
4. Agriculture
  - a) Farm plan discussed
  - b) Basic agricultural practice
    - i) Vegetable care
    - ii) Livestock
    - iii) Other crops
  - c) Harvesting D. Storage C. Marketing.

5. Cooperative Education

- a) What are Cooperatives
- b) From Pioneer Farm to Cooperative
- c) Basic necessities of a Cooperative
- d) Cooperatives and the Law
- e) Management of a Cooperative

6. Farm Maintenance

- a) Care, storage and handling of equipment
- b) Irrigation
- c) Raw Materials
- d) Seeds
- e) Fertilizers

7. Inter-Personal Relations

- a) The group
- b) Cooperation
- c) Conflict
- d) Competition
- e) Behaviour patterns
- f) Communication

Prepared by - J. Sammon,  
Social Development  
Commission.

Annex V

ORIENTATION SCHEDULE

FIRST WEEK

<u>DAY 1</u>	8.30	-	9.00	-	Registration
	9.00	-	9.30	-	Welcome, Introductions and statement of objectives
	9.30	-	12.00	-	Opening Ceremony
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	Pioneer Farms
<u>DAY 11</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Community Development - SDC
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	Community Development continued - SDC
<u>DAY 111</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Land Use In Jamaica
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	General Discussion
<u>DAY IV</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Agriculture (Farm Plan), Ministry of Agriculture
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	Agriculture (Vegetable Care), Ministry of Agriculture
<u>DAY V</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Agriculture (Livestock), Ministry of Agriculture
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	Agriculture (Other Crops), Ministry of Agriculture

SECOND WEEK

<u>DAY 1</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Agriculture (Harvesting, storage and marketing - Ministry of Agriculture).
	12.00	-	1.00	-	L U N C H
	1.00	-	4.00	-	Cooperative Education
<u>DAY 11</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Farm Maintenance (Care, storage and handling of equipment) Ministry of Agriculture).
	12.00	-	1.00	-	L U N C H
	1.00	-	4.00	-	Farm Maintenance (Irrigation and raw materials)
<u>DAY 111</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Agriculture (Seeds & Fertilizers)
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	General Discussion
<u>DAY IV</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Inter-personal relations (The group & group process)
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	Inter-personal relations (Behaviour patterns and Communication)
<u>DAY V</u>	8.30	-	9.00	-	Registration
	9.00	-	12.00	-	Review & Evaluation
	12.00	-	1.00	-	L U N C H
	1.00	-	3.00	-	The next phase - implementation
	3.00	-		-	Closing

Prepared by - J. Sammon  
(S.D.C.)



SERVICES AVAILABLE TO PIONEER FARMS AFTER  
THE WORK DAY

1. At the Information Level

- a) Ministry of Health  
Public Health Inspection/Public Health Nursing/other Community  
Programmes. Bureau of Health.
- b) Agency for Public Information
- c) Agriculture Information Services
- d) Ministry of National Security  
Police
- e) Jamaica Defence Force
- e) Jamaica Livestock Association/Jamaica Agriculture Association
- f) Ministry of Industry  
Prices Commission  
Agricultural Marketing Commission
- g) Ministry of Youth and Sports (S.D.C.)

2. At the Social Level

- a) Ministry of Youth and Sports  
Social Development Commission desires two evenings per week  
for their programme.

3. At the Educational Level

- a) JAMAL desire a 3-hour programme five days per week.

SERVICES AVAILABLE TO PIONEER FARMS  
DURING WORK DAY

1. Cooperative Education

There will be a 3-hour programme once per week.

Key\* These are agencies that must be involved with the total on-going  
programme.

2. Technical Assistance and Training In Agriculture

Depending on Farm Plan, all training and assistance may be accomplished in the field.

It must be noted that the on-going work study programmes will vary from farm to farm depending on Farm Plan. Thus, details of the programmes can only be worked out at individual farm level.

The only things that will be constant will be the Cooperative Programmes once per week, the Agricultural Assistance and training, both during working hours. Normal working on the farms are requested to end by 3 p.m. The JAMAL programme after work hours, five times per week, three hours per sitting and the Social Development Commission twice weekly after work would follow thereafter.

Key\* These are agencies that must be involved with the total on-going programme.

Prepared by - J. Smart.

I..... as a member of the .....  
Pioneer Farm undertake to abide by any specific rule as agreed by this  
farm. and the code of conduct governing the National Pioneer Farm's  
Programme as set out below:

1. All Pioneer Farmers are required to
  - (a) Attend all study programmes and meetings organised for their farm.
  - (b) Be punctual for all activities stipulated
  - (c) To contribute to N.I.S. and N.H.T.
  - (d) To accept and respect the appointed leadership on the farm.
  - (e) Accept the technical and managerial advice of the Farm Manager.
  - (f) Participate fully any/all aspects of farm life.

Farmers shall be expelled from the farm for:

- (a) the use of illegal drugs on the farm;
- (b) stealing;
- (c) any violent behaviour.

3. Farmers shall seek the permission of the Farm Manager to take any visitor on to the farm and shall be responsible for the actions of every such visitor.