

# project planning and management series

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## ACKNOWLEDGEMENT

The Project Planning and Management Series consists of a set of manuals and associated modules presenting practical approaches, tools and techniques for project planning and management. (See list on back cover). A product of the Government of Jamaica/USAID National Planning Project (1976-1980), the series was developed by the Project Development Resource Team (PDRT) of PAMCO for use in "action-training" workshops and reflects extensive experience in training and project development. All present PDRT members are contributing authors and have worked together in writing, revising and publishing the series. Special credits are due to Dr. Merlyn Kettering for design and development of the series; Dr. Bruce Brooks for writing final versions of many modules; Mrs. Marjorie Humphreys for assuming primary editing and production responsibility and for organizing draft papers into more useful materials; Mr. Lascelles Dixon, head of PDRT since 1979, for designing the cover and improving many of the illustrations; and Mrs. Christine Hinds and Miss Linette Johnson for typing the drafts and final manuscripts. Any comments on the series and its usefulness are welcome.

Marcel Knight  
Managing Director  
PAMCO  
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### Contributing Authors:

Merlyn Kettering  
Bruce Brooks  
Conrad Smikle  
Lascelles Dixon  
Michael Farr  
Marjorie Humphreys

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## MODULE 1

## DEFINING PROJECT OBJECTIVES

*Bruce Brooks*

- A. **PREREQUISITES:** Module 16 - Project Area Analysis  
Module 32 - Environmental Analysis & Institution Building Model

B. **DISCUSSION:**

A project objective identifies the expected achievements of a project at the end-of-project point in time. A project is not necessarily confined to one objective.

A number of specific sub-objectives can be arranged in a hierarchy with the main objective at the top. Objectives determine the direction the project will take with the variety of activities determined by the objectives of the project.

The management of these activities will determine whether the project reaches its main objective. At an early stage in planning, project objectives must be stated even if some necessary detail may not yet have been developed. As the project plans progress, the objectives may be refined and expanded.

*Deciding on Objectives*

Project managers and others involved in formulating the project know that every development project must eventually be funded. It is usually apparent to them that funding will not be forthcoming unless the project measures up with regard to certain criteria that are used to evaluate project objectives. Therefore, a project proposal must be formulated in sufficient depth to permit evaluation of the objectives in terms of the selected evaluation criteria. Project managers must formulate objectives in terms that translate directly into the project evaluation criteria if they are to direct further analysis properly, as the project moves towards approval. Objectives must be acceptable in terms of these criteria or the proposed project is not likely to be approved.

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*Criteria for Evaluating Objectives*

The objectives of any project really arise out of the criteria by which projects are judged and finally implemented. The project criteria that have universal acceptance are difficult to determine, but the criteria listed below are listed for consideration. They are seen as planning objectives as well as objective evaluation criteria:<sup>(1)</sup>

1. Maximize direct benefits to users
2. Maximize returns to investors
3. Minimize cost/quantity ratios
4. Minimize time until introduction
5. Maximize indirect effects on the development process
  - reduce unemployment or underemployment
  - increase income and wealth redistribution
  - increase favourable balance of payments
  - reduce inflation
  - increase economic growth ratio
  - increase national savings
  - promote further development and other projects frequently considered in development projects
6. Employ maximum use of indigenous, under-utilized resources
7. Diversify the economy
8. Concentrate effort in least developed culture
9. Promote national integration of desperate culture.

This list is expanded to include two additional objective evaluation criteria which were not included in the reference list but can also be used to define the appropriate scope of project objectives. These are:

10. Maximize foreign exchange earnings, and
11. Minimize the use of foreign exchange earnings.

(1) Development Project Management: An Integrated Approach to Project Planning and Implementation, Planning Processes and Project Management.

Raymond Rodosevich. Graduate School of Management, Vanderbilt University, U.S.A. February, 1974, pp. 19 and 20.

These criteria give the planner the appropriate dimensions for writing the initial project objectives. They are broad and general, but objectives based on these criteria can be refined at later stages when greater knowledge permits refinement and assignment of priorities which must be done to satisfy the needs and desires of the supporters of the project.

As project planning evolves and analysis permits more detailed planning, the objectives are broken into a number of sub-objectives. These sub-objectives are measurable and are related to key events (MILESTONES, SEE MODULE 10) as the projects progress.

#### *Problem Statement and Objectives Preparation*

The management of a project needs to have, as far as possible, a complete and clear concept of the scope and environmental dimensions surrounding a proposed project before formulating the project objective and sub-objectives. Otherwise, objectives may be meaningless in the world of practical affairs. These "real world practical affairs" include such things as level of education, access to jobs, availability of raw material, income levels, nutrition levels, and cultural and social mores of the target population in the project area.

Objectives can take a general form such as "achieve greater production", or they may take a more specific form, i.e., "increase fish production in Area C by 100% within four years". An objective that permits quantitative evaluation at some later time is looked upon as an *operational objective*. This objective is the basis for a specific action "increase fish production in Area C", and specifies a definite quantity that is expected to be attained by the end of four years. Therefore, the degree of success or short-fall of the project can be measured periodically as the project progresses by referring to the expected increase in fish production at the end of four years. At the end of the stated time an accurate assessment can be made of the success of the project with respect to this specific objective.

When planners move from general objectives to more specific ones, they generally move from what is expected to happen ultimately or the *end objective* of the project to the *means* of accomplishing the stated specific objectives.

There is a *hierarchy of objectives* in every project. These resemble a chain of ends - means, with an objective at the top which is reached by achieving a number of intermediate objectives that are the means to the higher end.

If the planners pursue an intermediate objective that is unfeasible, because their analysis of factors surrounding the project is faulty, then there is a weakness in the ends - means logic. Objectives at the top of the hierarchy of objectives will not be attained. The manager needs to generate data as the project is implemented. This data is used to check whether the assumed relationship between the intermediate and top objectives actually does exist and to what degree.

Another problem arises when available information causes the planners to choose the "wrong" means of achieving the project objective or the "wrong" objective. For example, the top objective may be to improve the nutrition level of rural people by increasing the production of poultry and the subsequent consumption of the poultry by those who produce it. The objective may not be reached because the rural people have their own objective, e.g., they decide to sell the poultry rather than eat it, and use the additional purchasing power to buy clothing or household appliances.

If checks are made before planning of the project, this very important information will be revealed and the project end objective revised to fit the real-world situation. Knowledge of people's tastes and attitudes is needed before planning projects.

The project objective may be the concern of several organizations or government bodies. Raising fresh water fish production is likely to be of interest to the Ministry of Agriculture because of its implications to farmers; to the Ministry of Health because of its nutritional implication; to the Ministry of Trade and Commerce because of its implications for imports of capital goods and fish feeds if these are not produced indigenously, plus the likelihood of increased foreign exchange earnings if fish are exported, or a reduction of fish imports that could save foreign exchange that may now be used to purchase and import fish.

Each of these groups has a different top or main objective as far as the project is concerned. Increased farm income may be the objective of the Ministry of Agriculture while the Ministry of Health views the prime objective as one of raising the level of human nutrition. But the different objectives are not mutually exclusive. Different organizations simply state objectives differently depending on the organization taking the leadership on the project. Each of these different organizations has different perceived interests and responsibilities relative to their clientele groups. The "best" projects, i.e., the ones most likely to succeed, are those whose objectives are mutually supportive.

Regardless of the organization originating the project and the clientele it serves, the project will need to develop objectives that fit the development objective criteria previously listed on PAGE 2 and 3.

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As a consequence, the project is likely to serve the sub-objectives or perhaps the top objectives of more than one group. Each group who may be interested in the project objective should be alerted to the proposal and its objectives and be involved so that the project planners will gain strength and support from as many groups as possible.

### *Objectives in Conflict*

Each organizational group will ordinarily have more than one overriding objective. For example, a private business has these objectives: To maximize returns on investment, to satisfy its customers, and to be competitive in all aspects of the business. Sometimes, but not always, these objectives are in conflict. The conflict can be resolved by carefully choosing the sub-objectives that are the *means* for reaching the *end* objective.

Other writers have this to say about objectives in conflict;(1)  
"Objectives may be in conflict with each other. For example, a development authority may find that the objectives of recycling investment funds may be in conflict with the objective of retaining political support or there may be a conflict between achieving an early increase in food production and achieving greater equality in rural areas. Several things can be said about conflicts in objectives:

- Economic and financial objectives are often elements in such conflict.
- Projects that have an overall favourable benefit-cost relationship offer greater scope for resolving conflicts among objectives because more resources are available to satisfy objectives and entities.
- Objectives apparently in conflict can often be reconciled by ingenuity and creative innovation."
- Conflicts in objectives often become evident only after analysis and the elapse of time.

(1) *Elements of Project Management*. Development Project Centre, U.S.D.A. In Co-operation with Agency for International Development. June 1976 p. 31 - 32.

### *Operational Objectives*

Detailed operational objectives, which are the statement of means, usually include quantitative units of measurement. These may be measured in different ways such as acres of land, calendar days, percentage rates, physical units, e.g., boxes, bunches, tons, hundred-weights, etc. The *operational* or *means* objectives must state clearly what quantitative units are to be used to measure progress toward the higher objectives.

Objectives must also be realistic. The project manager must make decisions based on objectives and in the process allocate resources. The decisions he/she makes are circumscribed by the stated objectives which in turn assume the availability of resources to attain the objectives.

So, in stating project objectives the project planner must always realistically view statement of objectives in the light of available resources and funds.

If preliminary analysis shows that resources, including one or more of these - labour, capital, or needed skills (including middle management) are likely to be lacking or perhaps totally unavailable, the project objectives and sub-objectives need to be thoroughly examined to be sure that they are attainable.

### *Summary*

In summary, these points relative to the formulation of objectives are emphasized:

1. Carefully formulated objectives are needed to give guidance to the management of the project.
2. To formulate sound and attainable objectives, careful consideration must be given to the real world situation, which necessitates the measurement of objectives against a set of pre-project selection criteria. A suggested list of criteria is enumerated on PAGE 2 and 3.
3. Objectives within the same project may conflict with one another. These conflicts need to be recognized and resolved by putting project objectives in order of priority and management should recognise that there may be conflicting objectives.
4. A problem faced by planners and project managers is a visualization of the complex relationship that exists between different elements or groups of elements in a project.

5. The project planners must not over-reach available resources by stating over-ambitious objectives.

C. PURPOSE:

In arriving at objectives, analytical tools that are helpful in formulating projects and in managing project conflicts and disagreements over objectives are mentioned in the following table. These tools are useful in attacking the problems that project planners and managers may fail to anticipate or conceptualise, and therefore take steps to overcome. They help the planner to identify the hierarchy of objectives and sub-objectives of a project, showing how the elements and interaction of elements within the project are related. They reveal the conflicts that exist between objectives within a project, and show how different objectives in the project are related to each of the others.

The analytical tools for overcoming these problems and the specific problems they are designed to help overcome are shown in the following table:

TABLE 1.

PURPOSE	TOOL
1. Defining objectives and structuring them in a hierarchy of objectives.	a) Objective tree b) Intent structure
2. Describing complex relationships in a project.	a) Tree diagram b) Oval diagram c) Interaction matrix
3. Shows how different entities and parts of the project logically fit together with the objectives.	Logical framework

Objective trees are discussed in this module. (SEE APPENDIX 1.1.) The other tools that are helpful in arriving at project objectives are discussed and illustrated in "System Tools & Project Planning", Delp, Peter, et al. PASITRAM, Indiana University, Bloomington, Indiana, 1977. The Logical Framework, discussed in MODULE 2, will be helpful to the project planners in their efforts to formulate sound, attainable objectives that help them to be reasonably sure that the project will be successful.

OBJECTIVE TREES<sup>(1)</sup>

## A. PREREQUISITES:

This tool aids project design and evaluation by visualizing hierarchical linkage of objectives in a tree diagram. The tree diagram identifies objectives at a lower level that contribute to attaining objectives at a higher level and permits a systematic approach to project development.

It is imperative that project objectives be well defined, agreed upon, unambiguously and clearly stated and have priorities set on them. One of the techniques used to help the planners to formulate and order objectives is the Objective Tree. (SEE ILLUSTRATION 2, p. 1.1.8)

## B. DISCUSSION:

The Objective Tree is a useful tool because:

1. It systematically approaches the problem of developing a comprehensive and explicit set of project objectives
2. It puts objectives in a simple and orderly form which makes it useful in communicating the interrelationship of the objectives to decision makers and others with project interests.
3. Both qualitative and quantitative objectives may be included in the objective tree
4. Linkage between objectives is more likely to be included rather than overlooked.

Illustration on PAGE 1.1.7 is only a partial objective tree, but it demonstrates three points made previously:

1. Projects have end-means hierarchy on objectives. The end objective, i.e., the one at the top of the tree, is in that position because there is no higher objective. None of the other objectives raise the logical question of means to accomplish it without showing these

(1) The basis for this discussion is taken primarily from: *System Tools for Project Planning*. Delp P., Thesin A., Motiwalla J., Sheshadri N., International Development Institute, Indiana University, Bloomington, Indiana. 1977. The diagrams and parts of the explanatory material are additions to this source material.

means. All of the other objectives are sub-objectives.

2. Objectives of development projects are usually complex. To get a clear, concise picture of a total project, diagramming is necessary to put it into perspective, and to ascertain which objectives should be included in the hierarchy and in what order. In the diagramming process, it may be discovered that this is not a single project but several different projects with one top objective and a hierarchy of different sub-objectives.

Conflict between Ministries and Agencies can be resolved by using the objective tree to break the overall objective into the different sub-objectives and finally into operational objectives (SEE ILLUSTRATION 1, p.1.1.7) to indicate clearly which Ministry should logically identify with the objective. There may be confusion over means versus ends. The objective tree structures the statement of ends by identifying means (sub-objectives) for accomplishing the ends.

3. An objective tree for a simple project may be perceived differently by each individual. Each person will construct an objective tree for a given project in a different manner because of personal differences in the relative importance that they place on the ends-means position of objectives in the hierarchy. An underlying reason for this difference is often the variation in clientele served by the different groups.

#### C. PURPOSE

The Objective Tree is a tool that helps to define project objectives and provides a systematic way for placing them in hierarchical order.

#### D. USES

The Objective Tree is used to:

1. give guidance for designing a rational system of objectives;
2. provide for an evaluation of the objectives system;
3. show how project objectives are interrelated;
4. identify criteria for evaluating alternative means;
5. help assess the scope of the project; and
6. provide necessary inputs for use in other project tools including the Logical Framework..

## E. DEFINITIONS:

*Objective* - a specific statement of purpose expressing a desired end. It consists of an action or positive verb, e.g., increase, raise, decrease, provide, etc., plus an object, e.g., jobs, loss, production, food, etc., and qualifying words, e.g., in industry, in agriculture, to municipalities, etc. If the three parts are put together the result is an objective, i.e., increase food production, promote industrial development, provide jobs, etc.

*Tree Graph* - A set of elements that are linked with only one link between any two elements. The elements that make up an objective tree are the objective statements.

*Means-Ends Analysis* - Identifies and assesses the alternative actions that are proposed to reach the desired ends.

*A Qualitative Objective* - is an objective that is judged subjectively. An example of a qualitative objective is "to improve air quality", or "to improve morale".

*Quantitative Objectives* - include measurable ends or expected results such as "build 16 new secondary schools" or "provide 60 new buses".

## F. LIMITATIONS:

## G. ASSUMPTIONS:

## H. OUTPUT:

## I. STEPS FOR CONSTRUCTION OF AN OBJECTIVE TREE

The user will find it helpful to develop an objective tree by developing it one step at a time. There is no substitute for practice in the development of project objective trees, but the steps outlined below are useful for orienting the project designer and implementer in their efforts to define and structure the project objectives.

An objective tree identifies and links objectives. An important point to remember is to start constructing the tree without worrying too much about perfection. There will be additions and refinements after the initial framework has been constructed.

These steps, based on a partial excerpt of material<sup>(1)</sup> are recommended for developing an objective tree:

STEP 1. Generate an initial list of objectives

- 1.1 Define the problem area.
- 1.2 Identify the people who will be involved in designing or directing the project.
- 1.3 Elicit their project-related objectives.
- 1.4 Identify as many project objectives as possible, without attempting to structure the objectives.

STEP 2. Identify an overall objective.

- 2.1 Identify an overall objective of the project to which all other objectives relate. This objective will reflect a value judgement.
- 2.2 This objective is positioned at the first level of the tree. All other objectives will be positioned below it.

STEP 3. Extend the tree one level down.

- 3.1 Select the objectives for the next level down from the list generated in STEP 1, or generate additional objectives.
- 3.2 Draw lines on the tree to connect these lower level objectives to the objectives they help to achieve.

STEP 4. Extend the tree to the next lowest level.

- 4.1 Choose one of the objectives listed on the current lowest level of the tree. Identify the sub-objectives that help to achieve it.
- 4.2 Repeat STEP 3 for all other objectives at the level most recently constructed. Another level of objectives

(1) These steps were taken from *System Tools for Project Planning* Peter Delp, et al., International Development Institute, Indiana University, Bloomington, Indiana. 1977. p. 52

result when all of the objectives in this level are dealt with.

STEP 5. Review the Tree.

5.1 Review the tree constructed so far. It may be found that:

- (a) Some objectives are missing;
- (b) An intermediate level of objectives may be added;
- (c) It is possible to extend the tree upwards from the first (top) level; or
- (d) An objective at one level is seen to achieve more than one objective at some higher level. In this case, *redefinition of the objective is necessary.*

5.2 If the tree seems complete, go to STEP 6, otherwise, return to STEP 4.

STEP 6. Check the measurability of lowest level objectives.

6.1 Take an objective at the lowest level of the objective tree. Ask the question: Is this objective measurable? This is the stopping rule for the tree diagram.

6.2 Generally, the objective at the lowest level will be quantitative. Quantitative objectives generally have a numerical threshold to indicate what performance is acceptable.

6.3 If the lowest level objective is not measurable, extend the objective down one more level, i.e., return to STEP 4.

6.4 Repeat STEP 5 for each of the lowest level objectives.

*Example of How to Construct An  
Objective Tree for a Project*

Ideas for a project must evolve into a statement of action that is needed to meet a specific felt need. When the planner makes a statement about a specific felt need, he is beginning the development of a hierarchy of objectives. Structuring an objective tree begins with a statement of a felt need and suggesting a number of actions or objectives which may be expanded using a *why* and *how* system of logic. This approach is similar to the ends-means logic but is simpler to comprehend and permits the planner to start at any point to develop the objectives that make up the objective framework of a specific project objective tree.

The structure of an objective tree can start anywhere in the objective framework of the tree and move upward if there is a higher objective that can be identified. This can be determined by asking the question "why?" The planner can also move downward, if there are lower objectives that can be identified when the question "how" is asked.

Below is an example of "why" and "how" logic applied to a set of objectives. State an objective which is in a hierarchy of objectives, for example:

"Improve Dairy Herds".

*Why?* To increase milk production.

*Why?* To raise protein level in the diet.

*Why?* To improve the nutrition level.

*Why?* To raise national health standards.

The objective tree is arranged in hierarchial order of objectives when no higher objective can be reached when the "why" question is asked.

Likewise, if the stated objective out of a group of objectives is "to raise National Health Standards", the "how" logic can be used to order the above set of objectives. For example:

"to raise National Health Standards".

*How?* Improve nutrition levels

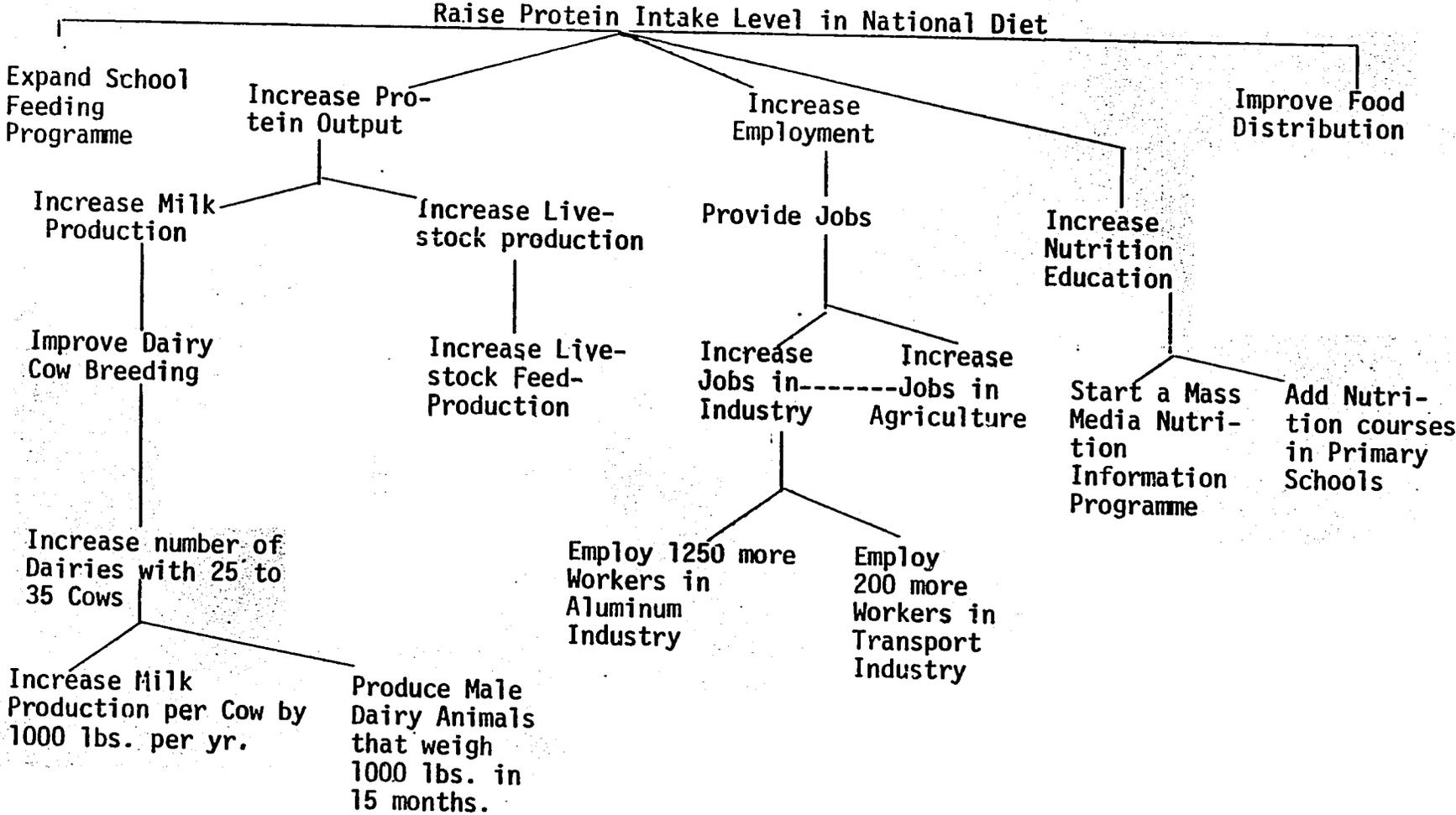
*How?* Raise protein level in diet

*How?* Increase milk production

Note that you can continue with the "How" logic beyond the objectives "to increase milk production", e.g., "improve dairy herds".

ILLUSTRATION 1

An Example of a Partial Objective Tree for  
DEVELOPMENT OF A NUTRITION PROJECT



1.1.7

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ILLUSTRATION - 2.

An Example of An Objective Tree to

INCREASE MILK PRODUCTION

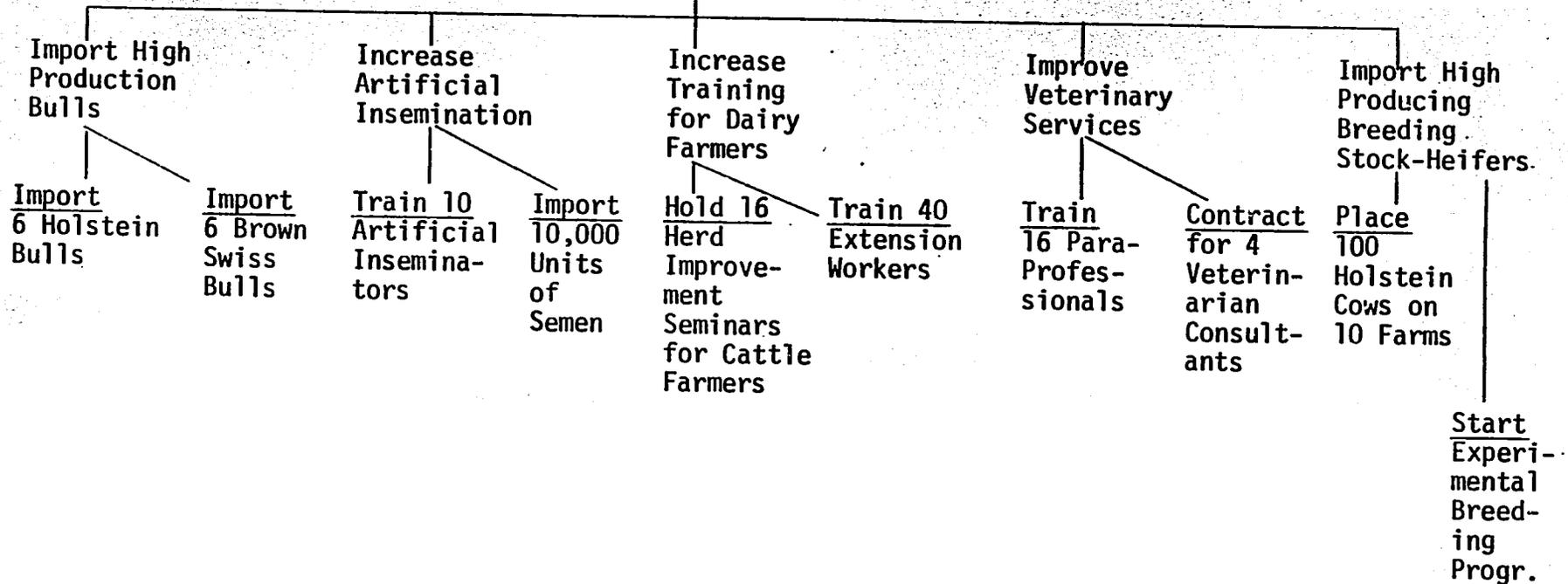
Raise National Health Standards

Improve Nutrition Levels

Increase Protein in Diets

Increase Milk Production

Improve Dairy Herds



1.1.8

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## NOTES TO THE TUTOR

## Methodology for Group Work

- STEP 1. Identifying the problem and generating the initial list of objectives are accomplished by assembling those persons who will be involved in the formulation of the proposed project. The group leader asks them to assist in this effort.

A useful approach to this step is to provide each person with a sheet of paper and ask them to identify the problem and the objectives. The leader should not allow any discussion during this period.

- STEP 2. After each has recorded the problem and the objectives, the leader should first ask each member of the group in turn to give their statement of the problem. The leader records responses on a flip chart. When all have responded, the leader should ask the group to select one problem statement which they believe is the best.

Next, ask each person to put his/her objectives on a wall chart so all can see each list. At this time, divide the entire group into several discussion groups with a Chairman for each group, the task being to arrange the objectives from the individual lists into one hierarchy of objectives. Each group can eliminate, combine, add or do whatever they believe is necessary to complete the best hierarchial set of objectives for solving the problem.

When all groups have completed objective trees, put them on wall charts. Ask each group to examine the efforts of each of the other groups to see if they would like to make any additions or changes to their own charts. When all groups have responded, focus on the construction of one chart by taking one objective at a time and asking the entire group to decide where and how it fits in or whether it fits in at all. Go through all objectives on the charts and fit them into a master objective tree for solution of the problem. Remember the objective tree is not complete until quantitatively measurable objectives appear at the end of each of the various branches of the tree.

When lower objectives satisfy more than one higher objective this can be shown by using broken lines rather than restating the sub-objectives. When objectives are at cross-purposes or in conflict, the objective tree should reveal this by use of double lines or other forms of broken lines. (SEE ILLUSTRATION 1, p.1.1.7). This information is valuable to project planners.

There are usually alternative objectives that can be pursued to reach higher objectives of a project. But, if there is not a higher objective

that can be reached above the action-objective started with, then that objective becomes the highest objective in the objective tree for the project.

The same procedure can be followed to develop the objectives below the objective used as the starting point, but instead of asking the question "Why is this objective being pursued?", ask "How can this objective be accomplished?"

The "why" and "how" logic thus enables the planner to arrange the objectives in their hierarchical order in the objective tree.

Once the objectives are in logical order, they should be quantified as far as possible at all levels. To do this with the project example for increasing milk production, the planner will usually need the help of technicians and knowledgeable persons regarding the dairy industry. This is necessary if the qualification of the objectives are to be realistically done. For example, an objective could be "to import 50 dairy bulls to improve the dairy herds". The planner needs to know how many cows each bull can serve given logistic problems, and how many cows there are to be served. Planners also need to know what breeds are best suited to the area.

Improved breeding to increase milk production is only one sub-objective of the project; there can be a sizeable number of others. The quantities assigned to each objective must be realistically viewed in the context of what must be accomplished to reach the higher objectives of the project, which should also be quantified. The objective tree is not only a planning tool, but the quantification of objectives also makes it a useful project evaluation instrument. The more care devoted to making an objective tree operationally sound and project specific and with realistic quantities attached to each objective, the more likely it is that the project will be successfully implemented, i.e., achieve the stated objectives.

There may be several sub-objectives at each of the lower levels of the objective tree as shown in ILLUSTRATION 2. But, because the sub-objectives contribute to a higher objective, the higher objectives become fewer until the one which the planner believes is the top objective for the particular project is reached.

At this point there is a need for the planner to view the project in terms of a list of national criteria by which projects are judged acceptable by the funding agencies.

## EXERCISE 1

## ORDERING OBJECTIVES

OBJECTIVES FOR FAMILY PLANNING PROJECT

The following statements relate to a project in Family Planning. Place them in a hierarchical order, beginning with the most general (1) and ending with the most specific (7), by writing the appropriate number in the space provided ( ).

Use "How and Why" logic to order the objectives.

- ( 1 ) A. Improve the standard of living in Jamaica.
- ( ) B. Provide Family Planning Education.
- ( ) C. Introduce Birth Control Programme.
- ( ) D. Increase the number of 2-min. advertising slots by 75% on J.B.C. and by 60% on R.J.R.
- ( ) E. Reduce the rate of population growth.
- ( ) F. Step up educational programmes in the mass media.
- ( ) G. Place one full-page ad in the daily newspaper every Saturday for 10 weeks.
- ( ) H. Control family size.

## EXERCISE 2

## SETTING PROJECT OBJECTIVES

Select a group and a recorder for your group and do these things:

1. Develop a set of objectives for this felt need; To Raise the Quality of Life in Rural Jamaica.
2. Arrange these objectives in hierarchial order on a wall chart.
3. Using the objectives you have listed, construct an objective tree on a wall chart.
4. Quantify all of the operational level objectives and show these quantities on your Objective Tree.
5. Set priorities on the final operational objectives by numbering them 1, 2, 3, etc.

Project Planning and Management Series.

MANUAL - I Planning for Project Implementation  
MANUAL - P Project Planning  
MANUAL - M Project Management  
MANUAL - PF Pioneer Farm Implementation Planning

MODULES

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4. Activity Description Sheets
5. Project Organization
6. Linear Responsibility Charts
7. Project Scheduling - Bar Charts
8. Bar Charting for Project Control/Scheduling
9. Project Scheduling - Network Analysis
10. Milestones Description Charts
11. Resource Planning & Budgeting
12. The Role of PAMCO
13. Project Technology Analysis
14. Demand Analysis
15. Market Strategy Analysis
16. Project Area Analysis
17. Project Costs & Benefits
18. Project Profile
19. Financial Analysis
20. Cash Flow Analysis
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24. Benefit-Cost Ratio Analysis
25. Internal Rate of Return
26. Social Analysis of a Project
27. Economic Analysis of Projects (including Border Pricing)
28. Financial Statements & Ratios
29. Project Selection & Ratios Analysis
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32. Project Institutional Environmental Analysis
33. Ecological Analysis for Projects
34. Introduction to Contracts, Jamaican Contract Documents & Tendering Procedures
35. Selection & Use of Consultants
36. Project Documents for Planning & Implementation
37. Report Writing for Projects
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39. Formats for Pre-Feasibility & Feasibility Studies
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41. Design of a Project Management Control System
42. Evaluating & Forecasting Project Progress & Performance
43. Project Termination
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45. Organizing and Conducting Conference Meetings
46. Withdrawal of and Accounting for Loan Funds in the Financing of Projects