

# 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.

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## MODULE 11

## RESOURCE PLANNING AND BUDGETING

*Conrad Smikle*

- A. **PREREQUISITES:**      MODULE 3 - Work Breakdown Structure  
                                  MODULE 4 - Activity Description Sheets  
                                  MODULE 7 - Project Scheduling - Bar Charts  
                                  MODULE 9 - Project Scheduling - Network Analysis

B. **DISCUSSION:**

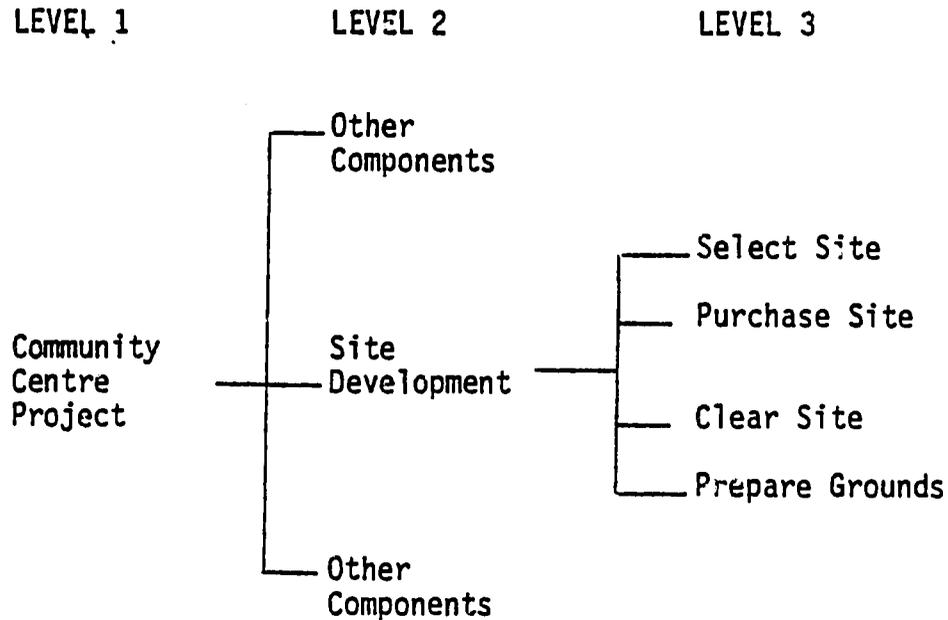
Resource planning and budgeting information shows the following:

1. A schedule of project activities.
2. The manpower required to undertake each activity.
3. The estimated cost of these resources.
4. Cost of other resources necessary to undertake each activity.

The resource requirements and costs are superimposed on the schedule of activities in such a manner that for each activity the time of execution, the quantities of resources and the cost of these resources are displayed.

The resource planning and budgeting chart will take into account a levelling of the resources. That is, the resources will be allocated to each activity in such a manner that there is no overloading of these resources. It will be more convenient to prepare a Resource Planning and Budgeting information chart for each project component rather than to attempt to prepare one chart for the entire project. Figure 3 shows a Resource Planning and Budgeting Information Chart. This chart is prepared for the site development component "Community Centre Project" shown in Module No. 3. This component has the Work Breakdown Structure shown below in Figure 1.

FIGURE 1: WORK BREAKDOWN STRUCTURE - COMMUNITY CENTRE PROJECT



The major activities for the site development component therefore are:

1. Select site
2. Purchase site
3. Clear site
4. Prepare site

For each activity, estimates are made for:

- (a) duration of time required for execution;
- (b) the resource requirements; and
- (c) the cost of these resources.

With the above information, the Resource Planning and Budgeting information chart is prepared as shown in Figure 2.

C. PURPOSE:

To assist in the control of projects.

**D. USES:**

The project manager and those implementing the project will use the Resource Plans:

- (1) to identify the cost and manpower requirements for each project component;
- (2) to show the resource requirements for the project component in relation to time.

**E. DEFINITIONS:**

*Resource:* A resource is defined as a variable quantity of men, materials, pieces of equipment, space or money which is required in order to carry out the project.<sup>1)</sup>

**F. LIMITATIONS:**

There is great difficulty in making accurate estimates of resource requirements for each activity. The original plan will need to be modified by those implementing the project.

**G. ASSUMPTIONS:**

1. That information on the availability and cost of resources is available to the project manager.
2. That the overall master schedule for the project would have been prepared.

**H. OUTPUT:**

A complete Resource Plan and Budget for a particular project.

1) Robertson, D.C. "Project Planning and Control" 1967

**I. STEPS FOR PREPARING A RESOURCE PLAN AND BUDGET:**

- Step 1. Prepare a Work Breakdown Structure for the given project component and list the major activities as shown in Figure 1. (SEE MODULE 3 - WORK BREAKDOWN STRUCTURE).
- Step 2. Make an estimate of the duration of time required to execute each activity. (SEE MODULE 9 - PROJECT SCHEDULING - NETWORK ANALYSIS).
- Step 3. Construct a bar chart showing a schedule of the activities as illustrated in Figure 2A. (SEE MODULE 7 - PROJECT SCHEDULING - BAR CHARTS).
- Step 4. (a) Estimate the manpower requirements for undertaking each activity by preparing Activity Description Sheets and prepare a manpower plan. (SEE MODULE 4 - ACTIVITY DESCRIPTION SHEETS). The manpower plan should show the different categories of labour required and the number of man-days for each category.
- (b) Superimpose the manpower plan on the bar chart prepared in Step 3 as illustrated in Figure 2.B
- Step 5. Based mainly on the information contained in Figure 2.B, prepare a manpower and cost budget. (SEE FIGURE 3).

FIGURE 2: RESOURCE PLAN AND BUDGET

SITE DEVELOPMENT - COMMUNITY PROJECT

A. ACTIVITIES	1	2	3	W 4	E 5	E 6	K 7	S 8	9	10	11	TOTAL UNITS	TOTAL COSTS
SELECT SITE													
PURCHASE SITE													
CLEAR SITE													
PREPARE FIELDS													
<b>B. MANPOWER PLAN</b>													
PROJECT MANAGER	4	4	5	4	4	2	2	2	2	2	2	33	1,650
MASON									15	15	15	45	1,125
CARPENTER									5	5	5	15	375
LABOURER								25	35	10	10	80	960
MAN-DAYS	4	4	5	4	4	2	2	27	57	32	32	(sub-total)	4,110
<b>C. MATERIAL DELIVERY SCHEDULE</b>													
SAND								● 100 c.y				100c.y	500
GRAVEL								● 100 c.y				100c.y	500
CEMENT								● 150 bags				150bgs	1,500
TIMBER								● 500 F.B.M				500 FBM	500
OTHER COSTS												(sub-total)	3,000
SERVICES												allow	100
TRAVELLING												allow	50
CASH-FLOW	\$ 200	200	250	200	200	100	100	3,900	1,020	720	720	grand total costs	\$10,260

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FIGURE 3: RATE SHEET  
(Labour and Maintenance)

(1) LABOUR:

Project Manager	-\$50/man-day
Skill as Labour	-\$25/man-day
Unskilled Labour	-\$12/man-day

(2) MATERIALS:

Sand	\$ 5.00 cu. yd.
Gravel	\$ 5.00 cu. yd.
Cement	\$ 10.00 per bag

(3) OTHER COSTS:

Services allowed	\$100.00
Travelling allowed	\$ 50.00

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11.6

PAMCO, PDRT  
Resource  
Material

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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

1. Defining Project Objectives (Objective Trees)
2. The Logical Framework
3. Work Breakdown Structure
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
21. Discounting
22. Net Present Worth Analysis
23. Cost-Benefit Analysis
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
30. Brainstorming
31. Decision-making System for Projects
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
38. Project Files
39. Formats for Pre-Feasibility & Feasibility Studies
40. Motivation of Employees and Personnel Evaluation
41. Design of a Project Management Control System
42. Evaluating & Forecasting Project Progress & Performance
43. Project Termination
44. Introduction to Lending Agencies
45. Organizing and Conducting Conference Meetings
46. Withdrawal of and Accounting for Loan Funds in the Financing of Projects