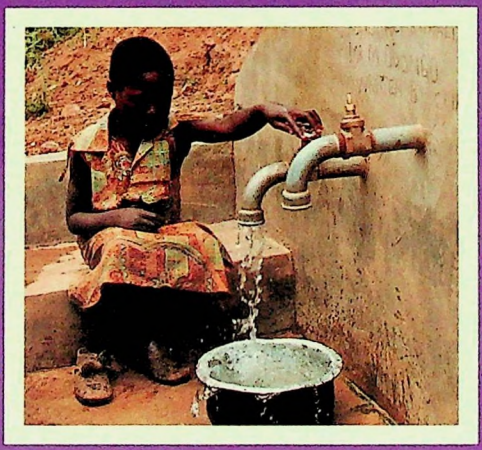
Primary Health Care Management Advancement Programme

COST ANALYSIS



MODULE 8
USER'S GUIDE

THE AGA KHAN UNIVERSITY

AGA KHAN FOUNDATION

Primary Health Care Management Advancement Programme

COST ANALYSIS

Jack Reynolds
University Research Corporation

MODULE 8
USER'S GUIDE

Aga Khan Health Services

University Research Corporation
Center for Human Services

Village life in Henan province, China, and a new communal tap. An adequate supply of clean water is an essential component of PHC

Photo by Jean-Luc Ray for AKF

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Dedicated to
Dr. Duane L. Smith (1939-1992),
Dr. William B. Steeler (1948-1992)
and all other health leaders, managers and workers
who follow their example in the effort to bring quality health
care to all in need.

An AKF-sponsored pre-school in Zanzibar

Photo by Jean-Luc Ray for AKF

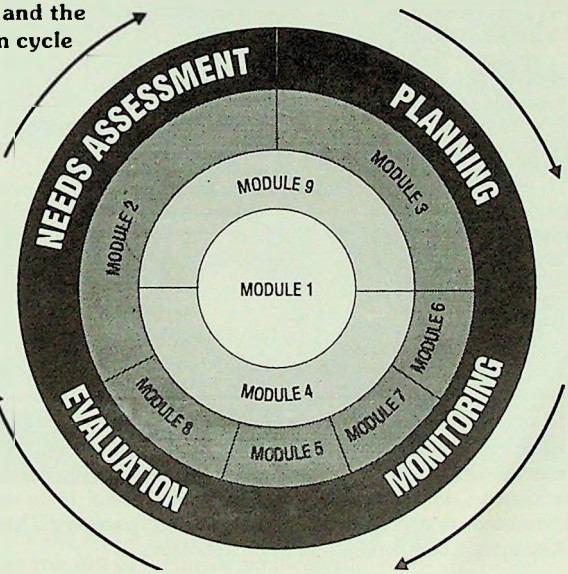
An overview of PHC MAP

The main purpose of the Primary Health Care Management Advancement Programme (PHC MAP) is to help PHC management teams collect, process and analyse useful management information.

Initiated by the Aga Khan Foundation, PHC MAP is a collaborative programme of the Aga Khan Health Network[1] and PRICOR[2]. An experienced design team and equally experienced PHC practitioner teams in several countries, including Bangladesh, Chile, Colombia, the Dominican Republic, Guatemala, Haiti, India, Indonesia, Kenya, Pakistan, Senegal, Thailand and Zaire, have worked together to develop, test and refine the PHC MAP materials to make sure that they are understandable, easy to use and helpful.

PHC MAP includes nine units called modules. These modules focus on essential information that is needed in the traditional management cycle of planning-doing-evaluating. The relationship between the modules and this cycle is illustrated below.

PHC MAP modules and the planning-evaluation cycle



PHC MAP MODULES

1. Information needs
2. Community needs
3. Work planning
4. Surveillance
5. Monitoring indicators
6. Service quality
7. Management quality
8. Cost analysis
9. Sustainability

1 The Aga Khan Health Network includes the Aga Khan Foundation, the Aga Khan Health Services, and the Aga Khan University, all of which are involved in the strengthening of primary health care

2 Primary Health Care Operations Research is a worldwide project of the Center for Human Services, funded by the United States Agency for International Development

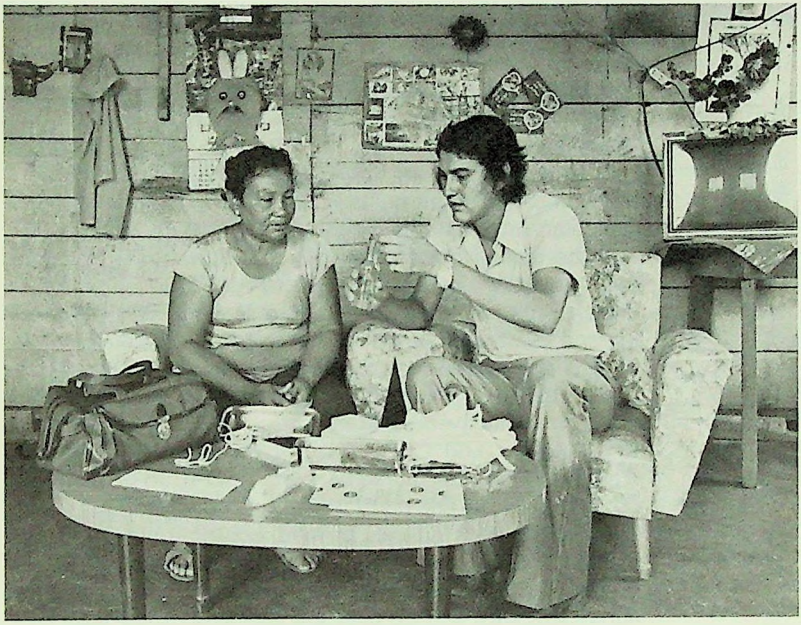
Managers can easily adapt these tools to fit local conditions. Both new and experienced programmers can use them. Government and NGO managers, management teams, and communities can all use the modules to gather information that fits their needs. Each module explains how to collect, process and interpret information that managers can use to improve planning and monitoring. The modules include user's guides, sample data collecting and data processing instruments, optional computer programs, and facilitator's guides, for those who want to hold training workshops.

The health and management services included in PHC MAP are listed below.

Health and management services

HEALTH SERVICES		MANAGEMENT SERVICES
GENERAL	**OTHER HEALTH CARE**	Planning
PHC household visits	Water supply, hygiene and sanitation	Personnel management
Health education	School health	Training
MATERNAL CARE	Childhood disabilities	Supervision
Antenatal care	Accidents and injuries	Financial management
Safe delivery	Sexually transmitted diseases	Logistics management
Postnatal care	HIV/AIDS	Information management
Family planning	Malaria	Community organisation
CHILD CARE	Tuberculosis	
Breastfeeding	Treatment of minor ailments	
Growth monitoring	Chronic, non-communicable diseases	
Nutrition education		
Immunization		
Acute respiratory infection		
Diarrhoeal disease control		
Oral rehydration therapy		

Several manager's guides supplement these modules. These are: *Better Management: 100 Tips*, a helpful hints book that describes effective ways to help managers improve what they do; *Problem-solving*, a guide to help managers deal with common problems; *Computers*, a guidebook providing useful hints on buying and operating computers, printers, other hardware and software; and *The computerised PRICOR thesaurus*, a compendium of PHC indicators.



A health worker and a midwife in Costa Rica: lesson on the use of a simple medical kit.

Photo by J. Littlewood for WHO

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Contents

Acknowledgements

The first draft of this module was reviewed and field tested in 1991 by a number of PHC specialists and field managers. The module was also reviewed and critiqued by the PHC MAP Technical Advisory Committee at a meeting in Bangkok in September, 1991. The module was completely restructured and tested again. Feedback from those tests led to two more revisions. The module was reviewed again by participants at the International Conference on Management and Sustainability of PHC Programmes, held in Bangkok in May, 1992. Minor changes resulted in this final version. Special thanks are due to Paul Richardson, who participated in several field tests and summarised the field test results, and Mary Millar, who developed the Facilitator's Guide for the module, which was very helpful in preparing this revised draft. All of these contributions were invaluable and greatly appreciated.

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Field tests:

Countries	Participating organisations, field test facilitators
Bangladesh	The Asia Foundation (TAF) and 9 subgrantees; the Aga Khan Community Health Programme (AKCHP); the Social Marketing Company (SMC); Facilitator: Barkat-e-Khuda, URC Bangladesh
Pakistan	Aga Khan University, Karachi; Northern Pakistan PHC Project, Gilgit; Aga Khan Health Service, Karachi; Facilitator: Khatidja Husein, Aga Khan University
Thailand	Ministry of Public Health, Srisaket; Somboon Vacharotai Foundation (SVF); ASEAN Institute for Health Development (AIHD); Health and Population Research Corporation (HPRC); Facilitator: Peerasit Kamnuansilpa, HPRC
India	Junagadh PHC Project; Sidhpur Sustainable Health System Project, Gujarat; Aga Khan Health Service, India; URMUL Trust's PHC Project, Bajju; Facilitators: Neeraj Kak, URC; Vijay Moses, Aga Khan Health Service, India (AKHSI); Sanjoy Ghose, URMUL; Arvind Ojha, URMUL
Kenya	Mombasa PHC Project; Kisumu PHC Project; Facilitators: Paul Richardson, URC; Esther Sempebwa, Mombasa PHC Project; Matthew Onduru, Kisumu PHC Project

A community health nurse counsels a mother in an urban PHC project in Karachi, Pakistan.

Photo by Aga Khan University

Quick start

Basic cost analysis

Use this model if you want to do a quick analysis of your programme's revenues and expenditures. You can do two types of cost analysis. The first lets you compare actual to budgeted revenues and expenditures for the most current period. The second lets you look at trends in revenues and expenditures over the last 5 years. Of course, you can do both, if you wish. You can do these analyses by hand or you can use the computer program that comes with this module. If you want to use the computer program, load this file in Lotus 1-2-3 or Quattro Pro (MOD8_QS).

Current year: Actual vs. budgeted revenues and expenditures

You will need to enter the budgeted and actual revenues and expenditures for the past 12 months (or latest year) in the following table. You can enter up to 3 revenue sources and up to 6 expenditure categories. Examples are shown in the table. Use your own categories, enter their names, and then enter the amounts.

If you are using the computer program, it will automatically calculate the differences, the percentages, and produce a graph. If you are doing this manually, just fill in the blanks. If you want to make a graph (which we encourage), you can make one by hand that looks like the example.

Total project revenues and expenditures: Last 12 months

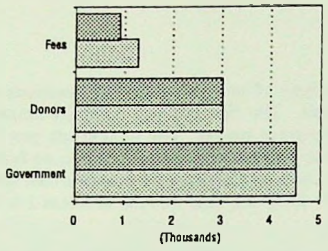
REVENUES	Actual	Budget	Variance	Percent
Government	4,500.00	4,500.00	0.00	0
Donors	3,000.00	3,000.00	0.00	0
Fees	890.00	1,250.00	(360.00)	-40
Subtotal	8,390.00	8,750.00	(360.00)	-0.40
EXPENDITURES				
Personnel	2,345.60	2,245.00	100.60	4.3
Consultants	456.00	500.00	(44.00)	-9.6
Travel	654.00	450.00	204.00	31.2
Supplies	332.00	280.00	52.00	15.7
Equipment	1,032.00	900.00	132.00	12.8
Other	2,345.00	2,456.00	(111.00)	-4.7
Subtotal	7,164.60	6,831.00	333.60	0.50
REV-EXP	1,225.40	1,919.00		
Percent	14.6	21.9		

Five year trend: Revenues and expenditures

The procedures are very similar, except that you don't enter budget data, but you enter revenue and expenditure data for several years. This model is set up for 5 years but it can be longer or shorter, depending on your objectives.

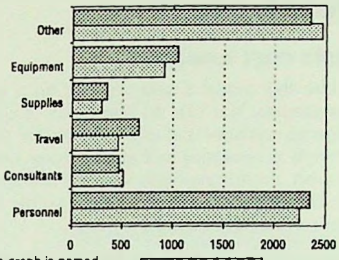
Enter your most recent revenue and expenditure data in the following table. If you are using the computer program, it will calculate the differences between revenues and expenditures, the percent differences, and construct a graph.

Actual vs. budgeted revenues



This graph is named REV-BUDG.

Actual vs. budgeted expenditures

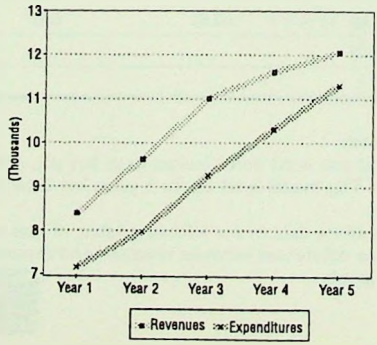


This graph is named EXP-BUDG.

To display a graph in Quattro, press / Graph, Name, Display, then select REV-BUDG or EXP-BUDG and press Enter.

Total project revenues and expenditures: Last 5 years

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Government	4,500	5,000	5,500	5,450	6,210
Donors	3,000	3,500	4,000	4,000	3,850
Fees	890	1,125	1,509	2,167	2,000
Subtotal	8,390	9,625	11,009	11,617	12,060
EXPENDITURES					
Personnel	2,346	2,466	2,900	3,218	3,345
Consultants	456	567	678	987	1,200
Travel	654	798	890	889	786
Supplies	332	456	543	566	765
Equipment	1,032	987	1,032	1,100	897
Other	2,345	2,700	3,211	3,546	4,321
Subtotal	7,165	7,974	9,254	10,306	11,314
REV-EXP	1,225	1,651	1,755	1,311	746
Percent	14.6	17.2	15.9	11.3	6.2



Revenues and expenditures: 5 Years

This graph is named TREND. To display it in Quattro, press Graph, Name, Display then select TREND and press Enter

Introduction

What is cost analysis?

Cost analysis is the examination of expenditures to determine how resources have been spent. It should (but often does not) include an analysis of revenue sources and amounts.

Managers, their supervisors, and donors are the people who need this information most. Cost analysis can help them to understand (and explain) how funds have been used, and why expenses are so high (or low). Cost analysis (CA) can also help them to identify areas where expenses can be reduced, where further analysis is needed, and where increased funds are justified. Revenue analysis can help them to identify where their primary support comes from, and whether each source is increasing or decreasing.

In Primary Health Care (PHC) we usually want to know

- the amount that has been **spent** on the PHC project, and the **revenue** that has been received;
- how that **compares with the budget;**
- the **distribution of costs by "line items"** (usually called general ledger items (GLI): personnel, travel, supplies, etc.);
- the **distribution of costs by facility or location** (how much has been spent in each health centre or district);
- the **distribution of costs by PHC service or activity** (how much has been spent on antenatal care, immunization, training, etc.);
- the **average costs** of providing a service (e.g., the cost of immunizing a child); and

• the **trends** in costs and revenues over time.

How cost analysis can help you

Monitoring

This is the most common use of cost analysis -- to monitor expenditures (and revenues) in order to make necessary adjustments. This type of analysis usually involves comparing actual expenditures with a budget and is frequently conducted to identify problems before they become serious. Managers may want a more detailed analysis than board members and donors, but the general purpose is the same -- to ensure that expenditures are under control and that revenues are coming in as planned.

Efficiency

A cost analysis can help a manager to identify areas of potential savings. If services can be provided at reduced costs while maintaining the same quality, then the project can be made more efficient. This type of analysis usually requires comparisons among subprojects (or locations or over time) to see if there are lessons that can be learned from one experience and applied to another, either to reduce costs or to increase revenues.

Planning

Managers can also use cost data to make projections of future costs and to estimate what it would cost to replicate a programme or service in another area. In addition, analysis can be used to estimate what it would cost to continue a programme or service at the same, expanded, or reduced level - that is, what it would cost to sustain it.[1]

There is no single type of cost analysis and no standard purpose that fits all programmes. Like most other management activities, it all depends on what the user(s) wants from the analysis. Since most PHC projects have a number of potential users (managers, boards, donors, communities, for example), it is possible that each user could have a different objective in mind. Therefore, you need to clarify the objectives of each user to make sure that the cost analysis fit his needs.

1 See module 9 : *Sustainability analysis*

An example

Let's look at the type of information a cost analysis can produce. Usually, managers want to know: a) total costs and revenues; b) comparisons with budgets and projections; c) distribution of those costs and revenues (by general ledger codes, locations, services, etc.); d) trends over time; and e) unit costs (what it costs to serve one person or immunize one child). This module shows how to produce all of that information. Here are a few examples.

Table 1 illustrates the first, most basic, piece of information: the total amount of project revenues and expenditures for the period. The accompanying graph displays the same information.

Table 1: Total project revenues & expenditures

Revenues	9,055.00
Expenditures	8,524.60
Difference	530.40
Percent	5.9%

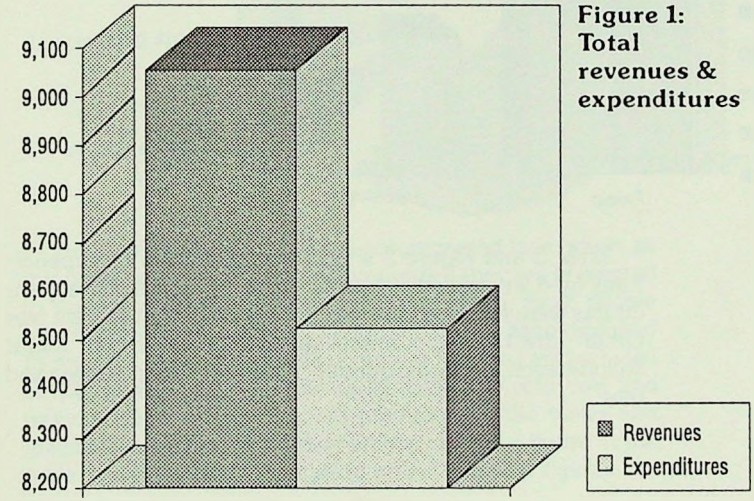


Figure 1: Total revenues & expenditures

Table 2 and Figure 2 provide the same information compared with project budgets for anticipated revenues and expenditures.

Table 2: Project revenues & expenditures, actual vs. budget

Description	Revenues	Expenditures
Actual	9,055.00	8,524.60
Budget	9,100.00	8,695.00
Difference	(45.00)	(170.40)
Percent	0.5%	-2.0%

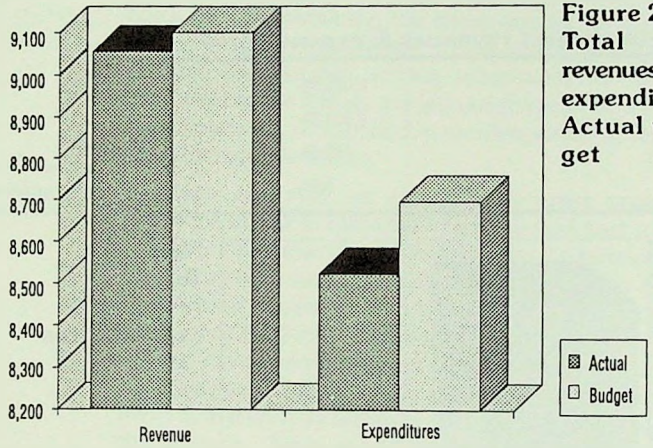


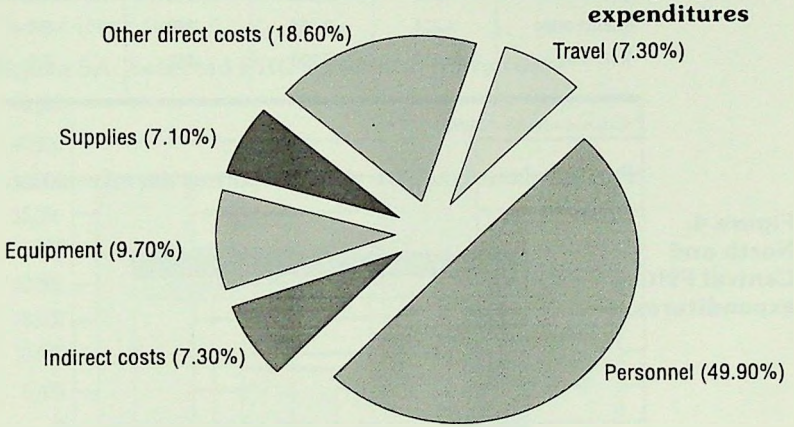
Figure 2: Total revenues & expenditures Actual vs. budget

Table 3 and Figure 3 show the distribution of expenditures by (General ledger) items. Almost half of the expenditures were for Personnel costs. The next highest item was Other direct costs, a miscellaneous category that might include such items as utilities, maintenance, postage, and rent.

Table 3: PHC programme expenditures by line item

Description	Amount	Percent
Personnel	2,345.00	49.9
Travel	345.00	7.3
Equipment	456.00	9.7
Supplies	332.00	7.1
Other direct costs	876.00	18.6
Indirect costs	345.00	7.3
Total costs	4,699.00	100.0

Figure 3: PHC programme expenditures



As you can see, each table is accompanied by a graph, as it is often easier to understand amounts if they are presented in such a way. But after looking at a graph, most people also want to see the figures. This module has been designed to produce both. The simple computer files that are included in the module can be edited easily to display your cost and revenue data. These files will provide both the tables and graphs automatically. And when you change a figure in the table, the graph also changes to reflect the new figures.

Table 4 and Figure 4 illustrate the general ledger "line item" costs of two project locations. The analysis shows that there were significant differences in several lines, especially travel. Personnel costs were higher than the budget by 2,990 (31.8 %). But the overall difference between total costs was only 3.9 %.

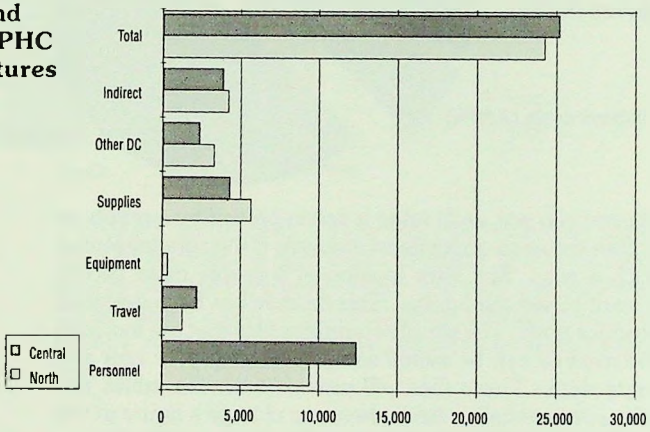
Table 4: Costs for two PHC subprojects by line item

Description	North	Central	Variance*	Percent
Personnel	9,410	12,400	-2,990	-31.8
Travel	1,294	2,232	-938	-72.9
Equipment	350		350	
Supplies	5,680	4,324	1,356	23.9
Other direct costs	3,300	2,382	918	27.8
Indirect costs	4,214	3,862	352	8.4
Total costs	24,248	25,200	-952	-3.9

* *Variance = North - Central*

Figure 4 shows how a bar chart can portray this information.

Figure 4: North and Central PHC expenditures



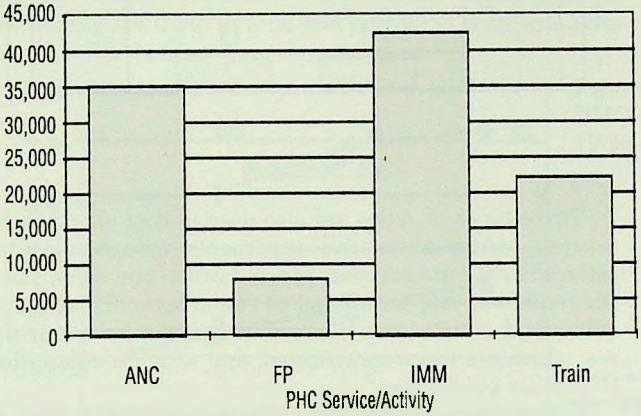
Managers may also want to know what each PHC service costs. Table 5 and Figures 5A and 5B provide an example of this kind of analysis.

Table 5: Costs of selected PHC services and activities

Description	Antenatal care	Family Planning	Immunization	Training
Personnel	19,310	2,400	15,430	6,886
Travel	6,884	1,532	8,555	7,090
Equipment	950		4,790	2,587
Supplies	2,380	724	6,523	1,165
Other direct costs	3,300	1,382	3,484	2,224
Indirect costs	2,214	1,822	3,667	2,210
Total costs	35,038	7,860	42,449	22,162

* *Variance = North - Central*

Figure 5A: Selected PHC service/activity costs

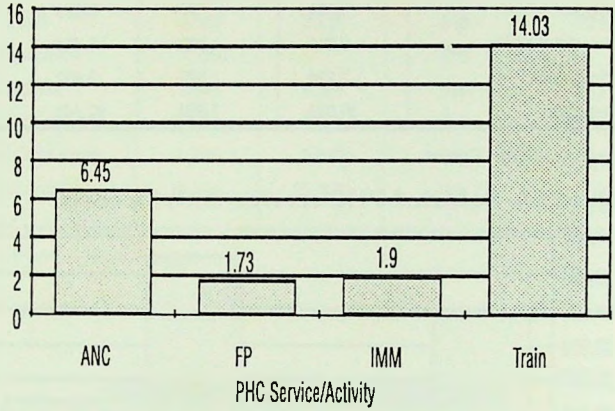


Financial people often calculate "average costs" or "unit costs," as shown above. These are estimates of the cost of producing one unit of a product or service. They may want to know how much it costs to immunize one child, how much it costs to install a well, or how much it costs to train a Community Health Worker (CHW). This type of cost analysis involves a measure of output as well as of cost.

The total cost of the service is divided by the total units of service. Two examples:

Cost of immunization component	42,449	= 1.90 per child immunized
Number of children immunized	22,343	
Total cost of training programme	22,162	= 14.03 per trainee
Number people trained	1,580	

Figure 5B: Average (unit) costs



These types of ratios are also used in cost-effectiveness analysis, where alternative approaches to achieving the same objective are compared to see which one can achieve the most with the same level of resources.[1] This module does not deal with cost-effectiveness or cost-benefit analyses, which are more complicated, and which are described in another publication.[2]

Sometimes managers and policy makers want to look at costs over time, that is, they want to look at **trends.** Table 6 and Figure 6 illustrate a trend analysis of costs by GLI.

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1 It can also be looked at the other way, that is, which approach can achieve the same level of output for the least expenditure of resources.

2 See, for example, Jack Reynolds and K. Celeste Gaspari, *Cost-effectiveness analysis. PRICOR Monograph Series: Methods Paper 2.* Bethesda: Center for Human Services, 1985.

Table 6: Trend analysis of PHC costs 1986-1989

Description	1986	1987	1988	1989
Personnel	9,410	12,400	14,600	16,896
Travel	1,294	2,232	3,456	2,890
Equipment	350		1,290	587
Supplies	5,680	4,324	4,653	4,125
Other direct costs	3,300	2,382	2,234	3,124
Indirect costs	4,214	3,862	3,467	3,210
Total costs	24,248	25,200	29,700	30,832
Change from		+952	+4,500	+1,132
previous year		+3.9%	+17.9%	+3.8%

These figures show that costs have increased each year, especially in 1988 when they increased by almost 18 percent over the previous year. Each line item can also be analysed this way to spot the cause of the increases. Figure 6 shows graphically the trend in total and personnel costs using the data from Table 6.

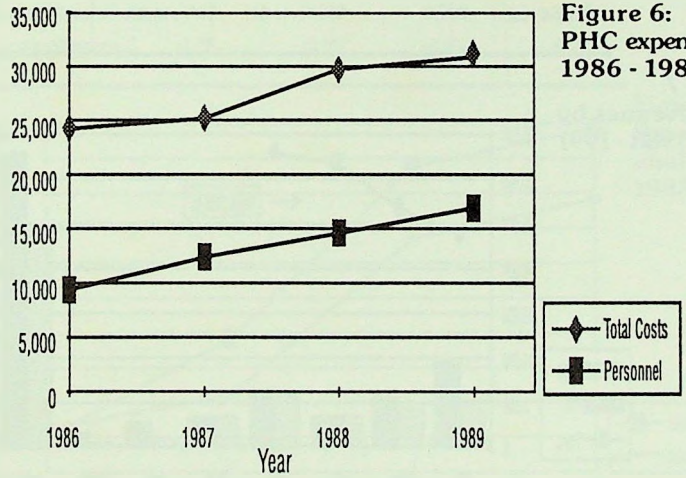


Figure 6: PHC expenditures 1986 - 1989

Sometimes managers want to make projections of future costs. The analysis would look the same as in the last table

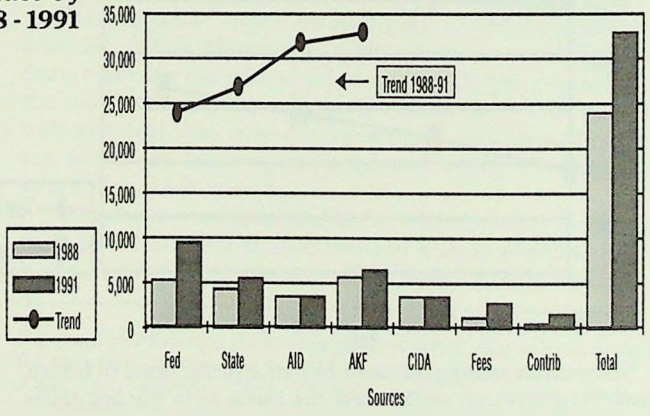
and figure, only with projected dates. This type of analysis is described in Module 9: Sustainability analysis.

Managers and donors are usually very interested in revenues, especially the sources of funds. Table 7 illustrates a hypothetical "trend" analysis of revenue spanning four years (1988-1991). Figure 7 is a graph showing the distribution of revenues by source for these same years.

Table 7: Trend analysis of PHC revenues 1988-1991

	1988	1989	1990	1991
Federal	5,310	6,500	9,000	9,500
State	4,294	4,500	5,000	5,500
USAID	3,500	3,500	3,500	3,500
AKF	5,680	6,500	7,000	6,500
CIDA	3,500	3,500	3,500	3,500
Service fees	1,214	1,458	2,500	2,800
Contributions	500	875	1,256	1,580
Total	23,998	26,833	31,756	32,880
Change from		+2,835	+4,923	+1,124
previous year		+11.8%	+18.3%	+3.5%

Figure 7: PHC revenues by source 1988 - 1991



The table shows that total revenue has increased steadily each year. Government support (federal and state) has increased while donor support (USAID, AKF, CIDA) remained fairly steady. Service fees and contributions have increased each year, accounting for a small proportion of overall revenues. The graph shows the differences in funding between the first and last years (1988 and 1991).

The final table (Table 8) compares revenues and expenditures for the past four years. This is often called a "break-even analysis." The table and graph show that expenditures exceeded revenues slightly in 1989 but that the project "broke even" the following year. Although both revenues and costs have increased each year, the project has also made a small corresponding surplus.

Table 8: PHC programme break-even analysis 1988-1991

Source	1988	1989	1990	1991
Revenues	23,998	26,833	31,756	32,880
Expenditures	24,248	25,200	29,700	30,832
Variance (amount)	-2,50	+1,633	+2,056	+2,048
Percent difference	-1.0%	+6.5%	+6.9%	+6.6%

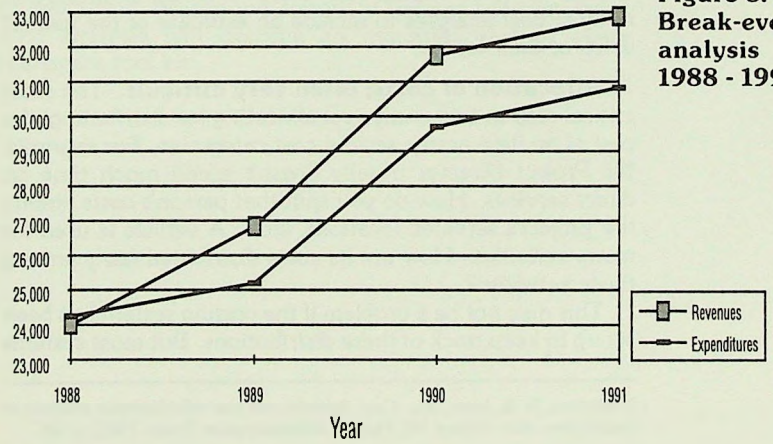


Figure 8: Break-even analysis 1988 - 1991

Module 9 picks up where this analysis ends. It enables managers to make a number of projections of future revenues and expenditures, based on different assumptions of health needs, service mixes, costs, and resources.

Some limitations of cost analysis

Accounting costs

It's difficult to estimate "true costs." This module deals with a specific type of cost, what economists would call "financial" or "accounting" costs rather than "economic" costs. Economic costs include in-kind contributions, make adjustments for subsidies, donated labour, etc. To economists, "the true cost of an activity is the value of the alternative endeavour that might have been undertaken with the same resources."[1] Measuring the true cost of PHC is very difficult. It would require, among other things, estimating the cost to the client of attending a clinic session, the cost of donated labour and materials, and the true cost of subsidised supplies. This module uses a practical approximation of true costs, which are financial costs. The module uses actual **monetary expenditures and revenues,** which is the type of information that appears in financial reports. However, suggestions are included in the module for estimating the cost of some important and typical items that do not have a monetary cost attached. For example, CHWs are often unpaid volunteers. It would be important in most cost analyses to include an estimate of the market value of their labour.

Allocation of costs; often very difficult. The most critical step in cost analysis is allocating (or distributing) the cost of an item across several cost categories. For example, the Project Director usually doesn't spend much time on direct services. How do you split that person's costs among the project's services, locations, etc.? A vehicle is used for many activities. How are its costs distributed fairly among those activities?

This may not be a problem if the costing system has been set up to keep track of these distributions. But most systems

1 Warner, K & Luce, BL. *Cost -benefit and cost-effectiveness analysis in health care.* Ann Anbor, MI; Health Administration Press, 1982, p. 44.

have not done that. In that case, the analyst will have to take the figures from the accounting report and reallocate them to various services. Several approaches for making estimates and allocating costs are described in this Guide.

But the manager must accept that these are estimates and, therefore, may not be completely accurate.

Only estimates

These and other common problems are discussed in the module and suggestions are made for dealing with them. In many cases, financial staff are familiar with these issues and can take them into account when conducting the cost analysis. The manager and policy maker should, however, also be aware of the effects these limitations can have on the results.

Strengths of cost analysis

Even with these limitations, cost analysis can be a very useful tool for the manager and policy maker. First of all, keeping track of costs is just good management. Most accounting systems do not produce the type of analysis that managers need to monitor and plan programme activities. Thus, some special effort is required. As the examples show, the analysis does not have to be complicated to be informative and useful. Secondly, in the absence of certainty, even approximations can help improve decision-making. Finally, given the strains on most PHC budgets, as well as the pressure from boards and donors to become self-sustaining, cost analysis will become an essential part of every manager's tool kit.

A tea plantation in Sri Lanka where maternity facilities are at the disposal of female workers.

Photo by J. Mohr for WHO

How to use this guide

This guide provides instructions for carrying out a cost analysis. By following the instructions and using the worksheets and optional computer files, you should be able to carry out an analysis. That analysis can be simple or detailed, depending on the level of detail you select.

How much detail do you need: Levels 1, 2 and 3

The module offers three levels of detail. **Level 1: Basic cost analysis** is the easiest and quickest to do. You follow a few simple steps, use the financial data from your accounting system, and enter those data into standard tables that the Module provides. Then you analyse the results.

Level 2: Selective cost analysis allows you to make changes in any or all of the steps in Level 1. There are 8 steps in all, and you have the option to change the assump-

Steps in a cost analysis

Step 1: Specify the objectives of the cost analysis
Step 2: **Decide what to cost**
Step 3: Select the types of table(s) and graphs to be produced
Step 4: Set up a cost coding system
Step 5: Allocate and code revenue and expense data
Step 6: Enter data and compute costs
Step 7: Analyse and interpret the revenue and cost data
Step 8: Present /report the cost analysis findings

tions, increase the level of detail, reclassify and recode cost data, and expand the scope and amount of analysis. The core instructional material is contained in Level 2.

For those who want to conduct a more accurate or sophisticated cost analysis, **Level 3: Detailed cost analysis** provides guidelines for doing so. Level 3 would be used by those who are willing to recode and re-enter all financial data to make very accurate cost estimates. It also describes how to compute unit costs and to make adjustments for in-kind contributions, subsidies, etc.

Using the worksheets, dummy tables, computer files

Computer program

This Guide includes worksheets with each step to help you summarise and record your analysis plan. There is a set of dummy tables that you can consult for ideas, or use as is, just by changing the headings and inserting your own data. For those who want to enter their data into computers, there are copies of these tables on the Module 8 disk. There is also a simple data entry program that you can use with Lotus 1-2-3. This program allows you to enter summaries (e.g., monthly subtotals) or individual transactions. It will also sort your data into the categories you choose so that they can be easily transferred to the analysis tables.

What's in the appendices

The appendices include additional information for advanced users, lists of helpful reference materials, including other cost analysis manuals and programs that you might find useful, blank worksheets, a glossary of key terms, and print-outs of the computerised data entry and analysis programs included on the diskette.

Cost analysis procedures

This User's guide shows managers and finance staff how to carry out a cost analysis in eight steps. The first three steps direct the manager in telling the finance staff which type of analysis to conduct. The next five steps describe how the finance staff should set up the procedures and carry out the analysis.

The following section describes the procedures for designing and carrying out a cost analysis. More detailed explanations of some concepts are found in the appendices, along with some "tools" to help the manager and finance staff carry out the analysis. These tools include checklists, computer programs for entering and analysing the cost data, and suggested procedures for allocating costs to various categories.

Helpful tools

In many cases, especially among more sophisticated private PHC programmes, the finance staff will be able to carry out the cost analysis as soon as the managers have clarified what they want analysed and how they want the data presented. The finance staff would probably be able to set up a coding system, classify the cost data, and prepare the required tables without referring to the steps in this guide. In some cases, especially among public sector programmes that do not normally track expenditures, the managers may have to call on a member of the planning staff to set up a cost analysis from scratch. Those programmers may find the steps and the "tools" particularly helpful and time-saving.

In any case, the user of this module should consider it a **guide** that can be adapted and modified to fit each local situation.

Step 1: Specify the objectives of the cost analysis (manager)

There are three things the manager needs to specify: 1) the USER; 2) the PURPOSE; and 3) the SCOPE of the analysis. The following checklist can guide the manager in doing that.

User
purpose
scope

First, who will be the **user** of the cost analysis? This question should be answered first, because the user should decide what the purpose and scope of the analysis should be. The manager is the most likely user, but the others listed in the worksheet could also be interested in the analysis. If so, it will be important that each one clarify its desired purpose and scope. It's quite possible that they will be different.

Second, what is the **purpose** of the analysis? The three purposes, described in the introduction are: monitoring, efficiency, and planning. It would help to write out the specific purpose, or purposes, as any one user could have several purposes in mind.

Finally, how broad should the **scope** of this analysis be? What **geographic** area will it cover (the entire country, a region, a city, several rural sites)? Some projects operate in multiple sites. Will they all be included in the analysis?

- How much **programmatic detail** is desired? Is it sufficient to look at the PHC programme overall, or does the user want to break the costs down further: by project; by subproject; by outreach and clinical services; by specific PHC component (immunization, ORT, growth monitoring, training, supervision, etc.)? Is there a special component that the user wants to examine? In Kenya, for example, a donor wanted to know how much each PHC service and activity cost. Most accounting systems are not set up to produce that type of breakdown, and it may require a major effort to do so.

WORKSHEET FOR SPECIFYING OBJECTIVES

User/audience:

___Manager _____
___Board of directors _____
___Central directorate _____
___Donors _____
___Other _____

Purpose:

___Monitoring _____
___Efficiency _____
___Planning _____
___Other _____

Scope:

___Geographic area _____
___Programme/project/activity _____
___Time/duration _____
___Prospective or retrospective ? _____
___Expenditures and/or revenues _____

- What **time** frame should the analysis cover: the past year, the past five years, the next six months, the next three years?
- Will this analysis rely on data that has already been collected (**retrospective**), or will costs be compiled and coded in the future (**prospective**)? This is an important decision. If this is a prospective analysis (to be done in the future), then the financial staff will need to set up procedures to make sure that all expenses and revenues are coded as they occur. See Steps 4 and 5 for more information about what this would involve.
- Should revenues as well as costs be analysed? Or only revenues? Only costs?

It would be helpful to write out the objective(s) in narrative form and to prepare a separate statement for each user, since each user is likely to have different objectives that will require different cost data.

Step 2: Decide what to cost (manager)

Here the manager needs to get specific regarding the level of detail desired. Obviously, the more detail requested, the more time, effort, and expense will be involved. The simplest analysis would be of the PHC programme overall, that is, the total cost of the PHC programme without any breakdown. That is important, but not very informative. A cost analysis should include some kind of breakdown of costs. This Module provides three options:

Level 1:	Analysis of general ledger items
Level 2:	Analysis of locations/facilities
Level 3:	Analysis of PHC services/activities

• Level 1: Analysis of general ledger items

Almost all accounting systems keep track of costs by "line items" (e.g., personnel, travel, supplies, etc.). These categories of costs are usually summarised in a "chart of accounts," and are often called "general ledger items." It is fairly simple to use these data for a basic cost analysis. Let us call this level of detail **Level 1**.

Below are examples of general ledger items from two PHC programmes.

Kenya	Thailand
Personnel	Personnel
Consultant services	Fringe benefits
Training/workshops	Welfare, compensation
PHC service supplies	Travel per diem
Evaluation	Supplies
Travel and transportation	Commodities, capital equipment
Administration	Utilities
Equipment	Income
Motor vehicles	

If your programme does not have a chart of accounts, you can find an example of a detailed list in the Appendices.

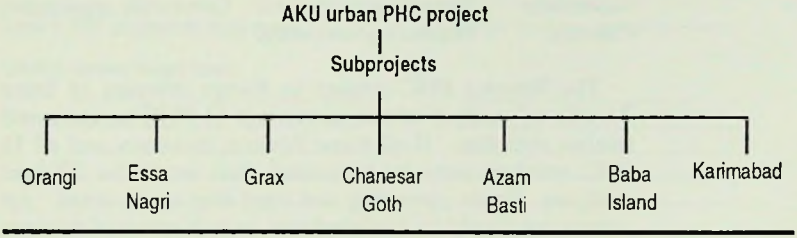
The user needs to determine how much detail is needed. The general ledger accounts could be collapsed into a small number, as above, or some could be expanded, as

Supplies:
Drugs, medicines
Office supplies
Health education supplies
Other commodities

• Level 2: Analysis of locations/facilities

For some small projects Level 1 analysis will be sufficient. But many PHC programmes are made up of two or more "projects," "subprojects," "locations" or "sites," and the user may want to have a separate analysis of each of these. Let us call that **Level 2**.

For example, the Aga Khan University Urban PHC Project in Karachi consists of seven subprojects or sites. An analysis of each of those, plus the overall project, would require eight separate cost analyses.



• Level 3: Analysis of PHC services/activities

Each PHC project (or subproject) usually offers an array of PHC services (immunization, ORT, etc.). The projects also include management activities that support these services (planning, training, etc.). The user may want to cost some or all of these PHC services and activities. Let us call that **Level 3**.

Typical services are shown below.

GENERAL	CHILD CARE	CURATIVE CARE
PHC household visits	Breast feeding	Treatment of minor ailments
School health	Growth monitoring	Malaria
Health education	Nutrition education	Tuberculosis
Drug supply	Immunization	Sexually transmitted diseases
	Acute respiratory infection	HIV/AIDS
MATERNAL CARE	Diarrhoeal disease control	Disabilities
Antenatal care	Oral rehydration therapy	Night blindness
Safe delivery		Anaemia
Postnatal care	COMMUNITY HEALTH	Iodine deficiency
Family planning	Water supply	
	Sanitation and hygiene	

In addition to these health services, the user may want to know the costs of certain support activities, such as:

Training	Logistics	Research
Supervision	Financial management	Community organisation
Planning	Monitoring/evaluation	

The Kisumu PHC project in Kenya consists of three "locations," each of which carries out 11 PHC services and related activities. If all three Kisumu locations and all 11 PHC services were to be costed, that would be 33 cost analyses. Some users may not want that much detail. An alternative would be to select one or two services that are really important or to group the services, e.g., health centre services, MCH services, and community-based services.

We call this Level 3 because it is the most detailed and because most projects do not keep track of cost data by PHC service. To do so requires that each expenditure be allocated to one or more services. This is often difficult and time-consuming. If you are thinking of a Level 3 analysis, please read Steps 3-5 first. They will give you an idea of what would be required.

Kisumu PHC Project
Locations

	Central	North	Kajulu
Community process	X	X	X
Health education	X	X	X
Intersectoral collaboration	X	X	X
CHW/TBA/leaders training	X	X	X
School health	X	X	X
Childhood immunization	X	X	X
Nutrition and growth monitoring	X	X	X
Water source development	X	X	X
Ante/postnatal care	X	X	X
Communicable disease control	X	X	X
Income generating activities	X	X	X

WORKSHEET FOR DECIDING WHAT TO COST

Level 1: PHC programme (total costs) _____

Level 1: General ledger items

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Level 2: Projects, subprojects, locations, sites, etc.

_____ _____
_____ _____
_____ _____

Level 3: PHC service components or management components

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

This worksheet can be used to specify the level of detail wanted for the cost analysis. Remember that if there are several users of the analysis, each user may need to fill out a separate sheet. Since the list can get very detailed very quickly, it is worth asking whether each additional breakdown is necessary to meet the objectives of the cost analysis.

Step 3: Select the type(s) of tables and graphs to be produced (manager)

The Introduction to this Module described seven types of cost analyses that could be performed. Those are summarised in the following worksheet. The (L1), (L2), (L3) symbols indicate the level of detail from the previous step. You need to select those that are needed for your analysis.

WORKSHEET FOR SPECIFYING TYPES OF ANALYSES NEEDED

___1. The total amount of revenues received and resources spent (L1)
___2. Revenues and expenditures compared with budgets (L1)
___3. The distribution of revenues and costs by general ledger line item (L1)
___4. Trends in revenues and costs over time (L1)
___5. The distribution of revenues and costs by location or facility (L2)
___6. The distribution of revenues and costs by service or activity (L3)
___7. Average costs (unit costs) (L3)

It can be very helpful to set up "dummy tables" and graphs at this point, since that will make clear to the analyst what is expected and ensure that the information that the user desires is produced. Examples of two dummy tables are shown below with illustrative data. The first, Table 1A

Table 1A : Total programme

	Amount
Total revenues	12,045,655
Total expenditures	11,876,634
Difference	169,021
Percent	1.42%

shows total revenues and expenses for the project for a given year. It also shows the difference between the two in actual amount and percentage.

The second, Table 3A, shows the distribution of the revenues and expenses by general ledger line item. The amounts usually can be taken from the project's regular financial reports and annual budget. The analyst then computes the variance (difference between the budgeted and actual amounts) and the percentages.

Table 3A: PHC project revenues and expenditures: 19__ Actual vs. budgeted by general ledger line item

Description	Actual	Budget	Variance*	Percent*
REVENUES				
Federal	1,500.00	1,500.00	0	0
State	1,250.00	1,250.00	0	0
Donor	1,500.00	1,000.00	500.00	50.0
Service fees	366.50	500.00	-143.50	-28.7
Contributions	125.00	500.00	-375.00	-75.0
Total	4,741.50	4,750.00	-18.50	-0.4
EXPENDITURES				
Personnel	2,345.60	2,200.00	145.6	106.6
Travel	345.00	245.00	100.00	140.8
Equipment	456.00	500.00	-44.00	-91.2
Supplies	332.00	400.00	-68.00	-83.0
Other direct costs	876.00	700.00	176.00	125.1
Indirect costs	345.00	350.00	5.00	98.6
Total	4,699.60	4,395.00	304.60	106.9

** Variance = Budget minus actual*

A complete set of dummy tables is found in Appendix D. Each table includes a brief description of its purpose, a summary of the data needed, and a statement of the output it will produce. The tables include illustrative data so that you can see what they will look like when completed. To use them, simply insert your own headings, labels, and figures.

These tables are also included in the Module 8 computer disk. Data can be entered directly into those tables and the calculations will be made automatically. Several of the

tables also include graphs that can be generated automatically, as well.

The following worksheet summarises the standard tables available in the Appendix. Use it to check off the tables you want produced. Note that there are separate tables for single periods of analysis (such as those shown above) and for multiple periods (i.e., several years). Thus, if you want to do trend analyses, pick tables from the right-hand column. If you don't find what you need here, make up your own dummy tables.

WORKSHEET FOR SPECIFYING TABLES AND GRAPHS NEEDED

(See Appendix D for examples of these tables)

	Single period	Multiple period (Trends)
LEVEL 1 TABLES: ANALYSIS BY GENERAL LEDGER ITEM		
___1. The total amount of resources spent & revenues received	1A	1B
___2. Total revenues & expenditures compared with budgets	2A	2B
___3. Distribution of costs & revenues by general ledger line item	3A	3B
___4. GLI revenues & expenditures compared with budgets	4A	4A[1]
LEVEL 2 TABLES: ANALYSIS BY PHC LOCATION OR FACILITY		
___5. Total revenues & costs by location/facility	1B[2]	1B[1,2]
___6. Total revenues & expenditures compared with budgets	2B[2]	2B[1,2]
___7. Distribution of revenues & costs by general ledger item	3B[2]	3B[1,2]
___8. GLI revenues & expenditures compared with budgets	4A[2,3]	4A[1,3]
LEVEL 3 TABLES: ANALYSIS BY PHC SERVICE OR ACTIVITY		
___9. The distribution of costs by PHC service/activity	5A	3B[2]
___10. Average costs (unit costs) of each service/activity	6A	6A[1]
___11. Total service/activity revenues & expend. compared with budgets	2B[3]	2B[1,3]
___12. Distribution of service/activity revenues & costs by GLI	3B[3]	3B[1,3]
___13. GLI rev. & expend. of each serv/activ. compared with budgets	4A[4]	4A[1,4]
___14. Distribution of revenues & costs by location & service	3B[3,5]	3B[1,3]

1. Prepare separate table for each time period.
2. Change headings and labels (e.g., from "Year 1" to "Central HC", or "ANC").
3. Prepare separate table for each location or facility.
4. Prepare separate table for each PHC service or activity.
5. Change labels in vertical axis to GLI names, change labels in horizontal axis to services/activities.

Please notice that there are only six basic dummy tables. Several of the tables can be used for different purposes merely by changing the headings and labels on horizontal axis. For example, Table 3B can modified as follows :

Table 3B : Trend analysis of PHC costs: 1986-1989

Description	1986	1987	1988	1989
Personnel	9,410	12,400	14,600	16,896
Travel	1,294	2,232	3,456	2,890
Equipment	350		1,290	587

Table 3B : PHC costs by health centre: 1990

Description	Central	North	Kajulu	Total
Personnel	9,410	12,400	14,600	36,410
Travel	1,294	2,232	3,456	6,982
Equipment	350		1,290	1,340

Table 3B : PHC costs by service: 1990

Description	ANC	H. ed.	Child. imm.	Nut./GM
Personnel	9,410	12,400	14,600	16,896
Travel	1,294	2,232	3,456	2,890
Equipment	350		1,290	587

Again, each of these analyses requires time and effort to produce, especially if the cost analysis will involve several levels of detail over several years. The users should limit their requests to those analyses that are needed to meet the cost analysis objectives.

Step 4: Set up a cost coding system (analyst)

At this point the finance staff can take over. The next step would be to develop or adapt a coding system for the items to be costed. This is needed so that the same kinds of expenditures (and revenues) can be grouped together and then totalled. For example, all personnel costs could be coded P, all supply costs S, and so forth.

Assume that the Kisumu PHC project manager decides to analyse costs as shown below, by general ledger items foreach of the project's three locations, and by 11 PHC services and related activities.

X	Level 1:	Analysis of general ledger items
X	Level 2:	Analysis of locations/facilities
X	Level 3:	Analysis of PHC services/activities

The finance staff (or analyst) could then develop codes for each general ledger line item, for each project location, and for each service category.

For example, the general ledger, location, and service codes could be as follows:

General ledger items	Locations	Services/activities
Revenues	N = N. Nyakach	CP = Community process
F = Service fees	C = C. Nyakach	HE = Health education
D = Donor support	K = Kajulu	IC = Intersectoral collaboration
N = Other income		LT = CHW/TBA/leaders training
		SH = School health
Expenditures		CI = Childhood immunization
P = Personnel		NG = Nutrition and growth monitoring
C = Consultants		WS = Water source development
T = Training		AN = Ante/postnatal care
S = Supplies		CD = Communicable disease control
E = Evaluation		IN = Income generating activities
R = Transport		
A = Administration		
Q = Equipment		
V = Vehicles		

If the project already has a coding system, that should be used or adapted, if at all possible. If new codes have to be developed, they should be simple and easy to remember. The above example only requires 12 GLI codes, 3 location codes, and 11 service/activity codes. Numbers can be used instead of letters or in combination with letters. Numbers

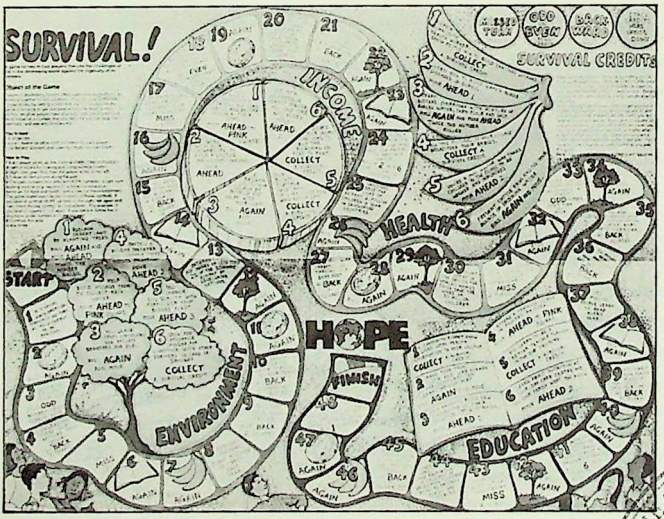
are not as easy to remember, however. It might also be easier to remember the codes in a different sequence: location, service, GLI.

For the period under study (say one year), each revenue and expenditure transaction would then be given a three-letter code, where the first letter stands for the project location, the second for the service category, and the third for the GLI. Examples:

K-CP-P	Kajulu/community process/personnel costs
N-SH-T	N. Nyakach/school health/training costs
C-CI-F	C. Nyakach/childhood immunization/service fees

It's important that the codes are used in the same sequence, since N can mean other income as well as North Nyakach, depending on where it is placed.

These multiple codes make it possible to generate subtotals of various categories for analysis. For example, all Kajulu costs begin with K, all Kajulu community process costs begin with KCP, and so on.



A health education game created by the Aga Khan Foundation Canada.

Photo by AKF

The following worksheet can be used to list the categories to be coded and subsequently to assign codes. This sheet could then be used as the guide for coding each transaction.

CODING WORKSHEET

Level 1: PHC programme (total costs)

Level 1: General ledger items

Code	Description	Code	Description	Code	Description
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____

Level 2: Projects, subprojects, locations, sites, etc.

Code	Description	Code	Description	Code	Description
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____

Level 3: PHC service components or management components

Code	Description	Code	Description	Code	Description
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____
____	_____	____	_____	____	_____

For those who do not have a chart of accounts or codes for their general ledger items, Appendix C includes a check-list of common categories and illustrative codes - both letter and digit. The appendix also explains how to develop a coding system.

Step 5: Allocate and code revenue and expense data (analyst)

There are actually two steps that are carried out simultaneously. The first is used to **allocate** the revenues and costs to one or more categories, and the second is to **apply the proper code** or codes.

You may be able to skip this step. Read the following to find out.

Level 1: In Level 1 analysis you only need to allocate total project revenues and costs to each **general ledger item**. Most project accounting systems already do that. If yours does, this step is not required. Skip to Step 6.

Level 2: If your project accounting system already allocates costs to each **project location**, you can skip to Step 6. But check the "Advanced features" below first.

Level 3: If your project accounting system already allocates costs to each **PHC service and activity** (which is rare), you can skip to Step 6. But check the "Advanced features" below first.

Advanced features

Levels 2 and 3 only. See Appendix A for the following:

- **Indirect costs.**

If your accounting system includes "Indirect costs" (fringe benefits, overhead, general and administrative costs, management fees) and you want to include them in your analysis, see Appendix A for a discussion of indirect costs and how to compute and allocate them to locations and PHC services.

- **Depreciation.**

If you want to include "Capital costs" (equipment, vehicles, buildings, etc.) in your analysis, you need to allocate the cost of these items across their years of useful life. See Appendix A for a discussion of capital costs and depreciation, and guidelines for how to allocate these costs over time.

- **Non-monetary costs.**

If your project includes "in-kind contributions" (donated land, space,

Advanced features
(Check if to be included)
_____Indirect costs
_____Depreciation
_____Non-monetary costs
_____Foreign exchange

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Advanced features
(Check if to be included)
_____Indirect costs
_____Depreciation
_____Non-monetary costs
_____Foreign exchange

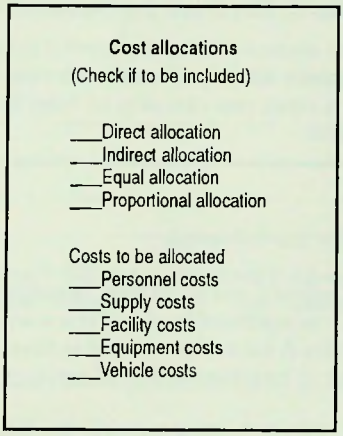
supplies; volunteer workers; free advertising, etc.) and you want to make your analysis more accurate by including those costs, then see Appendix A for a discussion of non-monetary costs and how to compute them.

• Foreign exchange.

Some projects use imported items that are paid for with foreign exchange. If yours does and you want to make your analysis more accurate by adjusting for the real cost of these imported goods, then see Appendix A. It includes a brief discussion of foreign exchange and how to adjust for artificial exchange rates and import duties.

Allocation of costs

To allocate costs means to assign them to one or more cost categories. Costs may be assigned to a single category or they may be spread across several. The first procedure we will call "direct allocation" and the second "indirect allocation."



• Direct allocation

When costs can be clearly attributed to a single category, then the coding is straightforward. Examples are vaccines for the immunization component at the Kajulu health centre; safe motherhood booklets for the antenatal clinic in Central Nyakach; and Salter scales for the growth monitoring component in North Nyakach. If you are doing a Level 1 analysis, then all of these costs would come under the GLI code for "supplies," (or commodities, or the like).

If you are doing a Level 2 analysis, you would determine the amount of these supplies sent to each location and charge that amount to the "supply" code for each location. If you are doing a Level 3 analysis, you would allocate the vaccine costs to the immunization component, contraceptive costs to family planning, and the costs of the scales to growth monitoring at each location.

The examples below show how these costs would be coded for each level of analysis. Assume that we are using the codes developed for the Kisumu project. The GLI code for supplies is S, the location code for North Nyakach is N, Central is C, and Kajulu is K. The codes for the PHC services are CI

(child immunization), AN (ante/postnatal care), and NG (nutrition and growth monitoring).

- **Indirect allocation**

Some costs have to be allocated to two or more categories. Typical examples are buildings, vehicles, equipment, and staff time. There are two principal ways to allocate these costs: 1) equally among the cost categories, or 2) proportionately. It is easiest to do the calculations in percentages. That is, determine the percentage of the total cost that should be allocated to each cost category.

ITEM	CATEGORY	CODE
Level 1: GLI		
Vaccines	Supplies	S
Booklets	Supplies	S
Salter scales	Supplies	S
Level 2: GLI & location		
Vaccines	Kajulu/supplies	KS
Booklets	C. Nyakach/supplies	CS
Salter scales	N. Nyakach/supplies	NS
Level 3: GLI & PHC service		
Vaccines	Imm/supplies	CIS
Booklets	ANC/supplies	ANS
Salter scales	Growth mon/supplies	NGS
GLI, location & PHC service		
Vaccines	Kajulu/Imm/supplies	KCIS
Booklets	C. Nyakach/ANC/supplies	CANS
Salter scales	N. Nyakach/growth mon/supplies	NNGS

- **Equal allocation.**

The total costs are divided equally among the cost categories. For example, if there were three health centres, 1/3 of the costs would be allocated equally to each of them. Thus, if personnel costs were 3,500, they would be divided equally among the three health centres (1,166.67 each). Although this approach is easy, it is usually not accurate, unless the locations and services are similar.

- **Proportional allocation.**

Costs are allocated according to the unit of measure that is typically

associated with the cost category.[1]

Units of measure for allocating costs

Item	Unit of measure	Example
Personnel	Time worked	60% time on immunization x salary
Supplies	Weight used Volume used Units used	30% of vaccines x total cost of vaccines
Facilities	Space used Time used	15% of clinic floor space x rent
Equipment	Time used	20% of lab equipment x annual depreciation
Vehicles	Distance travelled Time used	40% of total Km driven x vehicle operating costs

• Personnel

Staff time. Example: proportion of staff time spent at each health centre or in each PHC activity. For example, if the Kajulu Project Coordinator spends 70% of her time on ANC, 20% on immunization, and 10% on health education, then her costs (salary plus benefits = 14,900.80) would be allocated to those three categories as follows:

Services	Time (%)	Salary	Code*
ANC	70	10,430.56	KANP
Immunization	20	2,980.16	KCIP
Health education	10	1,490.08	KHEP
Total	100	14,900.80	

** The first letter is the location, the next two letters are the PHC service code, the fourth is the GLI code for personnel.*

• Supplies

Weight, volume, or number of units. Example: proportion of total ORS packets shipped to each health centre. Suppose that 4,000 packets were

1 See *Estimating costs for cost-effectiveness analysis: Guidelines for managers of diarrhoeal diseases control programmes.* CDD/SER/88.3 Geneva. World Health Organization: 1988, pp. 23-26.

sent to N. Nyakach, 8,000 to C. Nyakach, and 12,000 to Kajulu. If the total cost of the packets, including shipping, was 14,500 then the costs would be allocated as follows:

Location	Units (%)	Cost	Code*
N. Nyakach	16.7	2,421.50	NCDS
C. Nyakach	33.3	4,828.50	CCDS
Kajulu	50.0	7,250.00	KCDS
Total	100.0	14,500.00	

** The first code is the location, the second is the service (communicable disease control) and the third is the GLI code for supplies.*

• Facilities

Space or time. Example: proportion of health centre space used for PHC; proportion of time the facility is used for immunization services. Suppose the Kajulu Health Centre has 30 square metres of floor space and the rent is 23,500. Assume that ANC uses half the space and the rest is equally divided among leader training and immunization.

Services	Space (%)	Rent	Code*
ANC	50	11,750.00	ANA
Immunization	25	5,875.00	KCIA
Leader training	25	5,875.00	KLTA
Total	100	23,500.00	

** The first code is the location, the second the service, the third the GLI code (A for administration).*

• Equipment

Time. Example: proportion of time audio-visual equipment is used for PHC. Assume the C. Nyakach location uses the AV equipment 40% of the time. The other locations use it the rest of the time. Also assume that the equipment originally cost 3,500 and was expected to last 5 years. The annual (pro-rated) cost would be 700 (3,500/5 years). C. Nyakach's 40% share would be 280 (700 * 40%). Now suppose that the equipment was used equally on only two services: community process and health education. The cost allocation would be as follows:

Services	Time (%)	Cost	Code*
Leader train.	50	140	CLTQ
Health ed	50	140	CHEQ
Total	100	280	

** First code is location, second is service/activity, the third is the GLI code for equipment.*

• Vehicles

Distance or time. Example: proportion of total mileage used for outreach; proportion of time vehicle is used for water source development. Vehicle costs usually include depreciation, as in the above example of equipment. Assume that is 8,000/year. Other costs would include operating costs (fuel, etc.), maintenance (repairs), insurance, and a driver. Assume that the total of all of those costs is 14,000 for a vehicle in N. Nyakach. Assume that the vehicle is used only for water source development, income generating, and community process activities. Assume records have been kept of kilometres driven: 32,000 for WS, 13,000 for IN, and 46,000 for CP. The allocation would be as follows:

Services	Km (%)	Cost	Code
Water source development	35.2	4,928.00	NWSV
Income generating	14.3	2,002.00	NINV
Community process	50.5	7,070.00	NCPV
Total	100	14,000.00	

Allocation techniques

These allocation formulas require good records. Information must have been kept on how much time each staff person spent on each activity, which supplies were used for which activity in which location, how many kilometres were driven, and so forth. This level of detail will give you very accurate estimates of costs, though it is time consuming.

If the cost analysis is done **prospectively,** then the financial accounting system can be set up to record all of this information routinely. At the end of the year you will have very detailed and accurate data for your analysis. If you plan to carry out a routine cost analysis, we urge you to set up your bookkeeping system to produce this information. Surprisingly, once the

system is set up, it will probably not take any more effort to use than your current system. Most cost analyses are done **retrospectively.** If you are doing a Level 2 or 3 analysis, you will have to go back to your records and reclassify the costs. There are three ways to do this.

- **Recode all transactions**.

This is the most time-consuming approach. It involves going back through all of the financial records to reallocate (and recode) past financial data. In one of our field tests, for example, a two-person team spent 3 weeks recoding the financial data for a three-year period. Some large blocks of costs were easy to allocate (vaccines, water pipes). Some categories required going back to the original vouchers and receipts (supplies, consultant charges). Even then, some categories (staff time, vehicle use) had to be estimated.

- **Use "expert" judgement.**

This is probably the quickest and most common approach. The experts are usually the managers and staff, who make educated guesses about the amount of time they spend on each PHC service, the proportion of supplies used in each location, and so on. Sometimes these estimates are relatively accurate, sometimes they are quite inaccurate. For example, staff members who have a set schedule and only 2-3 activities can usually accurately estimate how they use their time. Those who have multiple responsibilities and no set schedule have a difficult time making such estimates.

- **Take a sample of selected costs**.

A "prospective" cost allocation and coding exercise could be carried out for a month or so. Staff could be asked to keep track of their time, vehicle logs could be kept, logs could be kept for equipment used, and so forth. The results could then be used to develop some of the allocation percentages discussed above.

Our recommendation is to use a combination of these approaches. Reclassify and recode those major items that are easy to reclassify (e.g., purchases of contraceptives and cold chain boxes). Get estimates from staff, supervisors, and managers for those cost items that they know well (such as time spent on scheduled activities and use of space). Then take a sample of the rest, especially the larger cost items (personnel, vehicles, and travel). Module 3 (Work planning) includes suggestions and forms for estimating how staff spend their time.

Step 6: Enter data and compute costs (analyst)

The data can now be entered into a journal, worksheet, or computer for processing. In a prospective cost analysis, the coding and data entry will usually be done simultaneously. But if the data are being taken from past records and recoded, then they will probably need to be retabulated. We can suggest three procedures for this step:

- reclassify total costs;
- reclassify monthly or quarterly costs; or
- reclassify individual transactions for the entire period.

Reclassify total costs.

If you are reclassifying **total costs** for the period being analysed (e.g., annual costs), then this step can be done fairly quickly.

The following example shows how one project in Bangladesh allocated its annual costs across three services: Family planning, Immunization, and Other. After deciding on the allocation procedures, the staff took the total annual cost of each line item and distributed it across the three services. For example, 70% of the Co-ordinator's salary was allocated to family planning, 20% to immunization, and 10% to other activities.

Co-ordinator salary = 14,900.80 :	FP	70%	=	10,430.56
	IMM	20%	=	2,980.16
	Other	10%	=	1,490.08

"Scabies" health action in school; Kisumu, Kenya.

Photo by Jean-Luc Ray for AKF

Exhibit 1: Cost allocation, AKCHP Bangladesh

SL	Designation	Salary + 60%	FP %	Amount	IMM %	Amount	Other %	Amount
No	Personnel							
1	Co-ordinator	14,900.80	70	10,430.56	20	2,980.16	10	1,490.08
1	Supervisor (a)	13,781.60	75	9,781.20	15	1,956.24	10	1,304.16
1	Supervisor (b)	11,550.40	75	8,662.80	15	1,732.56	10	1,155.04
1	Supervisor (c)	10,155.20	75	7,616.40	15	1,523.28	10	1,015.52
8	Field worker(a)	71,091.20	80	56,872.96	15	10,663.68	5	3,554.56
3	Field worker(b)	23,856.00	80	19,084.80	15	3,578.40	5	1,192.80
2	Field worker(c)	14,124.80	80	11,299.84	15	2,118.72	5	706.24
1	Field worker(d)	6,480.00	80	5,184.00	15	972.00	5	324.00
1	Paramedic (a)	11,424.00	60	6,854.40	20	2,284.80	20	2,284.80
1	Aya (b)	4,249.60	80	3,399.68	10	424.96	10	424.96
1	Poon (a)	4,460.80	80	3,568.64	10	446.08	10	446.08
21	Subtotal	185,334.40		142,755.28		28,680.88		13,898.24
	Establishment							
	Unit Rent	14,000.00	70	9,800.00	20	2,800.00	10	1,400.00
	Utilities	1,344.86	70	941.40	10	268.97	10	134.49
	Subtotal:	15,344.86		10,741.40		3,068.97		1,534.49
	Supplies							
	Stationery	710.70	70	497.49	20	142.49	10	71.07
	Printing	1,527.00	85	1,297.95	10	152.70	5	76.35
	Postage	67.20	85	57.12	5	3.36	10	6.72
	Office & F.S.	620.85	80	496.68	10	62.08	10	62.08
	Con. non-phar.	237.00	75	177.75	25	59.25	-	-
	Subtotal	3,162.75		2,526.99		419.54		216.22
	Transportation							
	F & M	1,380.00	50	690.00	35	483.00	15	207.00
	Collec. of sup.	680.10	70	476.07	15	102.02	15	102.01
	Subtotal	2,060.10		1,166.07		585.02		309.01

A second example from Kenya illustrates another format. Two tables were used. The first table (Exhibit 2) summarises the results of Step 5. The percentage distributions of each GLI were entered into a table. For example, 10% of personnel costs were allocated to CP (community process), 5% to HE (health education), and so on. The second table (Exhibit 3) shows the results of allocating the total cost of each GLI across each service. For example, the total cost of personnel for the period was 715. That is multiplied by the percentage distribution of personnel costs from the first table. Thus, the personnel costs for CP are 71.5 (715 * 10%), and 36 for HE (715 * 5%). The table also shows the total costs of each PHC service (425 for CP, 316 for HE, and so on).

Exhibit 2: Cost allocation, Mombasa, Kenya
Percentage allocation of costs by PHC service

PHC service/ activity	CP	HE	IC	LT	SH	CI	NG	WS	AN	CD	IG	Total
Personnel	.10	.05	.15	.07	.10	.10	.09	.13	.12	.05	.04	1.00
Consultants	.00	.00	.00	.00	.00	.00	.50	.00	.50	.00	.00	1.00
Training	.05	.08	.09	.10	.18	.10	.20	.05	.10	.00	.05	1.00
Supplies	.07	.05	.18	.10	.12	.20	.08	.12	.05	.00	.03	1.00
Evaluation	.03	.00	.12	.20	.15	.12	.04	.09	.08	.05	.12	1.00
Transport	.10	.05	.15	.07	.10	.10	.09	.13	.12	.05	.04	1.00
Administration	.08	.08	.08	.08	.08	.10	.10	.10	.10	.10	.10	1.00
Equipment	.05	.08	.09	.10	.18	.10	.20	.05	.10	.00	.05	1.00
Vehicles	.07	.05	.18	.10	.12	.20	.08	.12	.05	.00	.03	1.00

Health messages are frequently carried by word of mouth, such as in this village square in Portugal.
Photo by Jean-Luc Ray for AKF

Exhibit 3: Cost allocation, Mombasa, Kenya
Allocation of expenditures by PHC service

PHC service/ activity	CP	HE	IC	LT	SH	CI	NG	WS	AN	CD	IG	Tot
Personnel	71.5	36	107	50	75	75	64.4	93	85.8	36	29	715
Consultants	0.0	0	0	0	0	0	1404	0	1404	0	0	2807
Training	11.8	19	21	24	42	24	47	12	23.5	0	12	235
Supplies	210	150	540	300	360	600	240	360	150	0	90	3001
Evaluation	24.7	0	99	165	124	99	33	74	65.9	41	99	824
Transport	12.3	6.2	18	8.6	12	12	11.1	16	14.8	6.2	4.9	123
Administration	43.4	43	43	43	43	54	54.3	54	54.3	54	54	543
Equipment	28.4	45	51	57	102	57	114	28	56.8	0	28	568
Vehicles	23	16	59	33	39	66	26.3	39	16.5	0	9.9	329

Reclassify monthly or quarterly costs.

If you reclassify your financial data each month or quarter, you will need to summarise this information. You can do this manually or with a computer. An example is shown below.

Quarterly summaries of costs for Kajulu

Date	Description	Code	Amount	Subtotal
31/3/91	Salaries: ANC	KANP	23,000	
30/6/91	Salaries: ANC	KANP	23,000	
30/9/91	Salaries: ANC	KANP	23,000	
31/12/91	Salaries: ANC	KANP	23,000	
				92,000
31/3/91	Salaries: ANC	CANP	23,000	
30/6/91	Salaries: ANC	CANP	23,000	
30/9/91	Salaries: ANC	CANP	23,000	
31/12/91	Salaries: ANC	CANP	23,000	
				92,000

Reclassify individual transactions.

If you are going to enter individual transactions, you will probably want to use a computer. Use the program included with this module (MOD8DATA.WK1 - see Appendix E for an illustration and instructions) or set up your own. The advantage of a computer program is that you can sort the entries by codes and compute subtotals. You can also do this manually, but it takes longer.

An excerpt of the computer program is shown below. This same format can be used for manual entries. Simply enter the date of the transaction, the check number (or invoice, SI, etc.), description, code, and amount. After you have entered all of your data, you can sort the data and produce subtotals of each cost category. See Appendix E for an illustration of the program.

Date	Cheque	Description	Code	Amount	Subtotal
07/02/90	#373	Office expenses	KCS	185.38	
29/03/90	#376	Staff salaries	KOP	2,520.34	
05/04/90	#380	Telephone & fax	KOD	170.18	
06/05/90	#381	Staff salaries	KCP	2,990.63	
13/05/90	#385	Photocopy	KCD	43.52	
21/05/90	#387	Mail and postage	KCD	17.50	
21/05/90	#387	Mail and postage	KOD	8.50	

There are two ways to do this by hand. The first is to copy all of the transactions onto separate sheets -- one for each cost code. Then add up the subtotals for each sheet. The second is to add all of the transactions that have the same code, checking them off the transaction sheet as you enter them into a calculator. Then write the subtotal for each code on a separate piece of paper. Be sure to use a calculator with a tape so that you can double-check your addition.

Step 7: Analyse and interpret the revenue and cost data (analyst)

Assuming that the dummy tables and graphs were selected in Step 3, the analysis should be straightforward. Just transfer the totals from Step 6 into the appropriate tables. The Introduction illustrated several different cost analysis procedures that include tables and graphs. The computer files for the dummy tables also include pre-designed graphs and instructions for displaying them. These templates can be copied or modified so that analysts can substitute other cost data for those illustrated.

Analysis should also include **interpretation**. What do the data mean? The following guidelines may help you interpret and explain the data in each table.

Analysis guidelines

- Which GLI is the most expensive? Why? What accounts for it? (You can often answer this question by looking at the detailed subcategories of the GLI. For example, supply costs may be high because a large shipment of vaccines was just purchased.) Has the cost been increasing, remaining stable, decreasing? Why? Is the item over or under budget? Is the budget too low, too high? What could be done to reduce costs in this category?

- Which GLI is the least expensive? Ask the same questions: why, what accounts for it, what is the trend, how does it compare with the budget, is the budget too low or too high, what can be done to reduce these costs?

- Ask these same questions about each location and each PHC service/activity.

- Look at revenues. What is the major source of revenue? Has it been increasing, remaining stable, decreasing? Why? Is it likely to change? Why? Is the actual amount received more or less than projected in the budget? Why? Are the projections too high or too low? What can be done to increase revenue from this source?

- Ask the same questions about each source of revenue.

- Compare revenues with expenses. Overall, how is the project doing? Are revenues meeting expenses? Sum-

marise your findings to explain why they are or aren't. What are the trends? Are they likely to change? What are your major conclusions about revenues and expenditures: for the past, for the future.

Step 8: Present/report the cost analysis findings (analyst)

The last step is to report the findings to the user(s). The tables and graphs included in this Guide, and the templates included in the computer disk, can be copied and modified to display the findings in a simple, clear manner. Here are some hints for presenting reports:

Reporting hints

- Stick to the objectives of the cost analysis. Answer the major questions first. Don't save them to the last.

- Keep your presentation simple. Do not try to present too much information either in the report or in each table/graph. Limit your presentation to 20-30 minutes.

- Allow time for questions and discussion. Encourage discussion. Encourage action.

- Use an overhead projector to display your key findings and graphs. Hand out paper copies of your transparencies so that people can follow along during your presentation, make notes, and refer to them later.

- If you present a written report, keep it short (10 pages), simple, and include graphs. Include a one-page "Executive summary" that clearly states the major findings, conclusions, and recommendations.

Appendix A: Advanced features – Concepts and procedures

Concepts and procedures you should know for each level of analysis

Concept	Level 1	2	3	Module 9[2]
Direct costs	x	x	x	x
Indirect costs		x	x	x
Capital costs	x[1]	x[1]	x	x
Recurrent costs	x	x	x	x
Depreciation	x[1]	x[1]	x	x
Average (unit) costs			x	x
Marginal costs				x
Fixed costs				x
Variable costs				x
Non - monetary costs			x	x
Foreign exchange			x	x
Inflation				x
Present value				x

[1] *Only if capital expenditures are included in the analysis.*
[2] *These items are all included in Module 9.*

This appendix describes some of the financial concepts and procedures needed to carry out a Level 2 or Level 3 cost analysis. Specifically, the sections that follow describe:

- Types of costs (direct and indirect, capital and recurrent, fixed and variable, average).
- How to compute indirect costs.
- How to compute depreciation of capital costs.
- Monetary and non-monetary cost estimates, foreign exchange, and shadow pricing.

Types of costs

Economists make certain distinctions in types of costs so that they can calculate true costs more accurately. For Levels 1 and 2 you only need to know about a few of those and how to compute them. For Level 3 analysis you need to know a few more.

For Level 1 you really only need to know about **direct** costs, unless your financial system includes **indirect** cost categories or unless analysis is

going to include **capital** costs. Generally, for Levels 1 and 2 it should be enough to know **direct** and **indirect** costs; **capital** and **recurrent** costs; and **depreciation**.

For Level 3 you should also know what **average** or **unit** costs are and how to compute them, as well as how to adjust for **nonmonetary** costs and **foreign exchange** fluctuations.

Type of Cost

Relationship to the PHC service	Life expectancy
• Direct	• Capital/development
• Indirect	• Recurrent/operating

Direct and indirect costs

The first way to classify costs is as direct or indirect. **Direct costs** can be directly attributable to the service. For example, the direct costs of expanding a primary health care programme to include an ORT component may consist of personnel salaries, volunteer time, ORT salt packets, and transportation. **Indirect costs** include fringe benefits for employees, overhead, general and administrative costs, and management fees. These may pay for such "indirect" services as office rent, utilities, the library, and coffee for the staff.

Separate direct and indirect costs

If you want to include indirect costs in your analysis, you need to separate your project's total costs into direct and indirect categories.[1] Table A-1 illustrates one way to do that. All the costs that are directly related to provision of PHC services are listed on the left, all those that are not are listed on the right. Total costs are the sum of the direct and indirect costs.

How to compute the indirect cost rate

If you are doing a Level 2 or 3 analysis you will want to allocate your indirect costs to the various locations and services. A common way of doing that is to compute the indirect cost rate, which is a percentage of the direct costs.

1. It is important to keep in mind that each project will have to determine which costs it classifies as direct and indirect. There are no rigid rules as to which costs fall into each category.

Table A-1

Direct costs	Amount	Indirect costs	Amount
Community nurses	2,000	Accountant	500
Community health workers	3,500	MIS specialist	800
Travel, outreach	1,245	Property taxes	345
Vaccines	250	Insurance	125
Weighing scales	144	Utilities	367
Total	7,139	Total indirect	2,137
Total costs 9,276	2,137/7,139 = .29934		

The computation in the lower right-hand corner of Table A-1 shows that indirect costs are about 30% (29.934) of direct costs. That proportion can be used to: 1) allocate indirect costs by adding a proportion of indirect costs to each direct cost item; and 2) estimate future indirect costs when preparing budgets, assuming that there will be no significant change in the categories or amounts. This figure of 30% is sometimes called the "indirect cost rate."

Table A-2 shows one way to allocate the indirect costs (2,137) to each of three locations. Just multiply the direct costs of each health centre by 30 percent and add that amount to each health centre's direct costs, as shown below.

Table A-2

Category	Amount	Percent	N. Nyakach	C. Nyakach	Kajulu
Direct	7,139		3,200	2,131	1,808
Indirect	2,137	29.934	958	638	541
Total	9,276		4,769	2,769	2,349

The indirect costs can be allocated in other ways, as well. They could be allocated equally to all locations, or in proportion to the size, number of staff, and number of clients of each location. However, the method shown above is the recommended approach.

Capital and recurrent costs

Costs can also be classified as capital (or development) and recurrent (or operating). The distinction between the two types is based on life expectancy. Those resources that have a life expectancy of 1 year or more are called **capital costs.** They may include buildings, cars, trucks, beds, and medical equipment. Those resources that are purchased and used (or replaced) within 1 year's time are **recurrent costs.** They include such items as personnel salaries, medicine and supplies, gasoline, electricity, drugs, and food.

The distinction between capital and recurrent costs is important in PHC cost analyses because:

- These costs are calculated in different ways (this will be described in a later section.)
- Some donors limit their contributions to capital costs and expect the host country to be responsible for the recurrent costs. This is why many economists focus their attention on recurrent costs.
- In many countries there is one budgeting and accounting process for recurrent costs and another for capital costs.

Depreciation

In cost analysis the practical reason for making this distinction is to disperse the capital costs across several years. It would be inappropriate, for example, to charge the full cost of a new vehicle to the project in the year it was purchased. The vehicle has a useful life of 10 years or so. Therefore, its cost should be spread out over that 10-year period. That is called "depreciation." Each year the value of the vehicle declines (depreciates) by a certain amount until at the end of 10 years its value is zero.

The simplest way to compute depreciation is to divide the original cost by the item's useful life. If the vehicle cost $15,000, its annual depreciation would be $1,500 ($15,000/10 years). In allocating costs, $1,500 would be allocated each year for 10 years.

A more precise way is to use a depreciation table (see Table A-3). Find the useful life of the item in the left column and the corresponding factor in the appropriate interest rate column. This is the current rate that you would pay to borrow money. Multiply the factor by the original purchase price. For example, if the interest rate is 10% the factor for 10 years of useful life is 0.1627. Multiply that by $15,000 to get $2,440.50. That is the amount of the cost that should be allocated each year. If your interest rate is different from those shown in the table, you can extrapolate. For example, if the rate is 12%, calculate a figure 2/5 between the 10% and 15% rates.

Table A-3

Annualisation[1] factors for determining annual cost of facilities and equipment for different periods of depreciation and interest rates

Lifetime of assets (n)	Interest rates (r) 5%	10%	15%
1			
2	0.5378	0.5762	0.6151
3	0.3672	0.4021	0.4380
4	0.2820	0.3155	0.3503
5	0.2310	0.2638	0.2983
6	0.1970	0.2296	0.2642
7	0.1728	0.2054	0.2403
8	0.1547	0.1874	0.2229
9	0.1407	0.1736	0.2096
10	0.1295	0.1627	0.1993
11	0.1204	0.1540	0.1911
12	0.1128	0.1468	0.1849
13	0.1065	0.1408	0.1791
14	0.1010	0.1357	0.1747
15	0.0963	0.1315	0.1710
16	0.0923	0.1278	0.1679
17	0.0887	0.1247	0.1654
18	0.0855	0.1219	0.1632
19	0.0827	0.1195	0.1613
20	0.0802	0.1175	0.1598
21	0.0780	0.1156	0.1584
22	0.0760	0.1140	0.1573
23	0.0741	0.1126	0.1563
24	0.0725	0.1113	0.1554
25	0.0710	0.1102	0.1547
26	0.0696	0.1092	0.1541
27	0.0683	0.1083	0.1535
28	0.0671	0.1075	0.1531
29	0.0660	0.1067	0.1527
30	0.0651	0.1061	0.1523

Source: Levin, HM. *Cost-Effectiveness: A Primer.* (Beverly Hills: Sage Publications, 1983), p.70.

[1] Annualisation formula: $$a(r,n) = \frac{[r(1+r)^n]}{[(1+r)^n - 1]}$$

where r = interest rate and n= lifetime of asset for depreciation.
Example: an item costs 12,000, the interest rate is 15%, and the useful life is 7 years. Annual depreciation is .2403 * 12,000 = 2,883.60.

Average costs (unit costs)

This procedure is only used for Level 3 analysis of PHC services. The **average** (or per unit) **cost** is the total cost of a programme divided by the total number of units of outcome. An example would be the total cost of an immunization component of a primary health care programme (e.g. $10,000) divided by the number of children immunized (e.g. 5,000), which would produce the average cost per child immunized ($2).

Non-monetary cost estimates and shadow pricing

Many PHC programmes receive contributions of space, supplies, transportation, advertising, and so forth. Volunteers are often a major resource for PHC programmes and vaccines for immunizations are often donated to PHC programmes. Although these are usually thought of as "free" donations, they are not. Someone has paid for them. Even "volunteered" time has a value. Without volunteers the programme would have had to pay for workers. Thus in calculating the cost of PHC services, the analyst should include an adjustment for nonmonetary items.

Economists use "shadow prices" to make these adjustments. **Shadow prices** are estimates of the true costs of goods or services and can be computed in one of two ways:

- If the project includes similar material or services that have been purchased in the market, apply these prices to the donated materials or services.
- If no value can be assigned in this way, calculate the monetary value that would have been paid for the material or service in an alternative project.

For example, if paid employees perform tasks similar to those carried out by volunteers, then the wage rate of the paid employee can be used to estimate the value of the volunteer's time. The value of donated equipment should be calculated similarly. If no monetary figure is available, then use the market price for similar equipment.

Criteria for estimating costs of non-monetary contributions

Item	Criteria
Personnel	Current labour rate
Supplies	Current cost/unit
Facilities	Price square metre
Equipment	Current cost/unit
Vehicles	Current cost/unit

Foreign exchange

All costs should be calculated in the currency of the host country. However, if the programme relies on imported items that must be paid for with foreign exchange, then this presents two problems. First, the official exchange rate may be artificial, and shadow prices will have to be used to compute the actual costs of imported goods. For example, one Asian country recently had an "official" exchange rate of 6:1 and a "black market" exchange rate of 76:1. Calculating the cost of imported items under the official exchange rate would result in a cost 11 times less than the real costs. In effect, the government's official exchange rate subsidises the health programme and should be added to the project cost. The cost of items should be calculated according to the shadow price of foreign exchange.

The second problem is that duties are often levied on foreign imports. But certain items may be "duty free." This is a government subsidy of those items. If PHC programme equipment, supplies, etc. are imported duty free, their price is artificially low. The real cost should include an adjustment for duties.

Appendix B: Blank worksheets

WORKSHEET FOR SPECIFYING OBJECTIVES

User/audience:

___ Manager _____
___ Board of directors _____
___ Central directorate _____
___ Donors _____
___ Other: _____

Purpose:

___ Monitoring _____
___ Efficiency _____
___ Planning _____
___ Other: _____

Scope:

___ Geographic area _____
___ Programme/project/activity _____
___ Time/duration _____
___ Prospective or retrospective? _____
___ Expenditures and/or revenues _____
___ Other: _____

WORKSHEET FOR DECIDING WHAT TO COST

Level 1: PHC programme (total costs)

_____	_____
_____	_____
_____	_____
_____	_____

Level 1: General ledger items

_____	_____
_____	_____
_____	_____
_____	_____

Level 2: Projects, subprojects, locations, sites, etc.

_____	_____
_____	_____
_____	_____
_____	_____

Level 3: PHC service components or management components

_____	_____
_____	_____
_____	_____
_____	_____

WORKSHEET FOR SPECIFYING TYPES OF ANALYSES NEEDED

____ 1. The total amount of revenues received and resources spent (L1)
____ 2. Revenues and expenditures compared with budgets (L1)
____ 3. The distribution of revenues and costs by general ledger line item (L1)
____ 4. Trends in revenues and costs over time (L1)
____ 5. The distribution of revenues and costs by location or facility (L2)
____ 6. The distribution of revenues and costs by PHC service or activity (L3)
____ 7. Average costs (unit costs) (L3)

CODING WORKSHEET

Level 1: General ledger items of PHC programme (total costs)

Code	Description	Code	Description	Code	Description

Level 2: Projects, subprojects, locations, sites, etc.

Code	Description	Code	Description	Code	Description

Level 3: PHC service components or management components

Code	Description	Code	Description	Code	Description

WORKSHEET FOR SPECIFYING TABLES AND GRAPHS NEEDED
(see Appendix D for examples of these tables)

		Tables	
		Single period	Multiple periods (Trends)
Level 1 tables: Analysis by general ledger item			
____ 1. The total amount of resources spent & revenues received		1A	1B
____ 2. Total revenues & expenditures compared with budgets	2A	2B	
____ 3. Distribution of costs & revenues by general ledger line item		3A	3B
____ 4. GLI revenues & expenditures compared with budgets	4A	4A[1]	
Level 2 tables: Analysis by PHC location or facility			
____ 5. Total revenues & costs by location/facility		1B[2]	1B[1,2]
____ 6. Total revenues & expenditures compared with budgets	2B[2]	2B[1,2]	
____ 7. Distribution of revenues & costs by general ledger item		3B[2]	3B[1,2]
____ 8. GLI revenues & expenditures compared with budgets	4A[2,3]	4A[1,3]	
Level 3 tables: Analysis by PHC service or activity			
____ 9. The distribution of costs by PHC service/activity		5A	3B[2]
____ 10. Average costs (unit costs) of each service/activity		6A	6A[1]
____ 11. Total service/activity revenues & expend. compared with budgets		2B[3]	2B[1,3]
____ 12. Distribution of service/activity revenues & costs by GLI		3B[3]	3B[1,3]
____ 13. GLI rev. & expend. of each serv/activ. compared with budgets		4A[4]	4A[1,4]
____ 14. Distribution of revenues & costs by location & service	3B[3,5]	3B[1,3]	

NOTES:

____ 1. Prepare separate table for each time period.

____ 2. Change headings and labels (e.g., from "Year 1" to "Central HC", or "ANC".)

____ 3. Prepare separate table for each location or facility.

____ 4. Prepare separate table for each PHC service or activity.

____ 5. Change labels in vertical axis to GLI names, change labels in horizontal axis to services/activities.

Advanced Features
(Check if to be included)

____ Indirect costs
____ Depreciation
____ Non-monetary costs
____ Foreign exchange

Cost Allocations

(Check if to be included)	Costs to be allocated
____ Direct allocation	____ Personnel costs
____ Indirect allocation	____ Supply costs
____ Equal allocation	____ Facility costs
____ Proportional allocation	____ Equipment costs
	____ Vehicle costs

Appendix C: General ledger item codes

Instructions:

Determine the level of detail you want for your cost analysis. You may need to have codes for up to four levels so that you can analyse costs (and income) for: a) the overall PHC Programme; b) each project, subproject, location or site; c) PHC service component or activity; and d) general ledger accounts.

In general, the more detail you want, the greater the amount of work required to code each expenditure. The following example shows a relatively simple coding system that requires only three letters or digits for each expenditure.

Account categories		Coding examples	
		Alphabetic	Numeric
Programme:	NPPHC*		
Subprojects:	Chitral	C	100
	Gilgit	G	200
Activities:	Outreach	O	10
	Clinical	C	20
	Management	M	30
Ledger accounts	Personnel	P	1
	Travel & per diem	T	2
	Commodities	C	3
	Other direct costs	O	4
	Indirect costs	I	5
Examples:	Chitral, outreach, travel		= COT (or 112)
	Gilgit, management, indirect costs		= GMI (or 235)

* Code for NPPHC not necessary as there is only one PHC Programme.

The system illustrated above will enable you to compute total project costs; costs for each location (Chitral and Gilgit); costs of each major activity for the overall project and by location; and cost of each major ledger item (personnel, etc.), again for the overall project, for each location, and for each activity.

Use this format or the examples on the following pages to construct your own coding system. Then print it out and use it as a reference for coding your transactions.

Detailed activity and ledger account coding options

The following is a checklist of common PHC activities and General Ledger accounts with suggested codes. You can also use digits or make up your own coding scheme, of course.

Activities	Letter	Digit
PHC services	P	100
Oral rehydration therapy	PORT	101
Growth monitoring/nutrit.	PGMN	102
Immunization	PIMM	103
Maternal care (ANC+del)	PMC	104
Family planning	PFP	105
Health education	PHE	106
Water & sanitation	PWS	107
Curative services	PCS	108
Tuberculosis	PTB	109
Malaria	PMAL	110
Acute respiratory infect.	PARI	111
Management support services	M	200
Planning	MPL	201
Training	MTR	202
Supervision	MSUP	203
Financial	MFI	204
Information management	MIN	205
Community organisation	MORG	206
Personnel management	MPER	207
Research	MRES	208
Ledger accounts		
Income	I	300
Service fees	IF	301
Sales of goods	IG	302
Donor contributions	ID	303
Contributions	IC	304
Expenses (indirect)	E	400
Personnel	EP	
Wages & salaries	EPW	401
Fringe benefits	EPF	402
Consultants	EPC	403
Temporary labour	EPT	404

Examples

104-301 Maternal care fees
202-403 Training consultants
107-432 W&S vehicles

Commodities	EC	410
Drugs, medicines	ECD	411
Office supplies	ECS	412
Health supplies	ECH	413
Other commodities	ECO	414
Travel	ET	420
Local travel	ETL	421
International	ETI	422
Per diem	ETP	423
Capital expenditures	ECAP	430
Buildings	ECAPB	431
Vehicles	ECAPV	432
Medical equipment	ECAPM	433
Audio-visual	ECAPAV	434
Office equipment	ECAPOF	435
Other direct costs	EO	440 450 460
Advertising	EOA	441
Bank charges	EOBANK	442
Books, subscriptions, dues	EOBOOK	443
Conferences	EOCON	444
Data processing	EODATA	445
Depreciation	EODEP	446
Equipment rental	EOEQ	447
Freight	EOFR	448
Insurance	EOINS	449
Interest - mortgage	EOINTM	450
Interest - other	EOINTO	451
Laundry & cleaning	EOLAUN	452
Legal & accounting	EOLEG	453
Moving & storage	EOMOV	454
Parking	EOPARK	455
Participant training	EOTR	456
Photocopying	EOPH	457
Postage, courier	EOPOST	458
Printing	EOPRN	459
Recruiting & relocation	EOREC	460
Rent	EORENT	461
Repairs & maintenance	EOREP	462
Security	EOSEC	463
Stipends	EOSTIP	464
Taxes	EOTAX	465
Telephone, fax	EOTEL	466
Utilities	EOUTIL	467

Vehicle fuel, maintenance	EOV	468
Videotaping	EOVID	469
Subcontracts (Name:)	ESUB	500
Indirect Costs	EI	600

Indirect costs will need to be determined for each project. Some PHC projects may not have indirect costs, others could have a duplicate of the direct cost codes, i.e., personnel, commodities, travel, etc. An example of "typical" indirect costs is shown below.

Personnel	EIP	610
Wages & salaries	EIPW	611
Fringe benefits	EIPF	612
Consultants	EIPC	613
Temporary labour	EIPT	614
Commodities	EIC	620
Office supplies	EICO	621
Other commodities	EICC	622
Travel	EIT	630
Local travel	EITL	631
International	EITI	632
Per diem	EITP	633
Capital expenditures	EICAP	640
Buildings	EICAPB	641
Vehicles	EICAPV	642
Office equipment	EICAPO	643
Other indirect costs	EIO	650 660 670
Advertising	EIOAD	651
Bank charges	EIOBANK	652
Books, subscriptions,dues	EIOBOOK	653
Conferences	EIOCON	654
Data processing	EIODATA	655
Depreciation	EIODEP	656
Equipment rental	EIOEQ	657
Freight	EIOFR	658
Insurance	EIOINS	659
Interest - mortgage	EIOINTM	660
Interest - other	EIOINTO	661

Laundry & cleaning	EIOLAUN	662
Legal & accounting	EIOLEG	663
Moving & storage	EIOMOV	664
Parking	EIOPARK	665
Participant training	EIOTR	666
Photocopying	EIOPH	667
Postage, courier	EIOPOST	668
Printing	EIOPRN	669
Recruiting & relocation	EIOREC	670
Rent	EIORENT	671
Repairs & maintenance	EIOREP	672
Security	EIOSEC	673
Stipends	EIOSTIP	674
Taxes	EIOTAX	675
Telephone, fax	EIOTEL	676
Utilities	EIOUTIL	677
Vehicle fuel, maintenance	EIOV	678
Videotaping	EIOVID	679

Appendix D: Dummy tables

WORKSHEET FOR SPECIFYING TABLES AND GRAPHS NEEDED

	Tables		
	Single period		Multiple periods (Trends)
Level 1 Tables : Analysis by general ledger item			
_____ 1. The total amount of resources spent and revenues received	1A		1B
_____ 2. Total revenues & expenditures compared with budgets 2A		2B	
_____ 3. Distribution of costs & revenues by general ledger line item	3A		3B
_____ 4. GLI revenues & expenditures compared with budgets 4A		4A[1]	
Level 2 Tables : Analysis by PHC location or facility			
_____ 5. Total revenues & costs by location/facility	1B[2]		1B[1,2]
_____ 6. Total revenues & expenditures compared with budgets 2B[2]		2B[1,2]	
_____ 7. Distribution of revenues & costs by general ledger Item	3B[2]		3B[1,2]
_____ 8. GLI revenues & expenditures compared with budgets 4A[2,3]		4A[1,3]	
Level 3 Tables : Analysis by PHC service or activity			
_____ 9. The distribution of costs by PHC service/activity	5A		3B[2]
_____ 10. Average costs (unit costs) of each service/activity	6A		6A[1]
_____ 11. Total service/activity revenues & expend. compared with budgets 2B[3]			2B[1,3]
_____ 12. Distribution of service/activity revenues & costs by GLI	3B[3]		3B[1,3]
_____ 13. GLI rev. & expend. of each serv/activ. compared with budgets	4A[4]		4A[1,4]
_____ 14. Distribution of revenues & costs by location & service	3B[3,5]		3B[1,3]

NOTES:

1. Prepare separate table for each time period.
2. Change headings and labels (e.g., from "Year 1" to "Central HC" or "ANC").
3. Prepare separate table for each location or facility.
4. Prepare separate table for each PHC service or activity.
5. Change labels in vertical axis to GLI names, change labels in horizontal axis to services/activities.

The dummy tables presented in this appendix include illustrative data so that you can see what the final products will look like. Use these tables as guides, but if you wish, you can enter your data directly into the computer file that comes with this module (MOD8_L1A, MOD8_L1B, and MOD8_L3.WQ1). The instructions for entering data, viewing pre-set graphs, and printing out the tables are included in the computer files. They are also reproduced below.

There are three sets of dummy tables in this appendix (and on the disk). The first, Level 1 analysis of one period (usually one year), is the most basic. This is called "Level 1A - Single Period." The second set is also for Level 1 analysis, but of several periods. The tables are set up for 5 periods (years, quarters, months) of data. Both of these sets of tables are limited to analysis of data by General Ledger Items. However, most of them can be adapted to other levels simply by changing the headings and labels.

Two special dummy tables are included here for Level 2 and 3 analysis, especially two tables for average (unit) cost calculations.

Dummy tables for Level 1A - Single period

Table 1A

Total project revenues & expenditures

Revenues	9,055.00
Expenditures	8,524.60
Difference	530.40
Percent	5.9%

Table 2A

Project revenues & expenditures
Actual vs. budget

	Revenues	Expenditures
Actual	9,055.00	8,524.60
Budget	9,100.00	8,695.00
Difference	(45.00)	(170.40)
Percent	-0.5%	-2.0%

Table 3A

Project revenues & expenditures
General ledger items

REVENUES	Amount	Percent
Government	4,500.00	49.7%
Donors	3,000.00	33.1%
Fees	890.00	9.8%
Contributions	540.00	6.0%
Other	125.00	1.4%
Total 9,055.00	100.0%	
EXPENDITURES		
Personnel	2,345.60	27.5%
Fringe benefits	876.00	10.3%
Consultants	456.00	5.3%
Travel/per diem	654.00	7.7%
Supplies	332.00	3.9%
Equipment	1,032.00	12.1%
Utilities	221.00	2.6%
Evaluation	709.00	8.3%
Vehicles	678.00	8.0%
Other costs	876.00	10.3%
Total	8,524.60	100.0%

Table 4A

Total revenues & expenditures
Actual vs. budget: 19 ___

REVENUES	Actual	Budget	Variance	Percent
Government	4,500.00	4,500.00	0.00	0%
Donors	3,000.00	3,000.00	0.00	0%
Fees	890.00	1,250.00	(360.00)	-40%
Contributions	540.00	250.00	290.00	54%
Other	125.00	100.00	25.00	20%
Total	9,055.00	9,100.00	(45.00)	-0%
EXPENDITURES				
Personnel	2,345.60	2,245.00	100.60	4.3%
Fringe benefits	876.00	800.00	76.00	8.7%
Consultants	456.00	500.00	(44.00)	-9.6%
Travel/per diem	654.00	450.00	204.00	31.2%
Supplies	332.00	280.00	52.00	15.7%
Equipment	1,032.00	900.00	132.00	12.8%
Utilities	221.00	220.00	1.00	0.5%
Evaluation	709.00	1,000.00	(291.00)	-41.0%
Vehicles	678.00	800.00	(122.00)	-18.0%
Other costs	876.00	1,000.00	(124.00)	-14.2%
Indirect costs	345.00	500.00	(155.00)	-44.9%
Total	8,524.60	8,695.00	(170.40)	-2.0%

Dummy tables for Level 1B - Multiple periods

Table 1B

Total project revenues & expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	9,055.00	9,100.00	10,361.00	10,775.00	11,784.00
Expenditures	8,524.60	8,695.00	9,956.00	10,308.001	0,159.00
Difference	530.40	405.00	405.00	467.00	1,625.00
Percent	5.9%	4.5%	3.9%	4.3%	13.8%

Table 2B

Project revenues & expenditures
Actual vs. budget

	Year 1		Year 2		Year 3		Year 4		Year 5	
	Revenues	Expend.	Revenues	Expend.	Revenues	Expend.	Revenues	Expend.	Revenues	Expend.
Actual	9,055	8,524	10,361	9,956	11,784	10,159	12,604	11,405	13,196	11,532
Budget	9,100	8,695	10,775	10,308	12,000	10,130	12,279	11,550	12,990	12,175
Difference	(45)	(170)	(414)	(352)	(216)	29	325	(145)	206	(643)
Percent	-0.5%	-2.0%	-4.0%	-3.5%	-1.8%	0.3%	2.6%	-1.3%	1.6%	-5.6%

Table 3B.1

Project revenues & expenditures : General ledger items

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Government	4,500	5,000	5,500	5,450	6,210
Donors	3,000	3,500	4,000	4,000	3,850
Fees	890	1,125	1,509	2,167	2,000
Contributions	540	500	450	540	569
Other	125	236	325	447	567
Total	9,055	10,361	11,784	12,604	13,196
EXPENDITURES					
Personnel	2,346	2,466	2,900	3,218	3,345
Fringe benefits	876	950	1,187	1,259	1,354
Consultants	456	567	678	987	1,200
Travel/per diem	654	798	890	889	786
Supplies	332	456	543	566	765
Equipment	1,032	987	1,032	1,100	897
Utilities	221	345	221	345	387
Evaluation	709	600	709	709	899
Vehicle	678	990	678	888	678
Other costs	876	1,254	976	988	876
Indirect costs	345	543	345	456	345
Total	8,525	9,956	10,159	11,405	11,532

Table 3B.2

Project revenues & expenditures : General ledger items

	Year 1		Year 2		Year 3		Year 4		Year 5	
REVENUES	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Government	4,500	49.7%	5,000	48.3%	5,500	46.7%	5,450	43.2%	6,210	47.1%
Donors	3,000	33.1%	3,500	33.8%	4,000	33.9%	4,000	31.7%	3,850	29.2%
Fees	890	9.8%	1,125	10.9%	1,509	12.8%	2,167	17.2%	2,000	15.2%
Contributions	540	6.0%	500	4.8%	450	3.8%	540	4.3%	569	4.3%
Other	125	1.4%	236	2.3%	325	2.8%	447	3.5%	567	4.3%
Total	9,055	100.0%	10,361	100.0%	11,784	100.0%	12,604	100.0%	13,196	100.0%
EXPENDITURES										
Personnel	2,346	27.5%	2,466	24.8%	2,900	28.5%	3,218	28.2%	3,345	29.0%
Fringe benefits	876	10.3%	950	9.5%	1,187	11.7%	1,259	11.0%	1,354	11.7%
Consultants	456	5.3%	567	5.7%	678	6.7%	987	8.7%	1,200	10.4%
Travel/per diem	654	7.7%	798	8.0%	890	8.8%	889	7.8%	786	6.8%
Supplies	332	3.9%	456	4.6%	543	5.3%	566	5.0%	765	6.6%
Equipment	1,032	12.1%	987	9.9%	1,032	10.2%	1,100	9.6%	897	7.8%
Utilities	221	2.6%	345	3.5%	221	2.2%	345	3.0%	387	3.4%
Evaluation	709	8.3%	600	6.0%	709	7.0%	709	6.2%	899	7.8%
Vehicles	678	8.0%	990	9.9%	678	6.7%	888	7.8%	678	5.9%
Other costs	876	10.3%	1,254	12.6%	976	9.6%	988	8.7%	876	7.6%
Total	8,525	100.0%	9,956	100.0%	10,159	100.0%	11,405	100.0%	11,532	100.0%

Dummy table for Level 3 : Services & activities

Table 5A

PHC services & activity costs

MANAGEMENT ACTIVITIES	Amount	Percent
Training	1,254.00	27.8%
Supervision	899.00	20.0%
Community org.	1,432.00	31.8%
MIS	554.00	12.3%
Evaluation	366.00	8.1%
Total	4,505.00	100.0%
PHC SERVICES		
ANC/TT	2,345.60	21.3%
Family plan.	876.00	7.9%
Growth mon/nutrit.	456.00	4.1%
ORT/CDC	654.00	5.9%
Child immun.	1,254.00	11.4%
Water supply	2,278.00	20.7%
Sanitation	221.00	2.0%
Health ed.	709.00	6.4%
Drug supply	336.00	3.0%
Curative	1,548.00	14.0%
Total	11,022.60	100.0%

Table 6A

Unit costs of PHC services & activities

MANAGEMENT ACTIVITIES	Actual	Units	Cost/Unit
Training	1,254.00	126.0	9.95
Supervision	899.00	45.0	19.98
Community org.	1,432.00	16.0	89.50
MIS	554.00	14.0	39.57
Evaluation	366.00	2.0	183.00
Total	4,505.00	203.0	22.19
PHC SERVICES			
ANC/TT	2,345.60	45.0	52.12
Family plan.	876.00	128.0	6.84
Growth mon/nut.	456.00	252.0	1.81
ORT/CDC	654.00	155.0	4.22
Child immun.	1,254.00	215.0	5.83
Water supply	2,278.00	6.0	379.67
Sanitation	221.00	5.0	44.20
Health ed.	709.00	588.0	1.21
Drug supply	336.00	25.0	13.44
Curative	1,548.00	876.0	1.77
Income Gen	345.00	15.0	23.00
Total	11,022.60	2,310.0	4.77

Appendix E: Data entry spreadsheets

The disk that comes with this module includes a simple data entry spreadsheet that runs on Lotus 1-2-3 or Quattro Pro. The file is **MOD8.WK1** for Lotus and **MOD8.WQ1** for Quattro. If you have either of these programs, simply load it into your computer and follow the instructions. There are two screens of instructions, which are reproduced below. There is also a data entry screen with illustrative expenditure entries. That is also reproduced on the next page. The instructions describe how to enter your data and how to sort and tabulate subtotals. The result of the sorting and tabulations is also shown.

This is the first screen:

MODULE 8: Cost analysis worksheet (For Lotus 1-2-3)

Press Ctrl + → to go to the worksheet (to the right).

This is a simplified worksheet for entering income and expense data. It contains no macros and is very easy to use.

Simply enter the date, check number (or cash, deposit, etc.), a description of the transaction, the account code, and the amount.

Date	Check	Description	Code	Amount	Subtotal
02/07/90	#373	Office expenses	KCS	$185.38	

After all of the data are entered, you can sort them by code and date. Simply press /, Data, Sort, Go. After that, use the @SUM formula to add up subtotals for each code (e.g., travel, personnel, etc). Or use a calculator to get the totals.

(PRESS Page Down for more)

This is the second screen:

Use the worksheet at the right to enter your data. Simply type over the example or erase the sample entries first. When you are done, save the worksheet under a different name.

HINT: Save your worksheet BEFORE you sort. That way you can keep your entries in chronological order. After sorting, save the sorted file under a different name, or copy the subtotals down to insert in the dummy tables (Appendix D).

You can also resort the data back to the original order, if you want. Simply change the sort order: / Data, Sort, 1st Key (change this to DATE), Ascending, 2nd Key (change this to CODE), Ascending, Go.

NOTE: The "Date" column in the worksheet must be formatted for dates. It is only formatted to cell I57. Use the /, Range, Format, Date command to format more cells.

This is a segment of the data entry worksheet (to the right of the instructions).

MODULE 8. Press HOME to go to the instructions.

Income & expense transactions 02-Feb-92 - KAJULU PHC: Clinic and outreach services

Account Codes used in this example:

K = Kajulu	C = Clinical services	O = Outreach	P = Personnel	S = Supplies
I = Income	D = Donor grants	S = Service fees	T = Travel	D = Other direct costs

Date	Check	Description	Code	Amount	Subtotal
02/07/90	#373	Office expenses	KCS	185.38	
03/29/90	#376	Staff salaries	KOP	2,520.34	
04/05/90	#380	Telephone and fax	KOD	170.18	
05/06/90	#381	Staff salaries	KCP	2,990.63	
05/13/90	#385	Photocopy	KCD	43.52	
05/21/90	#387	Mail and postage	KCD	17.50	
05/21/90	#387	Mail and postage	KOD	8.50	
05/23/90	#391	Field worker travel	KOT	25.00	
06/25/90	#393	MIS Software	KOD	140.17	
06/25/90	#392	Mail and postage	KOD	10.60	
07/18/90	#394	Mail and postage	KCD	6.30	
07/18/90	#396	Medical supplies	KCS	127.00	
07/18/90	#391	Fax	KCS	62.74	
07/30/90	#398	Telephone	KOD	46.52	
08/08/90	#399	Gasoline for motorbikes	KOT	26.02	
09/24/90	#307	Mail and postage	KCD	40.00	
09/24/90	#307	Mail and postage	KOD	25.00	
09/24/90	#395	Vehicle repair	KOT	3,996.97	
10/11/90	#309	Telephone	KCD	15.00	
10/13/90	#313	Office supplies	KOD	27.40	
11/17/90	#314	Field worker travel	KOT	119.09	
11/18/90	#311	Medicines	KCS	176.46	
11/20/90	#317	Mail and postage	KCD	22.25	
11/20/90	#316	Office supplies	KCS	32.24	
12/04/90	#320	Gasoline for motorbikes	KOT	71.97	
12/12/90	#321	Computer repair	KCD	145.78	
12/14/90	#301	Service fees	IS	3,000.00	
12/20/90	#115	AKF grant payment	ID	25,000.00	
12/21/90	#302	Radio Shack supplies	KCS	27.01	
01/17/91	#323	MCI Mail Dec	KCD	87.75	
01/19/91	#325	Mail and postage	KCD	49.40	
01/19/91	#326	Computer purchase	KOD	2,543.29	
01/20/91	#327	Telephone and fax	KOD	90.01	

This is the same worksheet after it has been sorted by CODES and subtotal calculated.

MODULE 8. Press HOME to go to the instructions.
Income & expense transactions 02-Feb-92 - KAJULU PHC: Clinic and outreach services

Account Codes used in this example:

K = Kajulu C = Clinical services O = Outreach P = Personnel S = Supplies
I = Income D = Donor grants S = Service fees T = Travel D = Other direct costs

Date	Check	Description	Code	Amount	Subtotal
12/20/90	#115	AKF grant payment	ID	25,000.00	
01/24/91	#133	CIDA grant payment	ID	15,000.00	
12/14/90	#301	Service fees	IS	3,000.00	43,000.00
05/13/90	#385	Photocopy	KCD	43.52	
05/21/90	#387	Mail and postage	KCD	17.50	
07/18/90	#394	Mail and postage	KCD	6.30	
09/24/90	#307	Mail and postage	KCD	40.00	
10/11/90	#309	Telephone	KCD	15.00	
20/11/90	#317	Mail and postage	KCD	22.25	
12/12/90	#321	Computer repair	KCD	145.78	
01/17/91	#323	MCI Mail Dec	KCD	87.75	
01/19/91	#325	Mail and postage	KCD	49.40	427.50
05/06/90	#381	Staff salaries	KCP	2,990.63	
02/18/91	#345	Mail and postage	KCP	2,456.00	5,446.63
02/07/90	#373	Office expenses	KCS	185.38	
07/18/90	#396	Medical supplies	KCS	127.00	
07/18/90	#391	Fax	KCS	62.74	
11/18/90	#311	Medicines	KCS	176.46	
11/20/90	#316	Office supplies	KCS	32.24	
12/21/90	#302	Radio Shack supplies	KCS	27.01	
02/15/91	#343	Medicines	KCS	184.50	795.33
04/05/90	#380	Telephone and fax	KOD	170.18	
05/21/90	#387	Mail and postage	KOD	8.50	
06/25/90	#393	MIS software	KOD	140.17	
06/25/90	#392	Mail and postage	KOD	10.60	
07/30/90	#398	Telephone	KOD	46.52	
09/24/90	#307	Mail and postage	KOD	25.00	
10/13/90	#313	Office supplies	KOD	27.40	
01/19/91	#326	Computer purchase	KOD	2,543.29	
01/20/91	#327	Telephone and fax	KOD	90.01	3,061.67
03/29/90	#376	Staff salaries	KOP	2,520.34	
02/18/91	#344	Staff salaries	KOP	2,300.00	4,820.34
05/23/90	#391	Field worker travel	KOT	25.00	

Appendix F: Data analysis templates

The disk that comes with this module also includes several cost analysis templates. These are dummy tables that are set up to produce various types of analyses. All you have to do is enter your revenue and/or expenditure data in one of these tables and the computer will instantly produce a variety of tables and graphs. These are illustrated on the following pages. There are three computer files, one for each level of analysis: **MOD8_L1A, MOD8_L1B,** and **MOD8_L3.**. The diskette includes both Lotus 1-2-3 and Quattro Pro versions of the templates. The contents of these files are all displayed in this appendix. Instructions for using the templates are given on the following page and within each template.

Level 1A cost analysis procedures
FILE: LEVEL_1A.WQ1

This program will produce a series of tables and graphs. All you need to do is fill in three types of information in the table below:
1) the names of up to 5 revenue categories and up to 10 expense categories; 2) the actual revenues and expenses for each item; and 3) the budgeted amounts for each item.

The table includes illustrative names and figures to give you an idea of what is needed. Just type over them to enter your own names and figures. Some cells include formulas and are "protected" so that they are not written over accidentally.

The information you provide will be transferred automatically to four tables, which are located underneath the "input" table. To see the results, just press Page Down. Each table includes instructions for viewing one or more graphs, as well. Just follow the instructions to view the graphs.

PAGE DOWN TO ENTER INPUT DATA

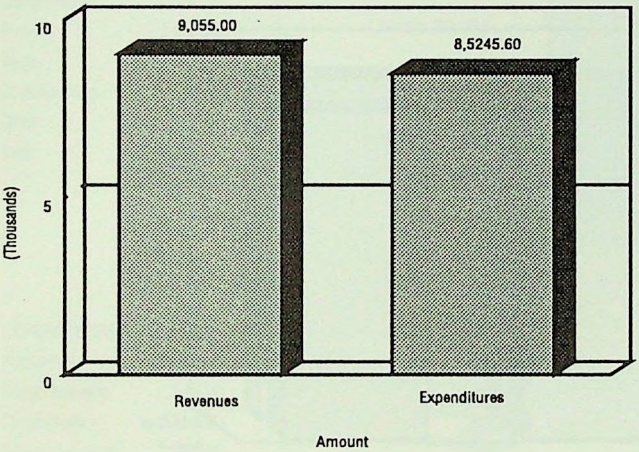
A GL Items	B Actual	C Budget
REVENUES		
Government	4,500.00	4,500.00
Donors	3,000.00	3,000.00
Fees	890.00	1,250.00
Contributions	540.00	250.00
Other	125.00	100.00
Total	9,055.00	9,100.00
EXPENDITURES		
Personnel	345.60	2,245.00
Fringe benefits	876.00	800.00
Consultants	456.00	500.00
Travel/per diem	654.00	450.00
Supplies	332.00	280.00
Equipment	1,032.00	900.00
Utilities	221.00	220.00
Evaluation	709.00	1,000.00
Vehicles	678.00	800.00
Other costs	876.00	1,000.00
Indirect costs	345.00	500.00
Total	8,524.60	8,695.00

Enter category names in column A, actual expenses in column B and budgeted amounts in column C. That's all you need to do.

After entering the data, press Page Down to see the results.
Follow the instructions to view graphs of the data.
To print the tables, press /, Print, Range, LEVEL1 (the name of the area to be printed), Go.

Table 1A : Total project revenues & expenditures

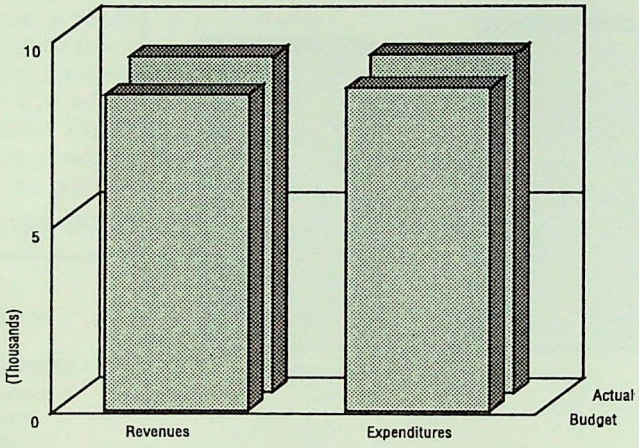
Revenues	9,055.00
Expenditures	8,524.60
Difference	530.40
Percent	5.9



To view the graph press: /, Graph, Name, Use, 1A

Table 2A : Project revenues & expenditures, actual vs. budget

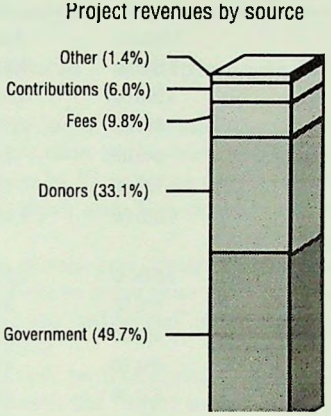
	Revenues	Expenditures
Actual	9,055.00	8,524.60
Budget	9,100.00	8,695.00
Difference	(45.00)	(170.40)
Percent	-0.5	-2.0

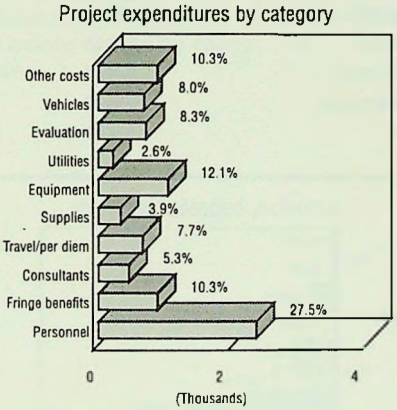


To view graph: /, Graph, Name, Use, 2A

Table 3A: Project revenues & expenditure, general ledger items

A	B Amount	C Percent
REVENUES		
Government	4,500.00	49.7
Donors	3,000.00	33.1
Fees	890.00	9.8
Contributions	540.00	6.0
Other	125.00	1.4
Total	9,055.00	100.0
EXPENDITURES		
Personnel	2,345.60	27.5
Fringe benefits	876.00	10.3
Consultants	456.00	5.3
Travel/ per diem	654.00	7.7
Supplies	332.00	3.9
Equipment	1,032.00	12.1
Utilities	221.00	2.6
Evaluation	709.00	8.3
Vehicles	678.00	8.0
Other costs	876.00	10.3
Total	8,524.60	100.0

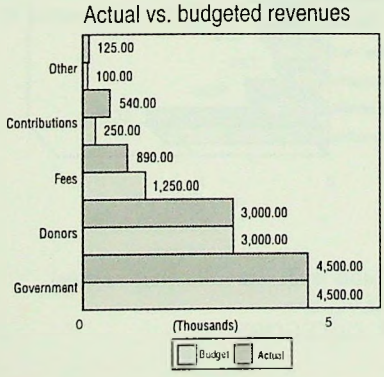


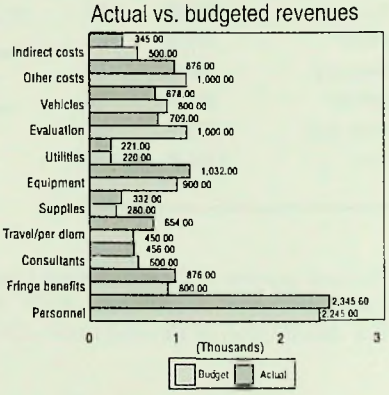


To view graphs: /, Graph, Name, Use, (and then the following names)
For distribution of revenues : REV SOURCE
For distribution of expenditures : EXP CATEGORY

Table 4A: Total project revenues & expenditures Actual vs. budget: 19

REVENUES	Actual	Budget	Variance	Percent
Government	4,500.00	4,500.00	0.00	0
Donors	3,000.00	3,000.00	0.00	0
Fees	890.00	1,250.00	(360.00)	-40
Contributions	540.00	250.00	290.00	54
Other	125.00	100.00	25.00	20
Total	9,055.00	9,100.00	(45.00)	-0
EXPENDITURES				
Personnel	2,345.60	2,245.00	100.60	4.3
Fringe benefits	876.00	800.00	76.00	8.7
Consultants	456.00	500.00	(44.00)	-9.6
Travel/per diem	654.00	450.00	204.00	31.2
Supplies	332.00	280.00	52.00	15.7
Equipment	1,032.00	900.00	132.00	12.8
Utilities	221.00	220.00	1.00	0.5
Evaluation	709.00	1,000.00	(291.00)	-41.0
Vehicles	678.00	800.00	(122.00)	-18.0
Other costs	876.00	1,000.00	(124.00)	-14.2
Indirect costs	345.00	500.00	(155.00)	-44.9
Total	8,524.60	8,695.00	(170.40)	-2.0





For graphs: press /, Graph, Name, Use, (then select one or more of the following: REV_BUDG to compare actual and projected revenues. EXP_BUDG to compare actual and projected expenditures.

Level 1B cost analysis procedures -- multiple periods
FILE: LEVEL_1B.WQ1

This program will produce a series of tables and graphs. All you need to do is fill in three types of information in the table p. 84: 1) the names of up to 5 revenue categories and up to 10 expense categories; 2) the actual revenues and expenses for each item; and 3) budgeted amounts for each item.

The table includes illustrative names and figures to give you an idea of what is needed. Just type over them to enter your own names and figures. Some cells include formulas and are "protected" so that they will not be written over and erased accidentally.

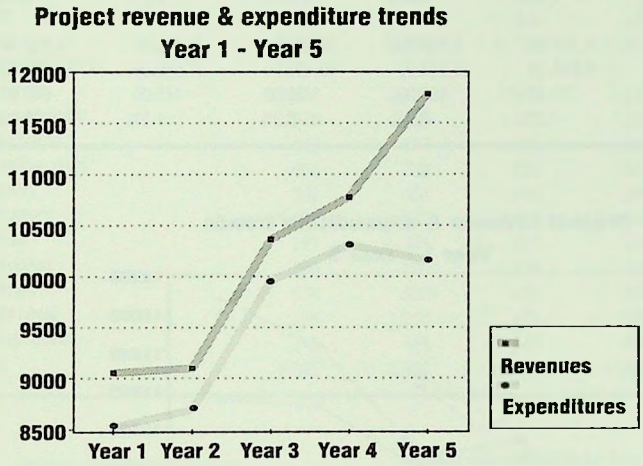
The information you provide will be transferred automatically to four tables, which are located underneath the "input table". To see the results just press Page Down. Each table includes instructions for viewing graphs that have been attached. Many of the graphs are inserted in the spreadsheet. If you are using Quattro Pro, they should be visible. Otherwise, press F10 or follow the instructions to display them.

Enter data on the following table.

A	B	C	D	E	F	G	H	I	J	K	L
16	Gen ledger items	Year 1		Year 2		Year 3		Year 4		Year 5	
17	REVENUES	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
18	Government	4,500.00	4.500.00	5.000.00	5,000.00	5,500.00	5,500.00	5,450.00	5,479.00	6,210.00	5,800.00
19	Donors	3,000.00	3,000.00	3,500.00	3,500.00	4,000.00	4,000.00	4,000.00	4,000.00	3,850.00	3,850.00
20	Fees	890.00	1,250.00	1,125.00	1,350.00	1,509.00	1,500.00	2,167.00	1,600.00	2,000.00	2,190.00
21	Contributions	540.00	250.00	500.00	600.00	450.00	600.00	540.00	600.00	569.00	600.00
22	Other	125.00	100.00	236.00	325.00	325.00	400.00	447.00	600.00	567.00	550.00
23	Total	9,055.00	9,100.00	10,361.00	10,775.00	11,784.00	12,000.00	12,604.00	12,279.00	13,196.00	12,990.00
24	EXPENDITURES										
25	Personnel	2,345.60	2,245.00	2,466.00	2,678.00	2,900.00	3,200.00	3,218.00	3,300.00	3,345.00	3,400.00
26	Fringe benefits	876.00	800.00	950.00	900.00	1,187.00	800.00	1,259.00	1,300.00	1,354.00	1,500.00
27	Consultants	456.00	500.00	567.00	800.00	678.00	500.00	987.00	700.00	1,200.00	1,100.00
28	Travel/per diem	654.00	450.00	798.00	800.00	890.00	500.00	889.00	950.00	786.00	900.00
29	Supplies	332.00	280.00	456.00	600.00	543.00	280.00	566.00	600.00	765.00	600.00
30	Equipment	1,032.00	900.00	987.00	1,250.00	1,032.00	1,100.00	1,100.00	1,100.00	897.00	1,200.00
31	Utilities	221.00	220.00	345.00	280.00	221.00	450.00	345.00	300.00	387.00	400.00
32	Evaluation	709.00	1,000.00	600.00	800.00	709.00	1,000.00	709.00	800.00	899.00	675.00
33	Vehicles	678.00	800.00	990.00	700.00	678.00	800.00	888.00	800.00	678.00	900.00
34	Other costs	876.00	1,000.00	1,254.00	1,000.00	976.00	1,000.00	988.00	1,200.00	876.00	1,000.00
35	Indirect costs	345.00	500.00	543.00	500.00	345.00	500.00	456.00	500.00	345.00	500.00
36	Total	8,524.60	8,695.00	9,956.00	10,308.00	10,159.00	10,130.00	11,405.00	11,550.00	11,532.00	12,175.00

Table 1B: Total project revenues & expenditures

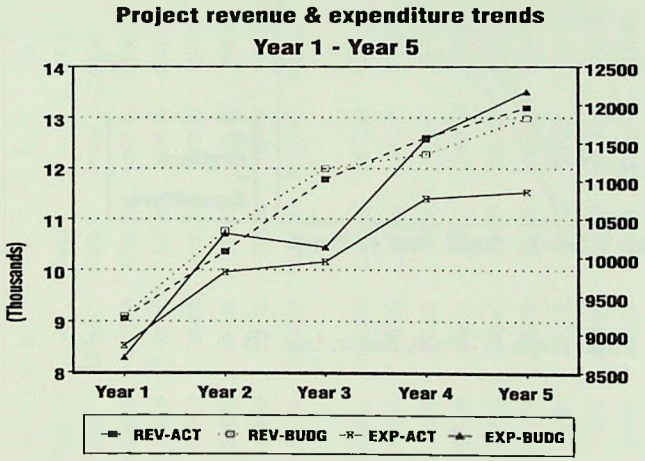
	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	9,055.00	9,100.00	10,361.00	10,775.00	11,784.00
Expenditures	8,524.60	8,695.00	9,956.00	10,308.00	10,159.00
Difference	530.40	405.00	405.00	467.00	1,625.00
Percent	5.9%	4.5%	3.9%	4.3%	13.8%



To view the graph press: /, Graph, Name, Use, 1B

Table 2B: Project revenues & expenditures
Actual vs. budget

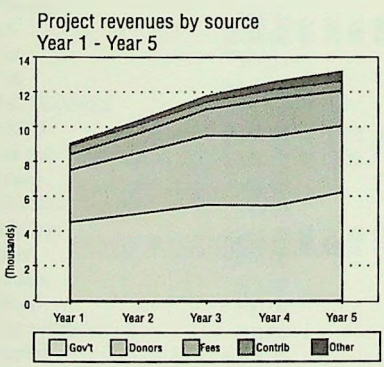
	Year 1	Year 2	Year 3	Year 4	Year 5
REVENUES					
Actual	9,055.00	10,361.00	11,784.00	12,604.00	13,196.00
Budget	9,100.00	10,775.00	12,000.00	12,279.00	12,990.00
Difference	-45.00	-414.00	-216.00	325.00	206.00
Percent	-0.5%	-4.0%	-1.8%	2.6%	1.6%
EXPENDITURES					
Actual	8,524.60	9,956.00	10,159.00	11,405.00	11,532.00
Budget	8,695.00	10,308.00	10,130.00	11,550.00	12,175.00
Difference	-170.40	-352.00	29.00	-145.00	-643.00
Percent	-2.0%	-3.5%	0.3%	-1.3%	-5.6%

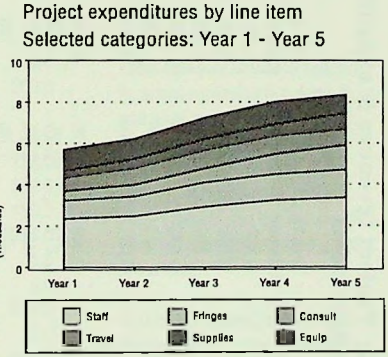


To view graph: /, Graph, Name, Use, 2B.1

Table 3B.1: Project revenues & expenditures General ledger items

REVENUES	Year 1	Year 2	Year 3	Year 4	Year 5
Government	4,500	5,000	5,500	5,450	6,210
Donors	3,000	3,500	4,000	4,000	3,850
Fees	890	1,125	1,509	2,167	2,000
Contributions	540	500	450	540	569
Other	125	236	325	447	567
Total	9,055	10,361	11,784	12,604	13,196
EXPENDITURES					
Personnel	2,346	2,466	2,900	3,218	3,345
Fringe benefits	876	950	1,187	1,259	1,354
Consultants	456	567	678	987	1,200
Travel/per diem	654	798	890	889	786
Supplies	332	456	543	566	765
Equipment	1,032	987	1,032	1,100	897
Utilities	221	345	221	345	387
Evaluation	709	600	709	709	899
Vehicles	678	990	678	888	678
Other costs	876	1,254	976	988	876
Indirect costs	345	543	345	456	345
Total	8,525	9,956	10,159	11,405	11,532





To view graph: /, Graph, Name, Use, 3B.1 (Revenues) or 3B.2 (Expenditures)

Table 3B.2: Project revenues & expenditures
General ledger items

	Year 1		Year 2		Year 3		Year 4		Year 5	
REVENUES	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Government	4,500	49.7%	5,000	48.3%	5,500	46.7%	5,450	43.2%	6,210	47.1%
Donors	3,000	33.1%	3,500	33.8%	4,000	33.9%	4,000	31.7%	3,850	29.2%
Fees	890	9.8%	1,125	10.9%	1,509	12.8%	2,167	17.2%	2,000	15.2%
Contributions	540	6.0%	500	4.8%	450	3.8%	540	4.3%	569	4.3%
Other	125	1.4%	236	2.3%	325	2.8%	447	3.5%	567	4.3%
Total	9,055	100.0%	10,361	100.0%	11,784	100.0%	12,604	100.0%	13,196	100.0%
EXPENDITURES										
Personnel	2,346	27.5%	2,466	24.8%	2,900	28.5%	3,218	28.2%	3,345	29.0%
Fringe benefits	876	10.3%	950	9.5%	1,187	11.7%	1,259	11.0%	1,354	11.7%
Consultants	456	5.3%	567	5.7%	678	6.7%	987	8.7%	1,200	10.4%
Travel/per diem	654	7.7%	798	8.0%	890	8.8%	889	7.8%	786	6.8%
Supplies	332	3.9%	456	4.6%	543	5.3%	566	5.0%	765	6.6%
Equipment	1,032	12.1%	987	9.9%	1,032	10.2%	1,100	9.6%	897	7.8%
Utilities	221	2.6%	345	3.5%	221	2.2%	345	3.0%	387	3.4%
Evaluation	709	8.3%	600	6.0%	709	7.0%	709	6.2%	899	7.8%
Vehicles	678	8.0%	990	9.9%	678	6.7%	888	7.8%	678	5.9%
Other costs	876	10.3%	1,254	12.6%	976	9.6%	988	8.7%	876	7.6%
Total	8,525	100.0%	9,956	100.0%	10,159	100.0%	11,405	100.0%	11,532	100.0%

Level 3 Cost analysis procedures: Services/activities
FILE: LEVEL_3.WQ1

This program will produce a series of tables and graphs. All you need to do is fill in three types of information in the table below: 1) the names of up to five management activities and up to ten PHC services; 2) the actual expenses for each item; and 3) the number of "units" produced by each activity and service.

The table includes illustrative names and figures to give you an idea of what is needed. Just type over them to enter your own names and figures. Some cells include formulas and are "protected" so that they are not written over accidentally.

The information you provide will be transferred automatically to four tables, which are located underneath the "input" table. To see the results, just press Page Down. Each table includes instructions for viewing one or more graphs, as well. Just follow the instructions to view the graphs.

PAGE DOWN TO ENTER INPUT DATA

A	B Actual	C Units
MGMT ACTIVITIES		
Training	1,254.00	126.0
Suprvsn	899.00	45.0
Com org	1,432.00	16.0
MIS	554.00	14.0
Eval	366.00	2.0
Total	4,505.00	203.0
PHC SERVICES		
ANC/TT	2,345.60	45.0
Fam plan	876.00	128.0
GM/nut	456.00	252.0
ORT/CDC	654.00	155.0
Child imm	1,254.00	215.0
Water	2,278.00	6.0
Sanitatn	221.00	5.0
Hlth ed	709.00	588.0
Drug supply	336.00	25.0
Curative	1,548.00	876.0
Income gen	345.00	15.0
Total	11,022.60	2,310.0

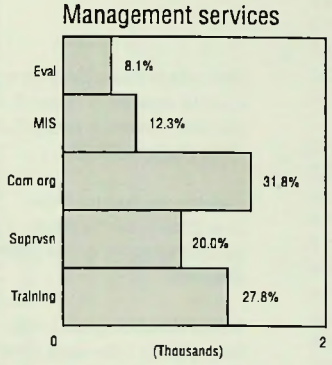
Enter category names in column A, actual expenses in column B, and units produced in column C. That's all you need to do.

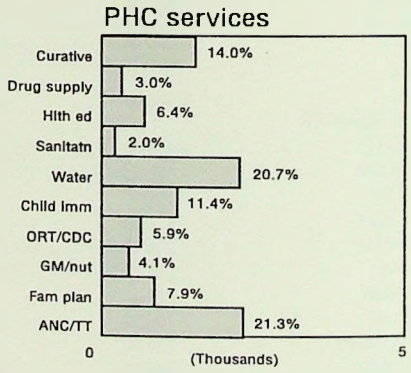
After entering the data, press Page Down to see the results. Follow the instructions to view graphs of the data.

To print the tables, press /, Print, Range, LEVEL1 (the name of the area to be printed), Go.

Table 5A: PHC service & activity costs

MGMT ACTIVITIES	Amount	Percent	Percent of Total
Training	1,254.00	27.8	8.1
Suprvsn	899.00	20.0	5.8
Com org	1,432.00	31.8	9.2
MIS	554.00	12.3	3.6
Eval	366.00	8.1	2.4
Total	4,505.00	100.0	29.0
PHC SERVICES			
ANC/TT	2,345.60	21.3	15.1
Fam plan	876.00	7.9	5.6
GM/nut	456.00	4.1	2.9
ORT/CDC	654.00	5.9	4.2
Child imm	1,254.00	11.4	8.1
Water	2,278.00	20.7	14.7
Sanitatn	221.00	2.0	1.4
Hlth ed	709.00	6.4	4.6
Drug supply	336.00	3.0	2.2
Curative	1,548.00	14.0	10.0
Income gen	345.00	3.1	2.2
Total	11,022.60	100.0	71.0
GRAND TOTAL	15,527.60		100.0

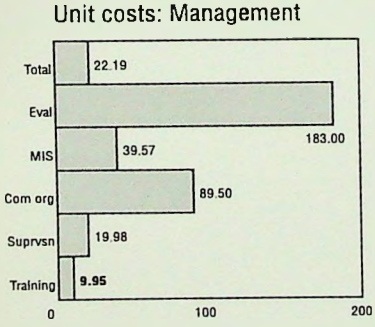


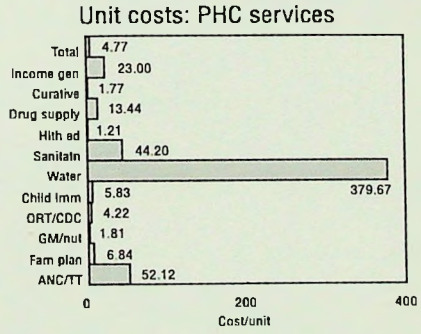


To view graphs: /, Graph, Name,
Use, (and then the following names)
For distribution of management costs: MGMT
For distribution of PHC service costs: PHC

Table 6A: Unit costs of PHC services & activities

MGMT ACTIVITIES	Actual	Units	Cost/unit
Training	1,254.00	126.0	9.95
Suprvsn	899.00	45.0	19.98
Com org	1,432.00	16.0	89.50
MIS	554.00	14.0	39.57
Eval	366.00	2.0	183.00
Total	4,505.00	203.0	22.19
PHC SERVICES			
ANC/TT	2,345.60	45.0	52.12
Fam plan	876.00	128.0	6.84
GM/nut	456.00	252.0	1.81
ORT/CDC	654.00	155.0	4.22
Child imm	1,254.00	215.0	5.83
Water	2,278.00	6.0	379.67
Sanitatn	221.00	5.0	44.20
Hlth ed	709.00	588.0	1.21
Drug supply	336.00	25.0	13.44
Curative	1,548.00	876.0	1.77
Income gen	345.00	15.0	23.00
Total	11,022.60	2,310.0	4.77





To view graphs: /, Graph, Name, Use, (and then the following names)
For distribution of management unit costs: M_UNIT
For distribution of PHC unit costs: P_UNIT

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Acronyms and abbreviations

AIDS	Acquired immune deficiency syndrome
AKCHP	Aga Khan Community Health Programme
AKF	Aga Khan Foundation
AKHN	Aga Khan Health Network
AKHS	Aga Khan Health Services
AKU	Aga Khan University
ANC	Antenatal care
ARI	Acute respiratory infections
CBR	Crude birth rate
CDR	Crude death rate
CHW	Community health worker
CIDA	Canadian International Development Agency
CMR	Child mortality rate
EPI	Expanded programme for immunization
FP	Family planning
GM	Growth monitoring
IEC	Information, education, communication
IMR	Infant mortality rate
KAP	Knowledge, attitudes, practice (behaviour)
MIS	Management information system
MMR	Maternal mortality rate
MOH	Ministry of health
NGO	Non-governmental organisation
ORS	Oral rehydration salts
ORT	Oral rehydration therapy
PHC	Primary health care
PHC MAP	Primary Health Care Management Advancement Programme
PNC	Postnatal care
PRICOR	Primary Health Care Operations Research Project
SSS	Salt-sugar solution for diarrhoea
STD	Sexually transmitted diseases
TB	Tuberculosis
TBA	Traditional birth attendant
TT	Tetanus toxoid
UNICEF	United Nations Children's Fund
URC	University Research Corporation
USAID	United States Agency for International Development
WHO	World Health Organization

Glossary

Catchment (area): The geographic area surrounding one or more health facilities. It refers to the population residing in that area, which includes the programme's target populations.

Community health worker (CHW): A person indigenous to the community who provides selected basic and limited health services to members of the community. Includes village health workers, health guides, and other terms.

Cost analysis: The examination of expenditures to determine how resources have been spent.

Costs(s): The value of a good or service, which is conceptually defined as the value that could be gained by using the resource in a different way. For example, the cost of drugs could be seen as the value of using the resources to purchase some other commodity or service.

Average cost(s): The mean cost per unit of outcome, computed by dividing the total cost by the number of units of outcome, also called unit cost.

Capital cost(s): Costs of items which have a life expectancy of 1 year or more, usually land, buildings, vehicles, and equipment. Also called "Development Costs."

Development cost(s): See "Capital Costs".

Direct cost(s): Costs that are directly attributable to a programme, project, product, or activity, such as the cost of gasoline used by project vehicles for project work.

Economic cost(s): The "true" costs of a product or service, which is the value of an alternative endeavour that might have been undertaken with the same resources.

Financial cost(s): See "Monetary Cost(s)."

Fixed cost(s): Costs that do not vary with minor changes in programme size, such as those of a building, permanent staff, and medical equipment.

Indirect cost(s): Costs that are not directly attributable to a programme, project, product or activity, but which are incurred in support of those direct activities. Overhead, fringe benefits, general and administrative expenses are typical indirect cost categories.

Monetary cost(s): Financial expenditures incurred in purchasing a product or service.

Non-monetary cost(s): Resources (or inputs) to the programme that do not have a monetary value. Examples are volunteer time, donated space, and time and effort spent by clients to come to service sites.
Operating costs: See "Recurrent Cost(s)."
Recurrent cost(s): Costs of items that are purchased and used (or replaced) within a period of 1 year or less, such as personnel salaries, medicine and supplies, gasoline, and utilities. Also called "Operating Cost(s)."
True costs: See "Economic Cost(s)."
Unit costs: See "Average Cost(s)."
Variable cost(s): Costs that vary with programme size, such as drugs, gasoline, and vehicle maintenance.

Coverage: The proportion of a target group that has received a service or is protected from a disease or health problem.

Depreciation: The loss in value of an item over time, due to wear and tear, obsolescence, or other reasons. Depreciation is usually computed on an annual basis as Initial Cost/Years of Useful Life.

Effectiveness: The degree to which objectives (desired outcomes) are achieved. For example, if a programme's objective is to reach 10,000 women, it would be 90 percent effective if it reached 9,000 women.

Efficiency: The achievement of objectives without wasting resources; the relationship of output to input. For example, in two programmes that use the same amount of resources, programme A, which screens 10 mothers/day, is more efficient than programme B, which screens 5 mothers/day.

Expenditures: The amount of money, time, or effort spent.

Goals: The impact your programme hopes to have on health. Goal statements specify improvement desired, target group, amount of change expected and date for achievement.

Income: Funds received from contributions, donations, allotments, and/or sales of products and services. Sometimes called "revenue."

Indicator: An indirect measure of an event or condition. For example, a baby's weight for age is an indicator of the baby's nutritional status.

Inputs: Resources (human, materials and supplies, equipment and facilities, information and money)

Management: The art and science of getting things done through people.

Objectives: The output and/or effect your PHC programme hopes to have.

Outcomes: Results of your PHC programme, including outputs, effects and impacts.

Outputs: Products and services provided by a PHC programme.

Effects: Changes in knowledge, skills, attitude, and behaviour (including coverage) as a result of a PHC programme.
Impacts: Changes in health status, (mortality, morbidity, disability, fertility) as a result of a PHC programme.
Primary health care: Essential health care, accessible at affordable cost to the community and the country, based on practical, scientifically sound and socially acceptable methods. It includes at least eight components: health education, proper nutrition, basic sanitation, maternal and child health care, immunizations, control of common diseases and injuries, prevention of local endemic diseases, and essential drugs.
Processes: Activities or tasks carried out through the PHC programme.
Revenue: Money received. See "Income."
Shadow pricing: Estimates of the true costs of goods and services that are not paid for. For example, subsidised and discounted products and services, donated time and equipment, and other goods and services whose true value is not the same as the listed value.
System: A set of discrete, but interdependent, components designed to achieve one or more objectives.
Target group: Specific groups of people designated to receive a PHC service, such as children under age 3.

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MODULE 8
USER'S GUIDE

Primary Health Care Management Advancement Programme