Resources and Tools

A Step-by-step Methodological Guide for Costing HIV/AIDS Activities

March 2001

Prepared by:

Margaret Phillips, MSc
Social Sectors Development Strategies

Maggie Huff-Rousselle, MA, MBA, PhD
Social Sectors Development Strategies

Partners for Health Reform*plus*

Abt Associates Inc. ■ 4800 Montgomery Lane, Suite 600
Bethesda, Maryland 20814 ■ Tel: 301/913-0500 ■ Fax: 301/652-3916

In collaboration with:
Development Associates, Inc. ■ Emory University Rollins School of Public Health ■ Philoxenia International Travel, Inc. ■ Program for Appropriate Training in Health ■ SAG Corporation ■ Social Sectors Development Strategies, Inc. ■ Training Resource Group ■ Tulane University School of Public Health and Tropical Medicine ■ University Research Co., LLC.

Funded by:
U.S. Agency for International Development

Order No. Tk001

PHR*plus*

Mission

Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:

- *Implementation of appropriate health system reform.*
- *Generation of new financing for health care, as well as more effective use of existing funds.*
- *Design and implementation of health information systems for disease surveillance.*
- *Delivery of quality services by health workers.*
- *Availability and appropriate use of health commodities.*

March 2001

Recommended Citation

Phillips, Margaret, Maggie Huff-Rousselle. March 2001. *A Step-by-step Methodological Guide for Costing HIV/AIDS Activities.* Bethesda, MD: Partnerships for Health Reform Project, Abt Associates Inc.

For additional copies of this report, contact the PHR Resource Center at PHR-InfoCenter@abtassoc.com or visit our website at www.phrproject.com.

Contract No.: HRN-C-00-00-00019-00

Submitted to: USAID/HIV/AIDS Division

and: Karen Cavanaugh, COTR
Policy and Sector Reform Division
Office of Health and Nutrition
Center for Population, Health and Nutrition
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Abstract

Many developing countries have recognized the need for comprehensive national reforms and comprehensive prevention, treatment, and care and support initiatives to reduce future transmission of and to meet the growing demand for HIV/AIDS services. As a part of these national health reform initiatives, governments are exploring ways to allocate resources in the most efficient and effective way to mitigate the HIV/AIDS epidemic. However, many countries lack information on the level and nature of the costs of HIV/AIDS programs. This document provides an introduction to the procedure for calculating and analyzing the costs of HIV/AIDS programs and describes how to measure directly the actual costs of a program that is up and running. The step-by-step guide is intended to provide project managers in the field with a framework for how to do measure costs for a single, recent year in the life of an HIV/AIDS program. An illustrative activities list in the report annex will assist the user to develop an activities-based framework. The information gleaned from the costing framework will enable policymakers and program managers to make informed resource allocation decisions.

Table of Contents

List of Tables

Acronyms

AIDS	Acquired Immunodeficiency Syndrome
FHI	Family Health International
HIV	Human Immunodeficiency Virus
IA	Implementing Agency
IEC	Information and education campaign
MSM	Men who have sex with men
NGO	Nongovernmental organization
PLWHA	Persons living with HIV/AIDS
STD	Sexually-transmitted disease
STI	Sexually-transmitted illness
TB	Tuberculosis

Executive Summary

Many developing countries across the globe are facing increasing pressure to meet a growing burden of disease, rationalize services, regulate the quality and cost of services, and meet these demands despite declining and unreliable public financing. As national economies continue to struggle and populations keep growing, the challenge of providing health care to all increases. In many countries, this situation is exacerbated by the additional demands placed on the health care service delivery system by the HIV/AIDS epidemic and associated increases in tuberculosis. The governments of many of these countries have recognized the need for comprehensive national reforms and comprehensive prevention, treatment, and care and support initiatives to reduce future transmission and to meet the growing demand for HIV/AIDS services.

As a part of these national health reform initiatives, governments are exploring ways to allocate resources in the most efficient and effective way to mitigate the HIV/AIDS epidemic. However, many countries lack information on the level and nature of the costs of HIV/AIDS programs. This information is necessary to help program managers and policymakers to know what is being spent on HIV/AIDS programs and how much more will be required in the future as the demand for services changes. In addition, cost information can be used to estimate how efficiently or cost-effectively resources are being used and where resource adjustments can be made to reduce costs and optimize outcomes.

This document provides an introduction to the procedure for calculating and analyzing the costs of HIV/AIDS programs and describes how to measure directly the actual costs of a program that is up and running. The step-by-step guide in intended to provide project managers in the field with a framework for how to do measure costs for a single, recent year in the life of an HIV/AIDS program.

There are eight analytical steps that are necessary to calculate the costs of an HIV/AIDS program.

1. Identify specific issues and define the scope of the study

When a cost study is expected to address particular questions, study managers should identify and specify them as early as possible in the process. Based on stakeholder input and consensus, study managers should produce a short, concise statement of work of the program being studied and the nature of the cost elements to be studied.

2. Describe the program to be costed

To ensure the costing study is both comprehensive and relevant, it is essential to describe the exact elements of the program. The program description should include key elements such as the objectives of the program, the historical development, main activities, level of operations, and sources of funds.

3. Develop an activity-based cost framework

Many HIV/AIDS programs are described, planned, and implemented using activities or processes as the organizing principle, and activity breakdowns match the reality of the public health program design. Therefore, assigning costs to specific activities makes it possible to match costs with outcomes, an important step in analyzing cost-effectiveness. In addition, choosing the dimension in which costs are categorized, and collecting and analyzing the cost data allow program managers to construct a costing framework. Based on information in the framework, program managers are able to analyze how the program might achieve its goals with less resources.

4. Assess available financial data

Many HIV/AIDS programs track their financial expenditures in order to effectively manage budgets, avoid cost overruns, and report to donor organizations on activity progress. Information in accounting records is valuable and should be the starting point for any study on actual costs. This information can be used to fill in the costing framework.

5. Calculate the annual value of capital goods

In order to estimate long-term financing requirements, program managers need to consider significant cost fluctuations or the impact of periodic purchases of large capital items over time. For the costing framework, it is important to list those capital costs employed in the program whose useful life is longer than one year and to estimate the annual costs of those items.

6. Calculate the value of off-budget recurrent costs

In addition to capturing capital costs, the costing framework should include resources that are used by the program but not paid for, such as donations or goods or voluntary contributions of time. While the financial value of the donated items is zero, the value of these items in the program should be studied.

7. Allocate shared costs

Information from accounting reports is usually in summary form and a single line item may serve several functions that cut across the established activity categories of the cost framework. Disaggregating the costs and allocating these costs across activity categories can be complicated but necessary to tease out all relevant information.

8. Complete the cost tables and analyze the results

Once all the data have been collected and basic cost calculations have been made, program managers should double-check results and ensure the results are reasonable. The data can then be collated in the basic tables of the cost framework and transform the tables into cost profiles. Cost profiles are useful because they provide information on efficiency or cost-effectiveness of the program, and they reveal which cost elements consume the most resources.

The results of the cost study are potentially useful to other stakeholders in the HIV/AIDS arena. Policymakers and program managers could use the results to estimate the cost implications of programs being considered. In addition, results can be compared with other results from other regions, implementing agencies, and projects to help reveal relationships or make comparisons between interventions, activity packages and costs.

1. Background

In response to the impact of HIV/AIDS, substantial amounts of resources have been invested in prevention, treatment and care, and research. The growth in funding for HIV/AIDS prevention and care has outpaced that for most other public health programs, and yet information on the level and nature of the costs of HIV/AIDS programs remains generally inadequate.

There are two important uses for information on costs. The first is to address financing issues. Program managers and others supporting them need to know what is being spent on HIV/AIDS programs and how much more will be required in the future as the demand for services changes. Agencies who charge for HIV/AIDS services should also know how much these services are costing them before they decide on appropriate fees for their services.

The second use of cost information is to estimate how efficiently or cost-effectively resources are being used and where adjustments might be made to reduce costs and optimize outcomes. Given the substantial amounts of resources being devoted to tackling HIV/AIDS, all managers should be actively working to ensure that they are being used cost-effectively. The *process* of conducting cost studies in itself has additional benefits: it helps develop an in-house capacity to make better use of existing data, it can inspire improvements in the existing accounting systems, and it can provoke more complex thinking about the relationship between costs and outcomes.

This document provides an introduction to the procedure for calculating and analyzing the costs of HIV/AIDS programs, especially for use by project managers in the field. It is not intended as a detailed training tool. Nor does it attempt to explain how to decide on or measure outcome or effectiveness measures, which are an essential complement to costs in any efficiency or cost-effectiveness analysis. What it does do is describe how to *measure directly the actual costs of a program that is up and running*. The final analysis section also indicates how this information might be used to project the costs to other times and settings and allow it to influence future decision-making about, for example, the scaling-up of the program or its replication elsewhere. Because obtaining reliable estimates of costs that were incurred far in the past is not easy, this document proposes measuring costs for a single, recent year in the life of a program. It focuses on describing *how to do a one-off cost study* and is not a guide to designing or re-designing routine financial or accounting systems, although it may encourage some managers to think about how and why they might want to do this.

Throughout the document some of the important points are illustrated using a hypothetical **case example** of a program designed to identify and treat HIV-positive pregnant women who attend prenatal clinics.

2. The Steps in a Costing Study

This document is organized around the analytical steps that are necessary to calculate the costs of an HIV/AIDS program, namely:

1. Identifying any specific issues and defining the scope of the study
2. Describing the program to be costed
3. Developing an activity-based cost framework
4. Assessing available financial data
5. Calculating the annual value of capital goods
6. Calculating the value of off-budget recurrent costs
7. Allocating shared costs
8. Completing the cost tables and analyzing the results

These are the *analytical* steps. The *practical* data collection procedure cuts across these and is best done using hierarchical levels as the organizing principle – i.e., starting at the central headquarters and collecting as much information as possible there before moving farther out into the periphery to districts and health centers, for example, for additional data.

Most costs for most programs are incurred at these peripheral, decentralized levels. But the *information* on them is often more centralized. It is much easier to collect data from one centralized point than from several dispersed units especially if this centralized data has already been processed and analyzed in ways that can be useful. Furthermore, knowing what is available at the central level and what should be available more peripherally will help to focus data collection efforts at those peripheral levels. This is particularly important to do if time is limited or access to the field is expensive or difficult.

2.1 How to do it

At each level (starting at the central headquarters and working out to the periphery) collect whatever relevant data is available – observe what is going on, interview key individuals, and obtain copies of relevant accounting records, inventories, case management data, and any reviews, studies, or flow charts. If necessary, arrange for specific data collection exercises.

The purpose at each level should be to:

find out:

- how the program works at that level;
- how the program works at more peripheral levels;
- what kind of data is likely to be available at the more peripheral levels.

collect any available data:

- relevant to the calculation of costs (and, if necessary, effectiveness) of the program at that level;
- collated from more decentralized units.

Conduct the data collection process in a collaborative fashion, engaging staff and managers. This builds an understanding and appreciation of the relevance of the study results and facilitates use of the findings to strengthen the program or inform future policy.

3. Step 1: Identifying Any Specific Issues and Defining the Scope of the Study

3.1 Why?

A single study will not answer all the cost-related questions that might arise in relation to an HIV/AIDS program. Each program needs to be addressed using somewhat different designs and types of cost data and ways of organizing and interpreting it. When there are any particular questions that the cost study is expected to address, these should be identified and specified as precisely as possible at an early stage. If not, the study may be designed in such a way that it is unable to provide answers to the most pressing and relevant questions facing the program.

Some managers and researchers have only vague concerns that they cannot formulate precisely. For them, carrying out a cost study can still be a worthwhile exercise though it may be more about revealing the questions that are worth asking than providing any specific answers.

3.2 What to consider

Often the reason for measuring the costs of a specific program is be able to use that data to *estimate or predict* the costs of a similar program or activity that is not yet up and running – projecting the costs from one setting to another. Sometimes it can simply be to predict what the costs are likely to be in future years of continuing the existing program – projecting the costs from one year to another. Other times it can be the more challenging task of predicting the cost of replication or expansion in a new setting.

Frequently the motivation for costing can be to predict what would happen to the costs if changes were made (in future years) to the way the program is currently designed. Interest in these kinds of predictions usually stems from concerns about aspects of the current program.

- Sometimes concerns relate to specific inputs. Are the staff working cost-effectively or does something need to be done either to improve their performance or change the kind of staff? Would it be worthwhile substituting electronic mail and full on-line services for regular and courier mail?

- Sometimes concerns relate to the way services are delivered. The promotion of condoms, for example: should promotion continue to be done using posters or should T-shirts be being used instead? Or the way risk populations are targeted: should the emphasis continue to be given to sex workers as the primary sources of HIV infection or should more attention be being given to transmitters of the infection and those at the end of the transmission chain such as married women, who are sometimes the largest at-risk group?

- Sometimes concerns relate to management and administration. For example, should ownership be shifted to the national government? Should certain activities be contracted out rather than done in-house? Would it be better to deploy site offices rather than continuing in-country management from the national office? Should assets be bought rather than leased?

Usually one of these options already exists (and its costs will be measured directly) while the other is a hypothetical alternative whose costs will be estimated later, perhaps drawing on the real cost data.

For any given issue it is possible to ask both financing and efficiency or cost-effectiveness questions. If there are plans to replicate an HIV/AIDS prevention program, for example, managers may want to know what the financial outlay would have to be and whether it is worthwhile or if there are more cost-effective ways to expand the program. Similarly, a manager contemplating whether to continue caring for HIV/AIDS patients in hospital or to shift to community care, wants to know both what money will be required to make the shift and which is the more cost-effective of the two options.

The way costs are calculated and analyzed to answer financing questions is usually somewhat different from the way costs are calculated and analyzed to answer questions of efficiency or cost-effectiveness.

- *Financial costs* are the expenditure on the program and include the cost of all inputs purchased at the price that was paid for them. They show the funds required to cover costs, and they reveal whether or not the intervention is affordable. This is the usual lay meaning when the term "cost" is used.

- *Economic costs* (used for efficiency or cost-effectiveness analysis) are a measure of the value of the opportunities lost by employing the resources in that particular program rather than the next best alternative. They are generally more inclusive and embrace, for example, the costs of donated goods or voluntary labor. They are used (often in combination with measures of outcome or effectiveness) to make judgements about the efficiency or cost-effectiveness of a program.

3.3 How to do it

Consult with those who have commissioned the study and clarify exactly what their concerns are and what they expect to get from the study. Talk with managers, administrators, and implementers. Consult any review or evaluation documents. Make a list of issues and then prioritize them. It will be difficult to address more than one or two in a single study. The less important should be put aside and perhaps explored in another study. Get agreement about what is a reasonable scope for the exercise.

3.4 What you end up with

- A statement of a paragraph or two outlining any specific issues the costing study needs to address. Do these relate to:
  - Continuing the program in its current form?
  - Modifying the program in some fashion?

- Scaling the program up or down?
- Replicating the program in a new environment?
- Is it financing or efficiency aspects of the issue that are of primary interest?

- A general statement (2–3 sentences should be enough) of the scope of the program being studied. Is it a national program or only activities in one district or in a particular hospital? Is it the whole set of HIV/AIDS activities or only one element? The scope will be determined in large part by the nature of the issues that have been identified.

- Identification of any of the specific alternatives to the current program being considered.

Case Example:
The detection and treatment of HIV-positive pregnant women

A national HIV/AIDS program has established a pilot project for identifying and treating HIV-positive pregnant women in selected reproductive health clinics. The manager is interested in knowing what it would cost to replicate this service in other clinics: in other words to "scale up" the service. To do this he plans to measure the actual costs of the program as it is currently operating and use this information to predict the costs of the expansion. This is basically a financing question and will not require that the effectiveness or impact of the program be measured. On the other hand it will be important to have some measures of output (the number of HIV-positive women being assessed and treated) so that unit costs can be calculated.

4. Step 2: Describing the Program to be Costed

4.1 Why?

Program description is not an optional exercise. It is not simply scene setting or introduction. It is a vital part of the process of costing. To ensure that costings are both comprehensive and relevant it is essential to know exactly what the program consists of. Furthermore, others may wish to draw on these findings, and they need to know in some detail what is being costed so that they can gauge the relevance of the results for their circumstances.

The description of the program should not only inform the costing: it should be recorded in any written report. The level of detail needed to actually do the costing will probably be greater than that required in the final report.

4.2 What to consider

There are a number of key aspects of any program that should be included in the description.

1. *Objectives*. The principle objectives and the kind and level of measurable outputs associated with the program.

2. *Historical development*: When the program started and how it has grown. How large is the program now?

3. *The main activities*. What are the principle approaches and methods used to achieve the objectives and outputs? This is a particularly important element to develop in some detail.

4. *Level of operation, hierarchical structure, units of "production," and geographical spread.* How is the program organized? On how many different levels does it operate? How are the key agencies involved in implementation? What activities are managed at national headquarters and at the regional and headquarters level?

5. *Sources of funds.* Who finances the program? Are they local or foreign, government or nongovernmental organizations (NGOs)? Are fees involved?

4.3 How to do it

For those not familiar with the program they are costing, interviews of key informants are a cost-effective way to gather much of the information. Spending time in the field actually observing what is going on and using this direct observation to inform questions to key informants is invaluable. This is

true even for those who know the program well but only at a central level or through documentation rather than observation.

Ask for any reports that describe the program including reviews and evaluation reports.

Flesh out the activity profile by referring to the annex to this report, which provides a detailed list of possible HIV/AIDS program activities. Place a tick beside all the activities involved in the program being costed out. Add additional lines if there are other activities not recorded there.

For any hypothetical alternatives being considered (expansion, modifications, replication) it will not be possible to observe and document what is actually happening. Descriptions of them will take the form of what it is *intended* that these programs or program modifications would look like. Describe the proposed objectives, main activities, hierarchical structure, units of "production," and geographical spread of these alternatives. What exactly would be different in the program or the environment from the situation of the program being costed out?

4.4 What you end up with

- A fleshed-out description of the program using the headings described in the above section. All the topics should be at least referred to, but some may be emphasized more than others depending on the purpose of the costing. The activity section is the one that should be the most detailed.

- Any background information. In some cases it may be appropriate to start by describing the larger program of which the program being costed is a part. For example, if it is the HIV/AIDS program in one state that is being studied, it would be appropriate to set the scene by describing the national program. In this case, distinguish the background information clearly from that which relates specifically to the study program. Be much briefer in the treatment of background than of the program itself. Detail the boundaries of the study program (time, place, activities) in relation to the background.

- A description of any alternatives being actively considered.

Case Example:
The detection and treatment of HIV-positive pregnant women

The pilot operates in five out of the national total of 20 reproductive health clinics. In those pilot centers, HIV/AIDS tests are performed on all consenting pregnant women who come into the clinic for routine pre-natal checks. In the pilot clinics there are about 200 new clients every month about three-quarters of whom (150) are tested. Five percent (eight per month) are HIV positive. Women are offered counseling both prior to testing and once they receive their results. Women who test positive receive treatment to prevent opportunistic infections, to reduce active tuberculosis, and to reduce mother-to-child transmission.

5. Step 3: Developing an Activity-based Cost Framework

5.1 Why?

Much of the value of doing a costing study lies in the disaggregated data, which reveals the significance of different elements within the program, provides clues on the cost-effectiveness of the program, and is much more informative for those wishing to use costs to project estimates elsewhere.

One standard way to categorize costs is in terms of the **type of inputs**. These are commonly grouped into two important categories. *Recurrent inputs* are resources that are used up and consumed within a year of purchase (e.g., drugs, educational materials, labor). *Capital goods* are items such as vehicles, equipment, and buildings that have a useful life of longer than one year.

Costs can also be categorized in many of the same ways that programs are described (see Section 4) and most commonly by:

1. Level of operation
2. Sources of funds
3. Activities

Some of these dimensions are related to each other in a semi-causal way. Sources provide funds to purchase **inputs** that are employed in performing **activities** that result in the achievement of **objectives**.

"Activities" is a particularly important dimension in which to categorize costs. Assigning costs to specific activities makes it possible to tease out what it is that is determining the cost-effectiveness of the program and to work out how the program might achieve its goals with less resources. If the relationship between activities and objectives or outcomes is clearly spelt out, assigning costs to activities also makes it possible to then match costs with outcomes, an important step in analyzing cost-effectiveness. Furthermore, many HIV/AIDS programs are described, planned, and implemented using activities or processes as the organizing principle, and activity breakdowns match the reality of public health program design.

5.2 What to consider

5.2.1 Level of detail

Each of the dimensions can be broken down or subdivided in different ways and with different levels of detail. Table1 illustrates this for each of the dimensions of inputs, activities, level of operation, and source of funds. The basic and intermediate subdivisions illustrated in Table 1 represent fairly well-established ways of organizing cost data. There are some real advantages to employing these or something close to them – the more standardized the approach, the more readily other program managers can use the data to inform their programs. The very detailed categorizations cannot easily be standardized.

Table 1. Illustrating the Different Degrees of Detail that Can Be Used for Four Different Categorizing Principles

Categorizing Principle:	Basic division	Intermediate	Detailed
Input Types	Recurrent costs	Personnel/labor	Field staff
			Managerial staff
		Materials and supplies	Drugs
			Training materials
		Operating costs of buildings, vehicles, equipment	Fuel, utilities
		Contracted supplies	Contract for laundry
	Capital costs	Vehicles	Cars
			Motorbikes
		Buildings	Health centers
			Hospitals
		Equipment	Diagnostic equipment
			Furniture
Source of Funding	Foreign	Multilateral	e.g., United Nations ….
		Government	e.g., U.S. Agency for International Development
		NGOs/private	e.g.
	National	Government	e.g., Department of ….
		NGOs/private	e.g.
		Patients	Out-of pocket payments; fees for service
Activities	Primary	Prevention and treatment of HIV/AIDS	To be determined by site or program specifics
	Secondary	Media campaigning Training material development	To be determined by site or program specifics
	Ancillary	Research, personnel services, accounting, logistics support, reviews	To be determined by site or program specifics
Level of Operation	Field	Health center/hospital (unit of production)	Center A, B, C, etc.
		District	District A,B, C, etc.
		Regional	Region X, Y, Z, etc.
	Headquarters	National	Department G, H, J Ministry of K, L, M
		International	Company N, O, P

There is less standardization in the breakdown of activity categories, partly because of the considerable variability in what different health programs are trying to achieve and how they go about doing it. One useful basic way to group activities is in terms of *primary, secondary, and ancillary activities*. A primary activity is one that involves face-to-face contact with the beneficiary (e.g., treatment of an HIV/AIDS patient). Secondary activities are derived from and provide technical support to the primary ones (e.g., media campaigning) and ancillary activities provide general support for the program operation (e.g., personnel services). Primary activities will tend to take place at the most peripheral level while secondary and ancillary services will generally be provided at the "higher" more centralized levels.

Another kind of activity classification that can prove revealing is to group together all the costs associated with operating and maintaining specific capital inputs. A category such as "the running costs of vehicles" would be helpful for those having to decide whether or not to invest in a new car or wanting to make more cost-effective use of the vehicles they already have.

5.2.2 Categorizing principles

Whatever the detail of the categories within each dimension, there are certain points to bear in mind. It is essential that:

- The classification is comprehensive. There must be a "home" for each relevant cost. Avoid having to put many costs in a catch-all category such as "miscellaneous" or "other."

- The classification is mutually exclusive. Within any given organizing principle, a particular cost should only have one "home." For example, under "inputs" it is clear that categories such as "personnel" and "materials" include different costs. But if "training" (an activity rather than an input) were added to the list, there could be problems. Should the costs of persons conducting the training be included in that category or should these go under "personnel"? Should the cost of training manuals go in "training" or under "materials"?

Sometimes, usually because of the way payments are made or records are kept, categories are mixed in an accounting system. "Training" is often included in category lists that are essentially inputs. Similarly, consultant services are often kept as a separate category within an input listing. If different kinds of categories are mixed (e.g., labor, materials, training, and consultant services), particular care needs to be taken with the next point.

- The language of the titles (and their description) is clear enough to avoid ambiguities about content. Does the category "personnel" include travel allowances, per diems, etc. as well as salaries? Does it include *all* staff (or are trainers, for example, included under "training")?

- The classification is relevant and practical. The issues and concerns that have been identified should drive the specific classifications employed. But practical issues are also important. Unless there is a good reason not to, employ as many as possible of those categories already used in accounting systems that collect program costs.

5.2.3 Degree of cross-linkage

It is possible to simply present the information on each dimension separately – one table with the breakdown of costs by inputs and another with the breakdown by activity, etc. It can be revealing,

however, to cross-link some dimensions. For example, with financial costs it is quite common to have a single table that identifies who provided funds by the types of inputs that were purchased. Showing which inputs are being used for which activities is a useful cross-link to explore cost-effectiveness issues.

The problem with cross-linking is that it does add significantly to the work and complexity involved in data collection. For example, presenting a single table showing the relationship between the inputs (with, say, seven categories) and the activities (with, say, five categories) would require classifying the data in 5x7 = 35 separate categories. If, instead, the tables were presented separately there would be only (5+7) = 12 different categories of cost information.

5.3 How to do it

Consider the specific issues that have been identified.

Describe the kind of results it is hoped to present at the end of the study.

In the light of this, and taking into consideration the nature of the categories used in routine accounting data, develop an activity-based cost framework. Choose the dimensions in which costs will be categorized and decide on the amount of cross-linkage and the level of detail that is appropriate for each dimension, giving special attention to activity categories.

Take the activity checklist prepared under "program description." Do the key activity categories provide a clear "home" for each of the activities that have been ticked? On the checklist mark the key activity category to which each of the ticked items would be assigned. (See again the annex to the report.)

5.4 What you end up with

- A cost framework that should identify the cost dimensions that will be focused on and how much detail and cross-linking of data there will be
- A list of key activity categories (probably no more than 10) categorized as either primary, secondary, or ancillary activities with a description of what each involves and an indication of how the activities relate to each other and to outcomes

Case Example:
The detection and treatment of HIV-positive pregnant women

Since the purpose of the costing in the Case Example is to be able to estimate the costs of scaling up, it is important that the cost framework is designed to make it easier to project the total costs to other settings. For this reason, costs need to be separated by hierarchical levels (headquarters, district, and health facilities) and to separately identify those costs that are likely to be unchanged with any expansion (fixed costs) and those that are likely to vary (variable costs). Because the program of interest has two major activities whose costs may respond differently in the expansion phase, it would be desirable to distinguish those costs associated with identification of HIV-positive women from the costs associated with their treatment. [1] It will also be important to distinguish the key types of inputs as they are likely to respond differently in the expansion phase. The following basic cost framework is chosen:

	Health center level costs associated with program			District level		Central level	
	HIV detection of pregnant women	HIV treatment of pregnant women	General admin. (share)	General admin. (share)	Program-specific	General admin. (share)	Program – specific
Recurrent costs							
Personnel							
Pharmaceuti-cals							
Materials for HIV testing							
Stationery							
Running cost of vehicles							
Running costs of buildings							
Running costs of equipment							
Training							
Contracted services							
Capital costs							
Vehicles							
Buildings							
Equipment							
Total							

[1] This may not be an entirely straightforward matter. For example, where should the costs for post-test counseling go? They could all be placed under “HIV detection” or perhaps it is more appropriate that the costs for counseling of HIV-positive women (which would be much longer and directed towards dealing with their health problem) be placed under the “treatment” column?

6. Overview of Cost Calculations[2]

The previous four sections have established the scope and framework of the cost study. The next four describe how to calculate the costs.

Key sources of information for costs are the accounting records, and analyzing them is the topic of Section 7. Accounts, however, have a number of limitations especially for economic costings for cost-effectiveness analysis, and it is necessary to complement the data from accounting records in a number of ways:

- Identifying the current value of capital items and calculating the annualized value of this (described in Section 8);
- Going to other sources to calculate the cost of off-budget items (described in Section 9);
- Identifying appropriate ways to allocate the "shared" costs that cannot easily be directly attributed solely to the program (described in Section 10);

Once all the data is collected it needs to be analyzed. This is the subject of Section 11.

Before doing any of the above steps it will be necessary to decide on the year for which data will be collected. Usually this will be the most recent year for which routinely gathered accounting and other relevant data are available.

[2] In collecting and calculating costs it is important to distinguish between the program being studied and any planned modification, expansion, or replication of the program (for which it is planned to estimate costs on the basis of the studied costs). The program being studied is often far from perfect. Resist making adjustments for what are sometimes glaring inefficiencies (even if it is planned to change them next year) while doing the initial costing. That initial exercise should focus on documenting what the program in its current setting and management and design actually does (and costs). In other words, it is important to attempt to capture how resources have been used rather than how they should have been used. The commentary on what this will mean for the future – for the next stage, for another program, for implementation in another country, etc. – should be left to the final analysis phase.

7. Step 4: Assessing Available Financial Data

7.1 Why?

Almost any health program will have some cost information, and most managers are used to working with financial figures – keeping track of expenditure to ensure that they don't overspend the funds allocated, accounting to providers for their expenditure. Some financial data relating to the HIV/AIDS program being studied will, therefore, almost certainly be readily available. The information contained in these accounting records is valuable and should be the starting point for any study of actual costs. Note that it is the *actual* expenditure recorded in accounts that is of interest, not the *planned* expenditure in budgets.

7.2 What to consider

There may be more than one set of accounting records. This is likely to be the case if there are a number of financiers of the program. It can also occur if there are several different administrators of the program (e.g., at the local, district, and central levels) who might each keep distinct records. Programs with grantees who deliver HIV/AIDS services may also have records of costs that are separate from those of the project administrative offices administering the grants. These grantees may also have several sources of funding, all of which contribute to the activities being studied. This point is particularly important when projecting costs for replication or scaling up. And it is sometimes the case that expenditures on different types of inputs are kept separately. For example, records on salary payments may be kept separately from routine material goods payments; payments for large items – capital goods like vehicle, buildings, and equipment – are often recorded separately from recurrent expenses.

The primary emphasis of most financial systems is an accounting one – to check that moneys are being used as it was agreed they should be. It is not surprising therefore that accounting records have some limitations when it comes to costing out programs. For one thing, they do not necessarily categorize the data in ways that allow costs to be allocated directed to the cost framework. For example, they primarily categorize costs by kinds of inputs (personnel, drugs, etc.) and not by the activity for which they are used. Additional data are therefore needed to disaggregate the costs in ways that are useful for the analysis.

A second problem, specifically for economic costings, is that accounts record the cost of resources for the year they were *purchased* rather than used. As a result they do not necessarily provide appropriate data for calculating capital costs. Nor do they necessarily include all recurrent costs used in the program – donations, for example, will be excluded.

7.3 How to do it

Consult all the different providers of funding to the program and all the major implementing agencies, and collect from them accounting records that refer to the program for the year(s) of interest.

Check how comprehensive these records are. Do they include:

- all the kinds of recurrent inputs going into the program (salaries and allowances, drugs, etc.)?
- all the activities involved in the program? (Use the checklist based on the list in the annex.)
- all the years being studied?
- contributions from all sources?

Check how specific and relevant they are. Consult the costing framework that has been developed. Are there specific categories of cost data that are not clearly identified and separated out in the accounting records?

7.4 What you end up with

- A set of accounting records relating to the program being studied and a description of how the different accounting records relate to each other
- As much as possible of the cost framework tables completed using information from the accounting records
- A list of those categories of costs (specific inputs, activities, levels, or costs paid by specific funding agencies) that are not included in the accounting records
- An indication of which of the costs need further disaggregation
- A brief review and commentary on the accounting system identifying any simple changes that might help to make it more useful for cost studies in the future

8. Step 5: Calculating the Annual Cost of Capital Goods

8.1 Why?

In studying financial costs, the purpose is often to estimate long-term financing requirements. If there is significant variation in costs from one year to another, it is clear that measuring costs over only one year can be misleading. One important reason that financial costs can fluctuate is because of periodic purchases of large capital items. To deal with this problem either costs must be studied over a longer time period (often difficult) or some way needs to be found to deal with capital cost fluctuations.

Capital goods are problematic when measuring the economic costs (for cost-effectiveness analysis as well, though for a somewhat different reason). The purpose of economic costings is to match the costs with the output they generate. This means that the costs of interest are those of the resources that are *consumed and transformed into impacts* during the period of interest. This is not necessarily the same as the cost of items *purchased* in that period. For most recurrent items the mismatch between purchase and consumption is not a significant issue: staff paid in one year are almost always being paid for time invested in that year; electricity purchased is electricity consumed in that year, etc.[3] The issue is much more important where capital goods such as equipment, vehicles, and buildings are concerned. These items can be purchased in one year and "consumed" or used over several: five, 10, perhaps 20 years. How can the cost of capital goods "consumed" in one year be calculated?

8.2 What to consider

For most purposes the annual value of capital is calculated by dividing the cost of the capital item (its price) by the number of years for which it is functional. A piece of equipment that is worth $6,000 and is expected to be operational for 10 years has an annual cost of $600. This procedure is termed "straight-line depreciation."[4]

[3] Supplies such as drugs, for example, can be bought and stored and stocks built up and run down and this can lead to a mismatch between purchase and use. But as long as the time frame is not too narrow, this is usually not a major problem: purchases made over one year reflect consumption in that year much more closely than purchases in a single month reflect consumption in that month.

[4] The calculation is a little more complicated when estimating economic costs for the purpose of cost-effectiveness analysis. Simply dividing by the number of years fails to take account of the fact that money tied up in capital goods forfeits opportunities for other uses – an important point for economic costings. For example, instead of purchasing a car, the equivalent sum of money could have been invested in a bank and earned interest. The interest, or discount, rate reflects the opportunity cost of tying up money in capital goods. Instead of simply dividing by the number of years of useful life, it is necessary to use a so-called annualizing factor, which can be found in standard tables and is constructed from the useful life and the discount rate.

The price needed for the analysis is not that which was paid for the item when it was purchased, but the price that would be paid for the item were it to be purchased in the year for which the study is being done. In other words what is needed is information on the (current) replacement value. Because of inflation, the purchase price and the current value are unlikely to be the same.

The capital items whose cost needs to be annualized in this way are any of those which are currently in use by the program. In other words, it is not simply those items that were purchased in the year of the study.

It is possible to extend this kind of treatment to other investments that do not necessarily take the form of capital goods. Support for certain types of activities, for example, can also be periodic. Training is often done intermittently, and technical assistance from external sources may only be one-off or needed only in the start-up period of a program. It is desirable to identify any major investments of this type and, if possible, handle them in a fashion similar to the way capital goods are treated, by pro-rating their costs over the relevant time period.

8.3 How to do it

Through interviews and observation, document the main capital items being used at each level of the program. Some programs keep inventories of capital equipment currently in use. If these are not available, and if the number of items is relatively small, it may be possible, as part of the study, to do a one-off inventory of key items of equipment, buildings, and equipment.

Refer to accounting records or consult the purchasing sections or the manufacturers to find out the current price (the replacement price) for those items. If that price cannot be ascertained directly (perhaps the item is no longer available) either look at the current price of a similar good or take the original price and increase it in line with inflation.

Find out the accepted "useful life" of those items by talking to those who use them or consulting the finance department.

Calculate the annual value of the item by dividing the replacement value by the useful life.[5]

8.4 What you end up with

- A list of those capital items employed in the program whose useful life is longer than one year
- An estimate of the annual cost of those items
- An indication of which of these costs needs further disaggregation

[5] If the calculations are being done for the purpose of estimating costs for cost-effectiveness analysis, the replacement value is divided by an Annualizing Factor rather than the Useful Life. The Annualizing Factor is calculated from the discount rate (consult the finance department for the value of the discount rate) and the Useful Life and can be found in standard tables.

Case Example:
The detection and treatment of HIV-positive pregnant women

The program makes use of both vehicles (as part of prenatal outreach) and space in the health center especially for counseling. The following table displays how the annual cost of a car and a reproductive health clinic were calculated using straight-line depreciation.

Capital items	Replacement Price ($)	Useful life (UL)	Annual cost (AC= $/UL)
Vehicles (one car)[6]	$10,000	15 years	$666.67
Equipment	None used	---	---
Buildings (reproductive health clinic)	$100,000	30 years	$3,333.33

[6] If the calculations were being done for the purpose of estimating costs for cost-effectiveness analysis, the calculations for the vehicle would be as follows (assuming a discount rate of 3 percent).

9. Step 6: Calculating the Value of Off-budget Recurrent Costs

9.1 Why?

Accounts only record the value of items that have been paid for. Resources that are *used* by the program but not paid for, such as donations of goods or voluntary contributions of time, for example, are not included and may need to be, depending on the purpose of the study.

9.2 What to consider

The financial cost of donated items is zero. This is their value *in the program being studied*.

However, there is a good reason not to ignore the cost of donations and at least to document the amounts used. Many cost studies are done not simply to describe that particular program but in order to be able to make predictions about how much it *would* cost or how cost-effective it *would* be to modify, replicate, or expand the program. For that estimation process it is essential to know about *all* the resources employed in the basic program. The judgement about how to value them in the new (modified, expanded, replicated) program can be made later. For example, managers may be aware that support for the current program in the form of donated commodities will be withdrawn in the future. To estimate the costs of continuing or expanding the program, they will need to estimate the replacement costs of the currently donated inputs.

Furthermore, although the *financial* cost to the program being studied of the donated items is zero, the *economic* cost may not be. The economic cost of the donated items will be their "opportunity cost"– the value in the best alternative use to which they could be put. Sometimes, if there are restrictions on the donations and there is no other use to which they are allowed to be put, their economic value *will* be zero, but often it will be appropriate to value these goods using their price in the market.

9.3 How to do it

Ask managers and administrators whether the program is being supported by other organizations or individuals with contributions that have not been paid for through the program accounts.

Decide, on the basis of the focus and purpose of the costing exercise, whether it is appropriate to cost out these contributions. (Some donated contributions may not be considered essential to the program's ongoing operations.)

Obtain information from the suppliers of these contributions on the value of the donated goods and services that are considered appropriate for costing.

If this information is not available, find out the quantities involved and obtain an estimate of the price per unit of these items or similar ones. It may be possible to get this information from the donating organization or the manufacturer or from price lists from the organization managing the program. For volunteer labor, look at wages for a similar quality of personnel or consider using the minimum wage.

If even this information is unavailable, it may be necessary to "construct" estimates as illustrated in the Case Example below. Care must be taken with this technique since it usually relies on practitioners' estimates rather than objective measures and could be subject to biases both intentional and unintentional: for example, the "waste" element can be difficult to estimate and is frequently overlooked.

9.4 What you end up with

- Further completion of the cost framework tables and records
- An indication of which of the off-budget costs need disaggregation

Case Example:
The detection and treatment of HIV-positive pregnant women

The treatment side of the program is supported heavily by donors, who supply all the drugs free of charge to the program. There is no item for these drugs in the program's accounting records, and consultation with donors reveals that they have no inventory records of the quantities of drugs provided. The only alternative is to estimate drug use on the basis of treatment practice. From interviews it is established that HIV-positive pregnant women should be receiving:

- one tablet of TMP-SMZ daily for life to prevent opportunistic infections.
- 300 mg isoniazid daily for six months to prevent active tuberculosis
- one dose of nevirapine for the mother at the onset of labor and for the child within 72 hours of birth to reduce mother-to-child transmission.

Inquiries of staff in the field reveal that drug supplies are good and women are seldom sent away without the appropriate drugs. Prices, obtained from the donors, indicate $10 for a year's course of TMP-SMZ; $8 per client for isoniazid treatment; and $4 for nevirapine per person. The total cost of drugs in the year given that eight women per month test positive and assuming no wastage would be: (96 x $4) + (52 x $10) + (76 x $8) = $1,512. Although there is no specific data on the wastage of these drugs, data from other programs suggest that drug losses of the order of 10% are common. Applying this 10% rate to the present case would give total drug costs of $1,512 + 10% x $1,512 = $1,663.

10. Step 7: Allocating Shared Costs

10.1 Why?

If accounting records were reasonably detailed and described each item by all the relevant dimensions (e.g., what kind of input, the level at which it is used, and the activity for which it is employed), it would be relatively straightforward to assign many of the recurrent cost items to particular categories. However, this is not generally the case. Accounting reports are usually summary documents and a single line item may serve several functions that cut across the established activity categories of the cost framework.

Furthermore, sometimes costs are assigned to account categories arbitrarily, or they may be accidentally assigned to the wrong account or even deliberately assigned to an account that does not reflect their use very accurately.[7] Accounting reports do not, in other words, necessarily disaggregate the cost data in the way that suits the costing analysis.

Disaggregation is made more complicated by the fact even some individual items may be "shared." Individual workers, for example, often perform many different functions especially at the field level. And a single capital item – a vehicle, building, or piece of equipment – will often be shared among different activities and programs. Inputs employed for ancillary services (such as general administration and management – personnel, finance, etc.) are almost always shared in the sense that they support several different primary, or field-level, activities.

10.2 What to consider

10.2.1 Direct allocation

Sometimes it is possible to disaggregate these costs by consulting additional records or conducting interviews and directly tracing what the inputs are used for or by whom. For example, even if accounting records fail to distinguish the level at which staff are employed, this can be easily established from personnel records or interviews – most individuals work either in the field *or* in the district *or* at headquarters. And some individuals will have highly specific functions. Personnel records and interviews can be used to help tease out who does what.

Often, however, individuals are doing multiple tasks and perhaps doing work from several different programs. There are many different ways to trace directly how much time staff devote to specific activities. Special studies can be done involving intensive monitoring of individuals through

[7] This occurs when funding agencies have rigid procedures that assume all actual costs will follow the budget, even though the budget is only a plan. If it is bureaucratically difficult (or impossible) to change the budget, grant recipients may simply assign costs to other budget line items, especially when the line items are not clearly defined and are subject to interpretation.

time and motion studies or using a large number of random observations (so-called work sampling). It is also possible to collect some of the data more routinely: the assignment sheets for classes of employees (e.g., nurses) to wards can provide reasonably robust data on what activities they were supporting, for example. Staff can also be encouraged to enter activity codes on their timesheets to indicate how they spend periods of time.[8]

In many cases it is best to interview staff about their use of time, so that they understand why they are being asked the questions. It may be useful to interview small groups of staff who perform the same tasks. Such settings enable, probe, and force staff to think more carefully about how they really spend their time. Labor often accounts for the largest share of costs of any of the inputs. Because of this it is worth going to some effort to get direct and accurate estimates.

With materials such as drugs, inventory records (which record quantities rather than costs) will usually have a more detailed breakdown than expenditure or accounting records. Whereas the accounts may simply record the cost of all drugs used by all health centers, inventory records will usually provide finer breakdowns both by type of drug, for example, and by the location or center to which the drugs were sent. Based on inventory records, there may also be some prior analysis of loss and wastage or expiration rates.

10.2.2 Indirect allocation

Sometimes the direct tracing of shared costs may be laborious, too costly, or perhaps impossible, and it may be necessary to assign or allocate costs to an activity *indirectly* using an *allocation factor*.

The most accurate allocation factors are those that are related as closely as possible to the variables that determine the costs of different inputs. Table 2 shows the variables that determine the cost of each of the key inputs (column 2). The cost of labor (of a given standard and quality), for example, is an almost direct function of time. Many inputs are a function of more than one factor. For example, the cost of the space used by a program is some function of the area used and the amount of time for which it is used.

Table 2, column 3 shows examples of allocation factors related to those variables, which could be used for each key input category. For example, a possible allocation factor for the amount of time staff spent on HIV/AIDS would be based on the number of patients. If half the patients seen by health staff are HIV/AIDS patients, it might be reasonable to ascribe approximately half the time of that worker (and half her costs) to HIV/AIDS.

It may be necessary to use a two-stage allocation process if data are being cross-linked. For example, if costs are being recorded by level and activity in a single table (so as to describe how much of each activity occurs in the field and district, and at headquarters) it may be necessary first to allocate by level and then to allocate among specific activities. The allocation factors used in each case may be different.

[8] Although this approach appears relatively simple, it is not always reliable. Most people record their timesheets long after completing the work and rely on their memory. Sometimes they deliberately fill in timesheets in a manner that conforms to their supervisor's expectations, assigning more or less time to a task based on their supervisor's estimate of how much time they should have taken to complete it.

Table 2. Cost Allocation Factors

Inputs	**What the cost of these inputs is a function of**	**Allocation factors for distributing shared costs to a specific activity (illustrated using HIV/AIDS treatment as an example of a specific activity)**
Labor (salaries, benefits), e.g., Administration Training Quality control, evaluation Field/service delivery	TIME, QUALIFICATIONS	The % of X which is related AIDS treatment, where X equals: ▲ Direct total (or labor) costs of activities administered ▲ Training hours or volume of trainees ▲ Direct total (or labor) costs of activities evaluated ▲ Number of beneficiaries/patient visits
Materials (medicines, clinical supplies, office supplies)	QUANTITY	The % of all beneficiaries who are treated for AIDS
Building	SPACE/TIME	The % of all beneficiaries who are treated for AIDS
Vehicles	TIME, DISTANCE	The % of total trips or of mileage which involve treatment of patients for AIDS
Equipment	TIME, INTENSITY	The % of total time used that the equipment is used for the treatment of AIDS patients
Professional and other services, e.g., ▲ Advertising and mass media ▲ Training services ▲ Catering ▲ Printing, etc.	VARIOUS (Time, if mostly labor; volume if mixed)	The % of X which is related AIDS treatment, where X equals: ▲ Targeted audience ▲ Volume of trainees, training hours ▲ Persons served ▲ Number of pages
Communications (fax, internet, email, phone)	VARIOUS	The % total labor costs devoted to AIDS treatment
Consulting	TIME +	The % of consulting time devoted to AIDS treatment

10.2.3 Ancillary services

Ancillary services (general management, overheads) often contribute in a significant way to the costs of a program. It is important, therefore, to be as accurate as possible in assigning them to specific programs. Although there may be some ancillary service costs that can be traced directly (for example, an individual or a unit of persons dedicated to the supervision or the management of only the program of interest) this will not be true of most ancillary costs. Allocating shared ancillary costs has often been done using a single allocation factor (perhaps the percentage of all field personnel who work on the program of interest). But this approach can be highly inaccurate and has in fact led consistently to the under-costing of complex, specialist, infrequent procedures or activities and the over-costing of straightforward frequent ones.

A preferable, more accurate, approach is to tease out the key components of the ancillary services (e.g., personnel management, information services, financial management, etc.) and to distinguish those general management elements that are "driven" or caused by different factors and whose allocation factors will therefore be different. There are likely to be half a dozen or so key allocation factors useful in assigning ancillary services:

- "Number of employees" (for labor-related services such as personnel and supervision)
- "Space occupied" (for space-related elements such as rent, building insurance)
- "Value of equipment" (for equipment-related services such as insurance)
- A variety of more specific allocation factors (e.g., "weight of washed laundry" [for laundry services]; "number of meals" [for canteen services], etc.)

Having allocated ancillary services to the program it is then possible either to leave them as a separate cost element within the program or do a second-stage allocation in order to assign them to specific activities. For many purposes it is best to keep them separate.

10.3 How to do it

Consider the lists prepared in Steps 4 and 5 indicating which of the costs need further disaggregation.

Explore the feasibility of using inventories or staff lists or mounting special studies to identify how much to attribute directly to each of the more specific categories identified in the cost framework.

For those shared costs that cannot be traced directly, identify a suitable allocation factor bearing in mind:

- *The closeness of the relationship to true costs.* Some allocations of cost reflect reality more closely than others do. For example, if counseling time is longer than treatment time, then allocating the costs of HIV counseling on the basis of patient visits would not be as accurate as a method that considers the longer contact time needed for counseling.
- *The cost of measurement.* Getting more accurate estimates is likely to be more costly. For example, a detailed study of counseling time is considerably more expensive than a simple

rule of thumb based on interviews with providers who say that counseling takes three times as long as routine treatment.

The benefit of precision. Precision is more valuable – has more impact on the accuracy and utility of the study – for some inputs than others. For example, attempting to be as precise as possible in allocating the costs of staff time is of far greater benefit than attempting to be precise about the allocation of the costs of leaflets whose costs are insignificant compared to staff costs.

10.4 What you end up with

- Disaggregation of any shared costs, recording the result in the suitable space in the cost framework

Case Example:
The detection and treatment of HIV-positive pregnant women

The HIV/AIDS program makes use of two vehicles for the purpose of doing outreach prenatal clinics. The vehicles are also used for collecting general health center supplies and for administration. The costs of running a vehicle are closely related to mileage covered, so a quite accurate allocation factor would be percentage of total miles traveled that were made for prenatal activities. The total mileage for the year with vehicle one is 10,000 of which 1,500 were for pre-natal visits. The allocation factor using mileage would be 1,500/10,000 = 0.15.

Unfortunately, mileage records were not kept for the second car though it was possible to use the number of trips as the allocation factor. The total number of trips made by that vehicle was 300, 50 of which were for prenatal outreach. One-sixth (= 0.1666) of the running costs could be ascribed to prenatal outreach. Since the total annual running costs of each vehicle was $3,000, the amount attributed to the prenatal work would be $450 in the first case and $500 in the second.

Cost element sought	Available cost data from which it will be derived	Allocation factor(s) to be used	Answer
The amount of the annual cost of the vehicles that can be ascribed to prenatal outreach	The annual running cost of vehicle 1 $**3,000** The annual running cost of vehicle 2 $**3,000**	The percentage of total miles traveled that were for prenatal clinics **0.15** The percentage of trips that were for prenatal clinics **0.17**	3,000 x 0.15 = $**450** 3,000x 0.17= $**500**

11. Step 8: Final Analysis

11.1 Why?

How the collected cost data is analyzed is the key to the success of the exercise. The major benefits of the study in supporting policy and managerial decisions will only be experienced if the data is analyzed appropriately and the results disseminated to those who can act on them.

11.2 What to consider

11.2.1 Putting the results together

Once all the data have been collected and the basic calculations of cost have been made, it is useful to **double-check the results** to make sure that they are "reasonable." One useful basic check is to look at any figures that should be subsets of larger figures and see how they compare. For example, staff costs for the program should be considerably less than total staff costs at all the health centers (and that total will probably be in accounting records).

11.2.2 Financial analysis

The data can then be collated into the basic tables of the **cost framework**. These tables will reveal the cost of different elements of the program as well as the program's total costs. Presenting information in these cost grids can be helpful in the often-complex task of coordinating and managing support for HIV/AIDS. The cost grids enable both funding agencies and implementers to identify where resources are focused, what the gaps are, and where their own future support should be targeted.

Information on the financial costs of the program can also be helpful in guiding decisions about what fees to charge for a service, particularly if the intention is to recover costs or a percentage of costs.

11.2.3 Cost-effectiveness analysis

It is a straightforward task to transform the information in these cost framework tables into **cost profiles**. Profiles show the percentage breakdown of total costs into the different cost elements and reveal the relative importance of the elements.

Cost profiles are useful because they:

- provide some clues about the efficiency or cost-effectiveness of the program by revealing areas in which the program may not be suitably "balanced." For example, if the administration costs of the HIV/AIDS program were very much higher (or lower) than most other well-functioning programs, it might suggest that something should be done to tackle this, or at least that the issue should be further researched.

- reveal which cost elements consume most of the resources and should therefore be studied and managed most closely. Clearly the larger the cost element the greater the potential efficiency gains. For example, if labor accounts for 70 percent of the costs of a program, a 10 percent improvement in cost-effectiveness could reduce the total costs of the program by 7 percent. If drugs account for only 10 percent of the program, reducing wastage of drugs by the same 10 percent will only yield a percent reduction in overall costs.

To decide whether a program or program element is actually cost-effective or not, it is necessary to have data not only on costs but also on outputs or outcomes of the program whose costs have been measured. It is only by looking at what has been achieved for the costs invested that this judgement can be made. This requires either that:

- the outcomes are expressed in financial terms so that it is possible to say that the outcomes from the program were worth more or less than resources invested in it (this is cost-benefit analysis); or that

- there is some alternative program, also with data on costs and outcomes (expressed in the same units), so that it is possible to compare the two and conclude that one program is better (more efficient) than the other (cost-effectiveness analysis). For example, in the example used above, the significance of the unusually high/low administrative funding could be explored further by identifying administrative "outputs" (e.g., number of personnel managed, amount of funding managed), calculating cost per unit of output and comparing this result with those of other administrative systems.

The choice of effectiveness units will depend on the nature of the program being studied. It should reflect the key outputs or outcomes of the program. It might, for example, be the number of HIV/AIDS cases identified; the number of HIV/AIDS cases treated; the number of condoms distributed; the number of people who have a certain level of knowledge about AIDS/condoms; or a reduction in the rate of new infections.

Cost-benefit is often too difficult to do – or is not needed for the purposes of many cost studies – so generally it will be necessary to have comparative data on alternative programs or program elements. Sometimes these alternatives can be studied directly from programs in the field; sometimes information on their costs and effectiveness will be available in the literature, other times it will be necessary to estimate the costs by building up a picture of what the program would look like and the resources it might use and calculating the costs. Frequently, the alternative will be some variant on the program that has already been costed out and the challenge will be to use that information from the program already studied and predict how the costs and effectiveness would alter.

11.2.4 Projections

In making projections from a studied program to a hypothetical alternative, it is important to consider the amount and type of change or difference being contemplated:

- The *circumstances or environment* of the planned intervention may be different from the costed program (because of changes in location or time) in a way that affects costs. For example, the level of existing infrastructure and the nature of the terrain can make a large difference to costs: if the basic health facilities and roads already exist, costs will be much lower than in a situation where the terrain is rugged and facilities underdeveloped.

- The economic environment may also make a difference. For example, inflation will increase the *nominal* cost of a program from one year to another and it will be necessary to apply inflation rates to the current costs to adjust for this. It is also possible that, with new innovations or changes in demand and supply, the *real* price of inputs could change from one year to another. For example, there is a good chance that the cost of HIV prevention drugs, and of highly active antiretroviral therapy (also called HAART) in particular, will fall as a result of the research currently ongoing. The relative value of inputs will vary from one country to another and so might the rate of price change, and this must be taken into account if the results from one country are to be used in another.

- The *program itself* may be different in ways that affect costs. Based perhaps on the experience under the studied program, the new program might use a different level of health personnel or outreach worker or it might use different drug therapies or information and education campaign (IEC) media.

- Measuring the effectiveness of a program is not a topic covered in this document but it is worth noting that similar concerns apply. Are the circumstances or environment of the planned intervention different from the costed program (because of changes in location or time) in any way that is likely to affect *impact or effectiveness*? Such factors as HIV/AIDS prevalence and age pattern, or coverage and population density and compliance (which may be affected by educational and income level of the population) may all influence the impact that can be expected. Is the *program* different in any way that is likely to affect effectiveness?

- The way costs respond to changes or differences in the size of the program depends crucially on the nature of the input and the scale of the change. Capital inputs – such as vehicles, transport, and buildings – can accommodate some increased use without it necessarily impacting on costs. They are typically "fixed" costs. An extra person can be taken in the jeep on an outreach clinic without it adding to the transport cost of the trip; an additional patient can listen to an educational session on sexually-transmitted diseases (STDs) in the clinic without it costing any more in space. Materials, such as drugs, on the other hand, are "variable" – increasing as the number of patients treated increases. Variable costs change in proportion to output. The bigger the change in scale the more likely it is that even so-called "fixed" costs will change.

11.2.5 The routine cost gathering systems

It is unrealistic to expect a program to overhaul its main finance and accounting system for the sake of introducing another management accounting methodology. Furthermore, unless one has a highly sophisticated and flexible cost-center allocation system, a single re-design is unlikely to work. Different questions require the manipulation of the cost data in different ways.

It may, however, be possible to take some small steps that make periodic cost exercises more manageable. A basic first step is to clearly define account categories so that there is a transparent and

consistent basis for assigning specific costs to specific accounts. This can be more difficult than one might expect, especially if different funding sources are imposing their own accounting categories as part of a budget or grant approval process. Another step might be to embody allocation factors into the accounting software and update them on an annual basis. Another might be to incorporate some important activity categories for the key inputs – materials and labor – into the main accounting structure.

11.2.6 Usefulness to others

The results of the studied program are potentially useful to others. They could be used to estimate the cost implications of programs being considered, by making suitable adjustments for a different epidemiological and operational environment. They could also be pooled with other results from different regions, implementing agencies, and projects to help reveal relationships or make comparisons between interventions, activity packages, and costs. With enough cases and sufficient diversity, it may be possible to draw conclusions about the features that contribute to a successful program.

To make your data useful to others:

- Standardize the costing procedures as much as possible with those that others use.
- Provide adequate information on the nature of the program and its setting.
- Explain the boundaries and nature of the costs that were measured.
- Publicize the results.

11.3 How to do it

Go back and look at the issues that were identified. Examine the cost tables prepared in the light of those issues and do any further calculations. Double-check the results.

Do whichever of the following analyses is appropriate for the study:

- Study the cost tables. Are there funds to continue with the program? For which activities or inputs is funding likely to be short?
- Calculate cost profiles. Study the pattern of costs. Does it look reasonable? What costs most? Is that element being done/used cost-effectively or could it be done better?
- Put the total costs together with suitable indicators of effectiveness. How does this program compare with other programs seeking to achieve similar outcomes?
- Put the costs of each key element together with a suitable output or outcome indicator and calculate the unit cost of that element. Compare this with the unit cost of other approaches.
- Use the unit costs of the total program (or elements of it) to predict the costs of expansion or replication or modification.

Consider whether there is a need for further research either to elaborate on or refine the results of the present study or to pursue other topics that would be worth exploring in a more focussed way. Propose procedures for addressing them.

Prepare a report structured as follows:

- *Background*: identifying any specific issues, defining the scope of the study and describing the program to be costed
- *Methodology*: describing the development of the cost framework and the way costs were calculated including the assessment of available financial data; the calculation of the annual value of capital goods and of off-budget recurrent costs; and the allocation of shared costs
- *Results*
- *Discussion and conclusions*

Disseminate the results.

11.4 What you end up with

- A set of tables with the results and a commentary on what they mean
- Identification of any feasible changes that could be made to the routine cost gathering systems to make it easier to do similar studies in the future
- Recommendations on future program initiatives and related research
- A report presenting all the above analyses together with the description of the methodology and background to the study
- Better informed decision-makers
- Better decisions

Annex: HIV/AIDS Activity List

This list is adapted from: Telyukov, Alexander, Francesca Stuer, and Katherine Krasovec. August 2000. *Design and Application of a Costing Framework to Improve Planning and Management of HIV/AIDS Programs.* Special Initiatives Report No. 29. Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc.

Activities
1. Conduct AIDS socioeconomic impact research
Identify topics for operations research
Define management and financing framework for the funding partners to collaborate on the operations research
Conduct conceptual and technical design of the research components and data collection instruments (e.g., household survey on age-related mortality, household costs of persons living with HIV/AIDS (PLWHA) in home care or in institutionalized care, development of a cost-analysis tool, research on the impact of AIDS on gender and women's empowerment)
Select specific fields of interest within research areas broadly defined at the research design stage, as well as research sites and implementing partners
Contract implementing research partners
Conduct field research (baseline research)
Perform data processing and analyses (baseline research)
Conduct field research (follow-up or impact research)
Perform data processing and analyses (follow-up research)
Develop and produce reports
Disseminate findings, results, and recommendations
2. Promote and support the organization of national, regional, and international AIDS conferences
Assist with the identification of a technical agenda for a national AIDS conference and select appropriate events to contribute to
Identify individual delegates (write invitation letters, set selection criteria, coordinate with other sponsors, etc.) to be sponsored by Family Health International (FHI)
Prepare supported conference participants to maximize sharing and lessons learned at national, regional, and international conferences (selecting background reading, guiding through the conference agenda, assisting with presentations, etc.)

Activities
Assist with managing logistics prior to and during the conference
Assist with evaluating results
Assist with reporting results and recommendations
Other
3. Increase the participation of religious leaders in HIV/AIDS prevention and care
Identify and contact key religious leaders
Prepare tools for training
Conduct training of religious leaders in HIV/AIDS care and support
Conduct regular meetings with key religious leaders
Develop IEC tools targeting the religious community and its outreach
Incorporate and sponsor HIV/AIDS agenda as part of religious and secular gatherings
Sponsor media coverage of religious sector involvement in HIV/AIDS issues
Develop conceptual and technical design of study tours for religious workers (develop agenda and program, select and invite the participants, set up logistics)
Select study tour participants among religious workers
Provide financial and organizational support for study tours and other forms of national and international exchanges involving religious workers
Monitor and evaluate involvement of the religious sector
Other
4. Increase the participation of the private sector in HIV/AIDS prevention and care activities
Identify and prioritize level of risk by industry, occupational, and client group
Identify potential private sector agencies interested in implementing HIV/AIDS workplace interventions
Contract potential private sector agencies interested in implementing HIV/AIDS workplace interventions
Conduct an information and sensitizing meeting with key persons in the private sector
Provide HIV/AIDS awareness raising and information sessions for employees in the workplace
Assist with evaluation of employment regulations, policies, and practices for impact on HIV/AIDS/STD risk behavior and on respect for human rights

Activities
Provide technical training, advice, and supervision for the set-up of workplace interventions and policies
Develop IEC tools on HIV/AIDS prevention and care and respect for human rights, targeting employees and the workplace environment
Develop IEC tools on HIV/AIDS prevention targeting clients
Design and propose tax and/or other business and financial incentives for employers who invest in HIV/AIDS prevention and care activities in the workplace and/or in the community
Ensure access to condoms
Other
5. Support the involvement of civil society in HIV/AIDS prevention and care
Assess the need for development of a network among NGOs to develop advocacy
Identify NGO networks to contract as implementing partners
Build the capacity of the NGO network partners to effectively advocate for HIV/AIDS prevention and care
Assist with organization of public forums to encourage civic involvement in HIV/AIDS prevention and care
Assist with the development and submission of NGO recommendations on HIV/AIDS prevention and care to policymakers
Promote the lessons learned and best practices developed by NGOs and community-based organizations through mass and community media
Monitor and evaluate the FHI-supported advocacy activities of NGOs and community-based organizations on HIV/AIDS issues
Facilitate the AIDS policy index score survey to measure level of effort at national scale and on all levels
6. Disseminate information to increase level of knowledge and awareness about the HIV/AIDS epidemic and experiences
Develop conceptual and technical design of the dissemination process
Conduct workshops, sensitizing meetings, discussion meetings, and roundtables to share information, reports, lessons learned, and best practices
Disseminate through training
Disseminate through mass media
Disseminate through policy dialogue and development, e.g., disseminate and discuss the results of the API (annual program impact) score survey with key persons involved in HIV/AIDS
7. Develop a resource directory of HIV/AIDS and sexually transmitted illness (STI) prevention and care services
Select potential implementing agencies for the preparation, compilation, and design of a resource directory of HIV/AIDS and STI prevention and care services

Activities
Gather information to be shared in a resource directory of HIV/AIDS and STI prevention and care services
Compile, edit, and review the resource directory
Translate the resource directory in Khmer and English
Print and publish the resource directory
Distribute the resource directory to prospective users and networks
Assess the resource directory of HIV/AIDS and STI prevention and care services for user friendliness, content, and completeness and recommend improvements and revisions
Other
8. Conduct census of commercial sex establishments
Develop conceptual and technical design of the survey and its instruments
Conduct field activities
Perform data processing and analyses
Report results
9. Support HIV prevention through behavior change among high-risk population groups
Collect demographic and geographic data on target groups
Select potential implementing agencies for the implementation of behavior change interventions targeting specific high-risk groups
Implement AVERT baseline study for target groups
Perform data processing and analyses
Report results
Conduct a mapping of men who have sex with men (MSM) in target sites; process and analyze data
Report results
Design qualitative research for specific target groups (sexually active street children, sex workers, uniformed men, MSM, etc.)
Conduct data collection qualitative research for specific target groups (sexually active street children, sex workers, uniformed men, MSM, etc.)
Perform data processing and analyses of qualitative research for specific target groups (sexually active street children, sex workers, uniformed men, MSM, etc.)
Report results

Activities
Design peer education for HIV prevention among uniformed men
Design empowerment strategies that ultimately lead to safer sex practices among sex workers
Tailor design-appropriate targeted outputs for other high-risk population groups
Conduct training of core trainers among implementing agencies focusing on sex workers
Conduct training of core trainers among implementing agencies focusing on uniformed services
Conduct training of core trainers among implementing agencies focusing on sexually active street children
Assist core trainers in the implementation of peer education training and outreach worker training
Supervise peer education training and outreach worker training
Assist the core trainers with the set-up of supervision of the peer education
Facilitate empowerment and gender awareness within each implementing agency working with marginalized population groups (sex workers, street children, PLWHA, etc.)
Train the staff of the implementing agencies working with marginalized groups (sex workers, street children, PLWHA, etc.) in the facilitation of empowerment and gender awareness among their target groups
Design strategies to involve gatekeepers in making sex work safe
Implement strategies to involve gatekeepers in making sex work safe
Monitor, document, and evaluate the empowerment process within the implementing agencies
Monitor, document, and evaluate the empowerment process within the individual target groups
Identify a local NGO to implement HIV prevention and/or care activities for MSM
Enable access to condoms
Facilitate the development of a network of implementing agencies to function as a support group and for cross-fertilization
Facilitate referral between agencies and local community-based organizations to maximize efficiency, utilization of resources, and capacity
Prepare the study tours for implementing agency staff and/or target beneficiaries (develop agenda and program, select and invite the participants, set up logistics)
Conduct the study tour
Assess and report the results
Organize workshops with implementing agencies to review activities

Activities
Conduct a review of behavior change interventions targeting uniformed men after the first term of implementation
Other
10. Support the grassroots organization of marginalized target populations
Facilitate the grassroots organization of interested individuals within the specific target group, including selection of leaders
Facilitate the design of the mission statement and organizational structure
Other
11. Develop behavior change communication materials for each of the targeted groups
Identify and prioritize target groups and fields of work
Identify the desired new attitude and behavior
Research the target group's perceptions of the problem, its natural coping mechanisms, and its progress in changing behavior
Analyze the research on perceptions, natural coping mechanisms, and progress in changing behavior
Assess existing resources
Set up working meeting between contracting agency, material production agency, and researchers to identify key issues to address, partners, resources, communication objectives, messages, and media channels and to develop and outline concepts related to the desired attitude change
Specify detailed content/messages/issues and develop initial messages/strategies
Pretest messages/strategies: initial and final
Set up working meeting between contracting agency, material production agency, and researchers to discuss findings of pretest and next steps and to finalize strategies
Prepare IEC material: first draft, revised versions, final
Distribute materials
Monitor and evaluate use of materials and message impact
Set up working meeting between contracting agency, material production agency, and researchers to review communication tools developed and impact of messages
Other
12. Develop educational materials (curricula, working papers, training documents, training toolkits, etc.)
Establish a technical working group for the development of educational materials (curricula, working papers, lesson plans, toolkit of empowerment techniques, etc.)

Activities
Conduct meetings of the technical working group to design the concept and plan the development of educational tools
Develop curricula and other educational material as training tools: draft and final editions
Edit, desktop publish, and print the developed educational tools: draft and final
Disseminate the published educational tools
Review and assess the impact and efficacy of the educational tools
Other
13. Develop social marketing of condoms
Develop and produce IEC tools
Set up and maintain a revolving fund for the re-supply and purchase of condoms
Communicate social marketing messages through mass media
Local (face-to-face) distribution of IEC and condoms
Train and guide retailers
Distribute condoms, including packaging, storing, and distribution to wholesalers and retailers
Other
14. Develop skits and performances on HIV/AIDS to impact on social norms
Identify local counterparts for developing, validating, and performing skits
Develop and review skits and performances
Enable realization of skits and performances on HIV/AIDS
Supervise and evaluate on-stage production
15. Map clinics and assess STI treatment capacity
Develop conceptual and technical design
Conduct data-gathering activities: mapping and care capacity assessment
Conduct data processing and analyses
Report results

Activities
Disseminate results and policy recommendations
16. Improve quality of STI services, including quality control and certification
Identify and contract implementing agencies to provide STI prevention and care in provinces
Design baseline assessment of quality of STI care in targeted services and training needs, with attention to follow-up at program closure
Implement baseline assessment of quality of STI care in targeted services and training needs
Analyze baseline assessment of quality of STI care in targeted services and training needs
Develop educational and supervision material
Organize training for STI providers based on assessed needs
Organize supervision of STI care providers enrolled in the training
Assist with implementation of quality control of STI facilities enrolled in the training, including evaluation of attained quality of care
Report the findings of the quality of care evaluation
Design and develop a common monitoring system and format
Collect and analyze data on STI care services
Contract PSI for social marketing of STI care services enrolled in the training
Implement follow-up assessment of quality of STI care in targeted services at the end of the project term
Analyze follow-up assessment of quality of STI care in targeted services at the end of the project term
Identify partners for the STI prevalence study
Develop the protocol, budget, and planning of a baseline STI prevalence study among target groups to provide baseline data on STI prevalence and antibiotic resistance with attention to follow-up study at program evaluation stage
Identify and contract a consultant for the implementation of a baseline STI prevalence study
Identify and contract a research laboratory to perform the STI tests for the baseline STI prevalence study
Analyze the data of the baseline STI prevalence study
Write the report of the baseline STI prevalence study
Disseminate the results of the baseline STI prevalence study

Activities
Develop protocol, budget, and planning of a follow-up STI prevalence study among target groups at the end of the project implementation
Identify and contract a consultant for the implementation of a follow-up STI prevalence study
Identify and contract a research laboratory to perform the STI tests for the follow-up STI prevalence study
Analyze the data of the follow-up STI prevalence study and the impact of the project
Write the report of the follow-up STI prevalence study
Disseminate the results of the follow-up STI prevalence study
17. Pilot appropriate STI care targeted outputs for men
Design a project proposal (concept paper) for social marketing of prepackaged urethritis therapy for men
Raise funding to implement the pilot project for social marketing of prepackaged urethritis therapy for men
Select sites and identify and contract partners of implementation of the pilot social marketing project
Implement the pilot project for social marketing of prepackaged urethritis therapy for men
Monitor and evaluate the pilot project for social marketing of prepackaged urethritis therapy for men
Analyze the impact of the pilot project for social marketing of prepackaged urethritis therapy for men
Write the report on the impact of the pilot project for social marketing of prepackaged urethritis therapy for men
Disseminate the report on the impact of the pilot project for social marketing of prepackaged urethritis therapy for men
18. Develop appropriate packaging, including IEC for prepackaged STD treatment for public care facilities involved in the training program
Design the packaging by diagnosis and STD treatment decision following the national protocol
Conduct validation (review, testing, editing, and revision)
Assemble and package all the components of the pre-packaged STD treatment kits for providers
Distribute the prepackaged STD treatment kits for providers
Monitor and evaluate
19. Strengthen STI prevention and care service delivery through social marketing of STI services
Conduct media campaign
Monitor and evaluate the social marketing of STI care services

Activities
Other
20. Implement interventions for care and support of children affected by AIDS
Design appropriate care and support strategies and interventions for children affected by AIDS
Identify and contract implementing agencies to provide care and support for street children affected by AIDS and their families
Monitor the implementation of care and support interventions for street children affected by AIDS and their families
Identify and contract implementing agencies to provide care and support for HIV-positive single mothers (including pregnant women) and their children
Monitor the implementation of care and support interventions for HIV-positive single mothers (including pregnant women) and their children
Identify and contract implementing agencies to develop communication materials on AIDS for children and their family members
Monitor the development of communication materials on AIDS for children and their family members
Identify and contract implementing agencies to provide prevention of mother-to-child transmission and care and support among HIV-positive sex workers
Monitor the implementation of prevention of mother-to-child transmission and care and support among HIV-positive sex workers
21. Implement interventions for care and support of PLWHA
Identify sites, target groups, and partners for implementation of interventions for care and support of PLWHA
Identify and contract implementing agencies to provide care and support for PLWHA
Implement care and support projects for PLWHA
Monitor the implementation of care and support interventions for PLWHA
22. Strengthen prevention of tuberculosis and care for people with TB
Identify target groups, sites, and partners for implementation of TB research and interventions
Design baseline research on perceptions related to TB and cough
Implement baseline research on perceptions related to TB and cough
Design and produce IEC materials to improve TB care-seeking behavior
Design and produce educational tools to improve TB case detection and care
Design baseline research on prevalence of active TB among target groups
Implement baseline research on prevalence of active TB among target groups

Activities
Analyze baseline research on prevalence of active TB among target groups
Report the findings of research on prevalence of active TB among target groups
Implement projects to improve TB case detection and coverage of TB care among target populations
Monitor and evaluate TB interventions
Report results of TB interventions
23. Build capacity of implementing agencies to manage their projects autonomously
Assess the organizational management capacity of the implementing agencies
Assess the financial management capacity of implementing agencies at institutional level
Build capacity of implementing agencies in organizational and financial management
Monitor and evaluate institutional capacity building
24. Build technical capacity of implementing agencies to design and implement HIV/AIDS programs
Train the implementing agency's staff on survey design, data collection, and analysis
Design agendas for internships and study tours between experienced and nascent implementing agencies
Select hosts and participants
Provide technical supervision and logistical management of internships and study tours
Develop customized training materials and project management tools, including guides and manuals for HIV/AIDS project design, planning, budgeting, implementation, evaluation, and reporting
Train implementing agency staff in HIV/AIDS project design, planning, budgeting, implementation, evaluation, and reporting
Evaluate results of technical capacity building in the field of HIV/AIDS program design and implementation
Other
25. Conduct mid- and end-of-term reviews
Conduct technical planning of the review and collect information
Collect data
Perform data processing and analyses
Report results

Activities
Disseminate results and policy recommendations
26. Perform program management
Conduct conceptual and technical design, planning, and development relating to program administrative set-up, rules and procedures, and management
Perform operations management, including developing an memorandum of understanding with the appropriate government department, registration of office, etc.
Conduct human resource management
Perform financial management