

discretion of the manager of a responsibility center; these are often called programmed or managed costs. Committed costs are the inevitable consequence of previous commitments. These costs are noncontrollable in the short-run or until the commitment can be changed.

The use of responsibility accounting is in comparing sub-center costs, not on the basis of volume, or output, but on the basis of their sphere of responsibility. Various health sub-centers could be compared on the basis of controllable or discretionary costs and management evaluations made on this basis. For our purposes, responsibility accounting plays a small role in the costing of health care and has, therefore, received little attention in the literature or in this work.

Function of the Cost Estimates

Gaspari, "The Costing of Primary Health Care", addresses the question of the function of the cost estimates, i.e., why are the cost numbers desired. Cost estimates are used to both budget for projects and to allocate funds among competing uses. The former purpose has been addressed up to this point. Gaspari, pp. 37-45, explicitly addresses the allocative role by comparing various project evaluation methodologies. Each methodology is explained in terms of its use, its advantages, its disadvantages, and its data requirements. While mastery of this section is essential before any allocative decisions can be made, that section is not duplicated in this work; the interested reader should reference the previous work.

An Example of the Cost of Primary Health Care: Sine-Saloum

How do the principles discussed in this paper relate to actual cost estimates? This section directly addresses this question by examining the estimate of the costs of providing primary health care in Sine-Saloum as a working example of the aforementioned concepts and principles. Here, no attention will be given to the "why's" or to the development of methodology. Instead, framework guidelines will be applied to the Sine-Saloum Project (37).

I: What is the function of this project in terms of:

- . goals and objectives of the project
- . scope, in terms of geography, population, and development
- . inputs and utilization of existing infrastructure
- . outputs
- . duration

The stated objectives of the Sine-Saloum project are: (a) to establish a network of village health posts staffed and supported by community level personnel throughout the region; and (b) to improve and strengthen the support infrastructure of the Government of Senegal for services to health centers (38). The project is focused specifically on the Sine-Saloum region of Senegal and is to service the 880,000 rural persons in that area. The project has a four year

stated duration although the real objective of the project is to "establish self-supporting Health Huts in 600 villages" (39). Thus, project funding spans four years by which time it is anticipated that all Health Huts will be established and self-sufficient. (Those of you familiar with the Sine-Saloum project know the punch line: these Huts never became self-sufficient).

From the stated objectives there is an implied multi-product output of this project. First, health care is to be provided to 880,000 rural inhabitants of Sine-Saloum. From the report, the nature and extent of health care to be provided is unclear. This is a serious flaw in project design. Second, a health care delivery infrastructure must be developed and this was to occur through the establishment of Health Huts. Third, not only was an infrastructure to be developed, it was to be self-supporting. In fact, each Hut individually was to be self-supporting. These outputs must be considered as one unit because taken separately there is no rationale for the use of Health Huts as the most cost-effective way of delivering health care to 880,000 persons nor was it established ahead of time that the effective demand of the population for health care was sufficiently great to enable these Huts to become self-sufficient.

II. Will the project function as a pilot project or as an expansion project?

The Sine-Saloum project is an "all-or-nothing" project in that it is neither a pilot project nor was it preceded by a pilot project. (This later point was mentioned in the evaluation report and one wonders how a project of this size and financial worth could be approved without a 'test run'!) Because the Sine-Saloum project will not be expanded, the appropriate choice of accounting method is full-cost rather than differential accounting. Full cost involves accounting for all the resources used for a cost objective. With respect to labour costs, both the quantity of labour time expended and the price per unit of labour time must be measured; the same holds for material costs.

III. Which costs should be included

At this point, a distinction should be made between direct and variable costs. If the cost objective is a product, many costs that are direct to that product vary with the volume of output. Costs are labeled indirect if it is impossible or infeasible to trace them to a product or if management chooses not to trace them to a product. Since the calculation of indirect costs involves an allocation of costs incurred for several objectives, just what the fair share of costs allocated to any one objective may be is related to a causal occurrence. For example, a health care project that requires close supervision and heavy time inputs on the part of the Ministry of Health should bear a larger burden of the administrative costs than a less supervisory-intensive program.

One of the main complications in the costing of health care lies in the joint or multiple-product nature of the output and the need to allocate to each of the joint products the costs that were incurred up to the split-off point in production. Inpatient costs might be allocated on the basis of hospital days per illness; outpatient costs could be allocated on the basis of diagnostic time

required for the "clinical case" of the illness. In this way, some formula could distribute indirect costs in a standardized fashion.

With respect to the Sine-Saloum project the costing of a multi-product output is further complicated by the fact that the products are so diverse: health care (itself a multi-product), a health infrastructure, and self-supporting business operations.

While full cost accounting is most useful in answering the question "what did it cost" it should be noted that if some of the production costs are indirect, the full cost of an objective cannot be measured with complete precision. Discretion arises with respect to the following: (1) capital versus product costs; (2) the measurement of direct costs, i.e., are records kept in the same fashion in various projects. (Here the Sine-Saloum project made a concerted effort to hire individuals who would comply with an accounting uniformity; this led to a poor choice of personnel when viewed under leadership criteria.); (3) the distinction between direct and indirect costs; (4) alternative allocation methods; and (5) assorted overhead measurement allocations.

IV: The Breakdown of Direct and Indirect Costs

The first breakdown of cost, therefore, occurs between direct and indirect costs. Grosse et al (1979) introduce a further division. This consists of:

- (1) variable investment: one-time costs related to type and volume of activity
- (2) fixed investment: one-time costs independent of the volume of activities ultimately to be achieved
- (3) fixed operating: operating costs related to the time/duration of activities, but not to their volume
- (4) variable operating: operating costs related to the duration and the volume of activities.

The following illustrates the breakdown:

	COSTS	
	DIRECT	INDIRECT
<u>One-Time</u>		
1. Variable Investment		
2. Fixed Investment		
<u>Recurrent</u>		
1. Operating		
2. Variable		

V: Recurrent Costs

The time dimension ushers in an expanded concept of cost that must differentiate between period costs and multi-period or continuous costs. This expanded dimension of function alerts us to program maintenance and operational costs over time, i.e. such items must be costed on a continuous basis.

This opens the door to numerous problems. First, how should the program account for these recurrent costs? Various alternatives exist: (1) The recurrent costs can be earmarked and projected over the life of the project and then, through the use of an acceptable social discount rate, the present value of this cost stream can be calculated. (Obviously, this procedure requires much computational time and many 'educated guesses'.) (2) Heller (1979) suggests calculating an "r" coefficient for projects where "r" is merely a ratio of the project's net recurrent requirements to the total investment outlay. This would quickly alert administrators to the nature of the project and the span of the financial commitment; or (3) Expenses for one year can be calculated and recurrent expenses merely flagged in some respect. While this alerts administrators and evaluators to recurrent costs, it eliminates the discounting of the continuous stream of future recurrent costs.

The absence of identification of and inclusion of recurrent costs in the Sine-Saloum project was one of the main reasons for project failure. As already mentioned, one function of the project was to establish self-sufficient Huts; to do this, calculations concerning Total Cost and Total Revenue were essential. Examination of the above Table alerts the reader to the seriousness of ignoring recurrent costs when estimating the total costs of the project. *failure*

A further disaggregation of the above Table could facilitate accountants, administrators, and evaluators.

TABLE 2

	ONE-TIME		RECURRENT	
	DIRECT	INDIRECT	DIRECT	INDIRECT
1. Personnel				
. personnel directly related to the provision of services				
physicians				
nurses	Salary	Initial	Salary*	Replacement
midwives	Recruitment	Preparations	Allowances*	Training
health workers				
others				

	ONE-TIME		RECURRENT	
	DIRECT	INDIRECT	DIRECT	INDIRECT
1. Administrative/ Government personnel (by definition, these personnel are indirect to the project itself)		Salaries Bldg, or capital expansion to facilitate in- creased workload	on-site visitations direct inter- action with Sine-Saloum*	% of time located to Sir Saloum projec vs. other projects
2. Facilities				
. Health Huts	existing facilities new purchases	expansion of materials mkts to facilitate inputs	Rent Maintenance	Acquisition o maintenance equipment use for more than one project
. living quarters for personnel				
3. Land	existing owner- ship new purchases	convincing neighbors of desirability of location to Huts	Rent	Upkeep/ Maintenance
4. Vehicles				
. Horse and buggy	new purchase*	special order	food, vet care	
. cars	new purchase*		gasoline* maintenance*	
5. Medicines				
. vaccines				
. drugs				
. food supplements	initial stocks*	transportation to Hut	recurrent purchases	. transportation to Hut, maintenance o: supplier and delivery system
. laboratory equipment and supplies				. cotton, gauze, etc.
6. Communication and Evaluation				
. personnel	salary training data visits		salary visits*	
. vehicles	new purchase	search time competent drivers	maintenance	road infra- structure must be maintained
. fuel			purchases*	

The above is a simplified outline of the breakdown of a project's costs into one-time, recurrent, direct and indirect categories on the basis of function. Asterisks denote information contained in the Sine-Saloum report. It is obvious from the small numbers of asterisks that little costing of this project was undertaken. The most serious and constant omission occurs on the far right hand side of the Table, i.e., the recurrent cost category. What asterisks do occur in that column are supplied by Mead Over in Appendix F of the Sine-Saloum Report. It is in this Appendix where M. Over disaggregates the regional budget into functional categories and discovers that such a disaggregation leads to a pessimistic view toward budgetary capabilities of project maintenance. Since many expenses are either already committed or are of a recurrent nature one cannot "rob Peter to pay Paul" as was first expected.

Conclusion

Neither this paper nor the "parent paper", "The Costing of Primary Health Care", could provide any actual numbers. Both papers sought to provide the health planner and project evaluator with a conceptual framework that would lead to a logical ordering of priorities, considerations, and aspects of the cost estimates that should be considered, included, or questioned. I anticipate that many readers will be disappointed by the lack of numerical benchmarks in these two works. Because of this, I would like to devote the conclusion of this paper to an explanation of this "deficiency" and to safeguard the evaluator against such benchmark estimates.

What is primary health care? Although definitions can be given, there is no universal meaning to the term. Some of A.I.D.'s projects focus on comprehensive care and some on basic care. Obviously, here is the first divergence in cost. Basic health care is much more limited in scope, objective, and duration. Comprehensive care is none other than "the development concept in the guise of health care". To predict the costs of this type of health care would be to project the cost of the development process itself.

By the same token, it is impossible to calculate the costs of projects that have as their endpoint two divergent definitions of population. Some projects are pilot projects, some are national in scope, some are regional. The concept of "cost per individual" is not invariant to the endpoint of the project! Rather projects should be grouped by the range and scope of coverage and costs could be compared within those groups.

Must the project develop an infrastructure before it can begin to function, or can it draw upon the existing infrastructure? Does a Ministry of Health exist? Is there transportation to the target population? Do input markets exist for drugs, materials, personnel? Obviously, if such infrastructures do not exist, they must be first developed before the project can begin to provide primary health care. This brings up the next point.

Is the primary health care project to produce just health care, or is it to produce intermediate products? Will drugs, facilities, doctors, nurses, paramedics be produced by the project and then used within the project? OR will