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**Financing Primary Health Care:
Experiences in Pharmaceutical Cost Recovery**

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PREFACE

Within A.I.D.'s historic concern for the strengthening of primary health care, there has been a recent emphasis on child survival through such services as oral rehydration therapy and immunization. In working with participating countries, A.I.D. has consistently pursued strategies to build health care systems that can be sustained with resources available within the country. To encourage sustainability, work has usually centered on the development of management systems, training, communication and provision of some commodities. In addition, A.I.D. is now giving considerable attention to financing alternatives.

Diverse experiences in pharmaceutical cost recovery in a variety of settings pointed to the possibility of improved financing for pharmaceuticals as well as the broader primary health care effort. These experiences have raised a number of important considerations:

- Limited government financial allocations to the health sector continue to pose a serious constraint to expanding health services;
- Institutional strengthening of drug supply management has succeeded, at least in some countries, in increasing the supply and controlling the costs of essential drugs;
- The purchase of pharmaceuticals is one element of primary health care for which people are willing to pay;
- Fees should not be expected to substitute for recurrent budgetary allocations, since full health care cost recovery is impossible in most countries;
- Revolving drug fund schemes, some relatively successful, are operating in many countries, although accounting and management requirements should not be underestimated;
- Drug cost recovery is best developed in the context of exploring the full range of financing options in each country, including cost recovery and cost containment at hospitals as well as increased provision of services through private mechanisms.

With the above in mind, A.I.D.'s Office of Health of the Bureau of Science and Technology requested:

- A review of recent experiences in financing alternatives and pharmaceutical cost recovery;

- Identification of factors associated with the managerial and economic feasibility;
- Recommendation of options for operations research studies of critical issues;
- Development of guidelines to assist A.I.D. in responding to requests for assistance in projects that fall within the concerns of the Bamako Initiative.

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Two agencies with Liberia's Ministry of Health & Social Welfare, the National Drug Service and the Management and Evaluation Department, conducted a survey of revolving drug fund operations in eight facilities in Grand Gedeh and Sinoe Counties. The survey was initiated specifically to collect data for this paper.

A draft of this paper was presented at a joint meeting in New York of USAID and UNICEF representatives on April 5, 1989. Useful critique and helpful suggestions were given as a result of the meeting.

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FINANCING PRIMARY HEALTH CARE EXPERIENCES IN PHARMACEUTICAL COST RECOVERY

EXECUTIVE SUMMARY

Substantial country and donor efforts in recent years have been directed toward the development and implementation of child survival, primary health care, and maternal health services. Concern is now being focussed on how to best ensure the sustainability and continued development of these efforts. One proposal, the Bamako Initiative, has stimulated considerable debate over the potential for community financing of primary health care/maternal and child health (PHC/MCH) costs.

This paper considers a variety of pharmaceutical cost recovery experiences and provides detailed reviews of experiences in eight countries: Ghana, Haiti, Liberia, Mali, Nepal, Nigeria, Thailand and Zaire. Though the focus of this review is on pharmaceutical cost recovery, it should be viewed as only one of several options for financing primary health care.

What Country Experiences Tell Us

1. *Community-based drug funds can succeed where local commitment exists.* Though there are many examples of revolving drug funds which have not succeeded, community-based programs based solely or partially on drug fees are operating successfully in large numbers of communities in Zaire and Thailand.
2. *Recovering drug costs and some additional costs through drug and/or patient fees is possible in a variety of country settings.* Patients have been found to be willing to pay for essential drugs. Examples of cost-recovery levels include the following:
 - Liberia - recovered 272 % of drug costs (2 counties)
 - Nigeria - recovered 80 - 150 % of drug costs (7 RDFs)
 - Rwanda - household survey found 90 % would pay more for drugs
 - Thailand - recovered 185 % of drug costs (average)
 - Zaire - recovered 80 % drug and operating costs (ten health zones)
3. *Though patients are willing to pay for drugs, significant price increases do dissuade patients.* The Ashanti-Akim district in Ghana witnessed a dramatic drop in patient attendances following a major increase in patient fees. In urban facilities, utilization recovered slowly, but in rural areas utilization remained near zero for at least two years. In the Bhojpur district of Nepal modest declines in utilization occurred with each price increase. In some states of Nigeria a large decline in patient attendances associated with the introduction of fees improved only after drug supply improved.
4. *Mechanisms do exist to protect target groups.* Most pharmaceutical cost recovery programs have incorporated some mechanism to exempt or subsidize specific populations. In Benin exemptions are decided by a community management team. In Ghana, at the village level the extended family helps; at health centers and at the district level, the poor are exempted. In two Liberian counties there are no specific exemptions for the poor. Many states in Nigeria exempt infants and children as well as TB and leprosy patients; hospital employee exemptions are controlled through reimbursement. Finally, in Thailand tribunals set exemptions for the poor, who are allowed in-kind payment or given

credit. Since child survival and safe motherhood visits may constitute 40 to 60 % of primary health care contacts in a country, exemption and subsidy policies must be based on a financial analysis of their impact on cost recovery objectives.

5. *A dynamic tension between financial goals and public health goals is both inevitable and necessary.* The dual objectives of providing public health services and recovering some portion of the costs of providing the service are difficult to balance. Placing too much emphasis on financial goals may lead to higher fees and fewer exemptions, thus dissuading patients. But liberal exemption and discount policies may improve access, while losing potential revenue needed to run the health system.

6. *Lack of finance skills and accountability commonly undermine drug funds.* Collecting cash and balancing drugs dispensed with cash collected require a level of financial management and accountability which is often difficult to achieve in public sector or community-based programs. Ghana, Niger, and Senegal are but a few of the countries whose cost recovery efforts have been limited by inadequate management and accountability.

What Country Experiences Do Not Tell Us

1. *Does large-scale cost recovery distort health care patterns?* Available documentation of revolving drug funds generally provides little information about the impact of these programs on health care patterns. Declines in patient attendance have been noted, but few before-and-after data are available. Do public sector user fees for drugs pull patients from existing mission and private services, while dissuading mothers, children and the poor? Is there greater use of drug sellers and non-therapeutic care? Patient mix (age, sex, and presenting health problem) must be considered, and not simply the number of attendances.

2. *Can many governments implement national cost recovery programs?* Zaire and Thailand are examples of countries which have large-scale, national cost recovery programs with mostly decentralized management. The Haiti program represents a national effort which encountered significant implementation problems. The other programs reviewed here represent local or pilot projects. The capacity of governments whose systems and organization are structured to provide free services to implement large-scale cost recovery has yet to be demonstrated.

3. *What are reasonable cost recovery expectations for most countries?* In practice the cost recovery potential is determined ultimately by patients and costs -- not by a policy which mandates a specified markup. Ability to pay, willingness to pay, available alternatives ("competition"), and perceived value (quality of drug and service) together determine what price can be charged. The experiences reviewed here suggest considerable variation in cost recovery potential and provide little basis for suggesting that large markups (100 to 200 % over landed costs) are possible in most environments.

4. *Should PHC cost recovery be initiated without or before hospital cost recovery?* Recent World Bank papers (Griffin, 1988; Vogel, 1988) argue for beginning cost recovery at the hospital level. Reasons for this include greater cost recovery potential, more efficient and effective management, and greater flexibility to address equity issues because of a more diverse patient

population. Arguments in favor of including the PHC level early in cost recovery efforts are that drug shortages are greatest at the PHC level, there is often strong community interest on which to build, and local cost recovery creates a local revenue source.

5. *Are drug fees generally more successful than service fees, prepayment, or other forms of resource mobilization?* The demonstrated willingness of patients to pay for drugs in the private sector is often taken as support for beginning public sector revenue generation with drug fees. The country experiences reviewed here did not allow us to contrast pharmaceutical cost recovery with revenue generation based on consultation fees, prepayment, or other mechanisms.

Creating Incentives for Sustainability

Country experiences suggest the following ways to build incentives for sustainability into cost recovery projects:

- **Community Involvement** -- A strong community organization can provide local enforcement of accountability and also provide working capital for drug funds. It creates a sense of ownership by the community and produces incentives for managing the assets.
- **Decentralized Fund Management** -- Cost recovery is often ineffective when all (or most) revenues must be submitted to the central treasury. Decentralized management of funds creates incentives for fee collection and careful management of cash and drug assets.
- **Understanding the Patient as a Consumer** -- Cost recovery programs need to understand the patients as consumers who must value the drugs and the care they receive if they are to be willing to pay the fees. Health objectives need not be ignored, but patient perspectives need to be appreciated.
- **Management Requirements** -- New management skills are required for viable cost recovery programs. The financial management skills required to design, implement, and monitor sustainable, large-scale programs are not commonly found among health service professionals. A "commercial" perspective can be critical to establishing a sustainable program.
- **Supporting a Diversity of Approaches** -- Country experiences suggest that circumstances vary considerably within a country and that flexibility is required to adapt to local conditions.

What Donors and Bamako Initiative-Type Activities ought not do

1. *Inadvertently limit country financing options.* Charging for essential drugs is but one of several financing alternatives for primary health care. Though current descriptions of the Bamako Initiative define community financing more broadly, the earliest descriptions of the Initiative focussed primarily on drug fees. Countries should be encouraged to consider pharmaceutical cost recovery in the context of the full range of financing alternatives.

2. *Tie support for PHC/MCH and essential drug programs to pharmaceutical cost recovery in unsupportive settings.* The managerial and accountability requirements of cost recovery mean that substantial time, human, and finance

resources are required for planning and implementation. In countries where basic PHC/MCH services are lacking or operational essential drugs programs do not exist, human and financial resources might be better used to support more traditional health system development.

3. *Raise unfulfillable expectations regarding foreign exchange availability.* In most countries, a successful pharmaceutical cost recovery program will lead to increased foreign exchange requirements; a cost recovery commitment is a foreign exchange commitment. Unless governments and/or donors develop a realistic mechanism to provide foreign exchange to resupply drugs for a country, drug revolving funds will raise ultimately unfulfillable expectations.

4. *Inadvertently contribute to a decline in government support for health care.* Community financing revenue needs to be viewed as supplementary, not substitute funding. New health financing initiatives need to track their impact on government budgeted allocations and actual expenditures for health.

What Donors and Bamako Initiative-Type Activities can do

1. *Encourage countries to consider the full range of financing options and develop strategies based on cultural, political, economic, and managerial feasibility.* As more experience is gained with pharmaceutical cost recovery and other financing alternatives, it will become easier for countries to develop health financing strategies.

2. *Actively assist countries committed to cost recovery.* Successful drug funds in several Nigerian States and in Thailand were planned and implemented almost exclusively through local initiative. While these countries are each unique in their own ways, the importance of demonstrated commitment to cost recovery in the success of a such a new initiative should not be underestimated.

3. *Support evaluations of patient and financial impact of cost recovery programs.* A common failure of revolving drug funds is not monitoring the impact of drug fees on volume and characteristics of patients served. Analyses of the financial impact tend to be absent, incomplete, or based on short-term experience. Systematic, methodologically sound, longer-term evaluations are needed to assess patient and financial impact.

4. *Collect and disseminate practical cost recovery experience.* As more and more countries gain experience with pharmaceutical cost recovery and other forms of PHC financing, efforts to collect and disseminate this experience will become even more important.

5. *Develop practical tools for planning and implementing cost recovery programs.* Many of the necessary technical and managerial tools needed to plan and implement sustainable cost recovery programs are still lacking. A logical extension of efforts to collect cost recovery experience would be the synthesis of this experience into practical guidelines for program development and management. Examples of common planning and implementation issues are: definition of realistic cost recovery objectives, creation of both the human and administrative sides of accountability, setting of prices based on local ability and willingness to pay, and establishment of appropriate but financially viable exemption policies. Just as immunization programs have a variety of program indicators in order to avoid epidemics, cost-recovery programs need to develop indicators to assess financial well-being and patient impact.

ABBREVIATIONS AND ACRONYMS

ABUTH	Ahmadu Bello University Teaching Hospital (Nigeria)
AGAPCO	Agence d'Approvisionnement des Pharmacies Communautaires (Haiti)
ARI	Acute Respiratory Infection
BDS	Bhojpur Drug Scheme (Nepal)
BNMT	Britain Nepal Medical Trust
CHAN	Christian Health Association of Nigeria
CHC	Community Health Council (Liberia)
CHS	County Health Services (Liberia)
CHW	Community Health Worker (Liberia)
CIF	Cost, Insurance, Freight
CRP	Cost Recovery Programs
CSP	Child Survival Pharmaceuticals
DRF	Drug Revolving Fund (Nigeria)
FONAMES	Fonds d'Action Médico Sanitaire (Zaire)
GNP	Gross National Product
GOL	Government of Liberia
GPO	Government Pharmaceutical Organization (Thailand)
HC	Health Center
HDS	Hill Drug Scheme (Nepal)
HMB	Health Management Board (Nigeria)
HMG	His Majesty's Government (Nepal)
HP	Health Post
IEC	Information, Education, Communication
IMPAS	International Medical and Pharmaceutical Advisory Services
INF	International Nepal Fellowship
INPS	National Social Welfare Institute (Mali)
K	Koba (100K = 1N: Nigerian currency)
MCH	Mother and Child Health (Ghana)
MED	Monitoring, Evaluation, and Development (Unit) (Liberia)
MIS	Management Information System
MOH	Ministry of Health
MOPH	Ministry of Public Health (Thailand)
MSPAS	Ministry of Public Health and Social Affairs (Mali)
N	Naira (Nigerian currency)
NDS	National Drug Service (Liberia)
NGO	Non Governmental Organization
ORS	Oral Rehydration Salts
PA	Physician's Assistant
PHC	Primary Health Care
PPM	People's Pharmacy of Mali
PRICOR	Primary Health Care Operations Research (Project)
PRITECH	Technologies for Primary Health Care (Project)
PVO	Private Voluntary Organization
RDF	Revolving Drug Fund
REACH	Resources for Child Health (Project)
SANRU	Basic Rural Health Project (Zaire)
SER PHC	Southeast Region Primary Health Care (Project) (Liberia)
STS	Standard Treatment Schedules
UBTH	University of Benin Teaching Hospital (Nigeria)
UCH	University College Hospital, University of Ibadan (Nigeria)
UNFPA	United Nations Family Planning Association
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VHC	Village Health Committee (Thailand)
VHV	Village Health Visitor (Thailand)
WHO	World Health Organization
WHO/AFRO	World Health Organization Africa Regional Office

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1. BACKGROUND

A major policy issue for government decision makers is the method to be utilized for financing primary health care. While many developing countries have attempted to provide primary health care services without charge to the population being served, most have realized that their resources are insufficient to cater to the increasing demand and cost. Many countries are turning to cost recovery as a financing means. A mechanism which has frequently been found to be among the first to meet acceptance by the public is cost recovery of pharmaceuticals, for which considerable experience has accumulated.

In September 1987 a Regional Committee Meeting of WHO/AFRO was held in Bamako, Mali, Recognition was given to the possibility of linking the deteriorating status of maternal and child health services with the positive evidence accumulating concerning pharmaceutical cost recovery. A Resolution, termed the "Bamako Initiative" was adopted whose goals are:

- To improve maternal and child health care through universal accessibility to primary health care, and
- To improve health status and reduce infant, child and maternal mortality and morbidity.

Also within the Bamako Initiative are seven guiding principles, which are acceleration of universally accessible PCH services, focussing on rational use of drugs, community financing, maintaining government financial support, decentralization of decision-making, decentralization of management of community resources, and instituting of measures to assure that the poorest have access to and can benefit from PHC. The Bamako Initiative called on UNICEF and WHO to help accelerate PHC implementation at the district level, giving priority to women and children.

Considerable experience has been gained in recent years in partially undertaking this type of effort.

Based on the selection criteria of what country experiences will contribute to understanding the relevant issues, and what data are available, eight country experiences were chosen for review, which are: Ghana, Haiti, Liberia, Mali, Nepal, Nigeria, Thailand and Zaire. Summaries of these country studies are found in Part 2 of this paper, while the individual country studies are found in the Annexes.

2. SUMMARY REVIEWS OF PHARMACEUTICAL COST RECOVERY EXPERIENCES

2.1. OVERVIEW

The expense of supplying pharmaceuticals constitutes a large portion of the total cost of most health care systems. Cost recovery of pharmaceuticals to a greater or lesser degree has been carried out for many years in diverse settings, with varied methods.

A number of different types of arrangements for collecting fees have been attempted. Figure 2.1. below illustrates five of these arrangements from Nigeria with the advantages and disadvantages of each.

FIGURE 2.1
ALTERNATIVE FEE COLLECTION MECHANISMS

TYPE OF FEE	DESCRIPTION	ADVANTAGES	DISADVANTAGES	SUGGESTED FEE
1. Card Fee	Fee allows multiple attendances usually for one year	Simple to administer	Inclination to multiple visits	\$.50 - \$1.25 per card
2. Attendance Fee	Fee paid for each attendance	Visits only when required	Payment for diagnosis; pressure for drugs	\$.12 - \$.50 per attendance
3. Flat Fee	Fixed fee paid for drugs regardless of number of drugs prescribed	Simple to administer	No desire to be cost conscious; inclination to multiple treatments difficult for accounts to equate drugs dispensed with fees collected	\$.12 - \$.50 per treatment
4. Fixed Fee per drug	Fixed fee paid per drug regardless of value of each drug	Simple to administer	No inclination to prescribe less expensive drugs	\$.05 - \$.10 per drug
5. Variable Fee per drug	Variable fee ranging from \$.02 - \$.20, depending on value of drug	More cost consciousness; better prescribing patterns	More complex accounting procedures	\$.02 - \$.25 per drug

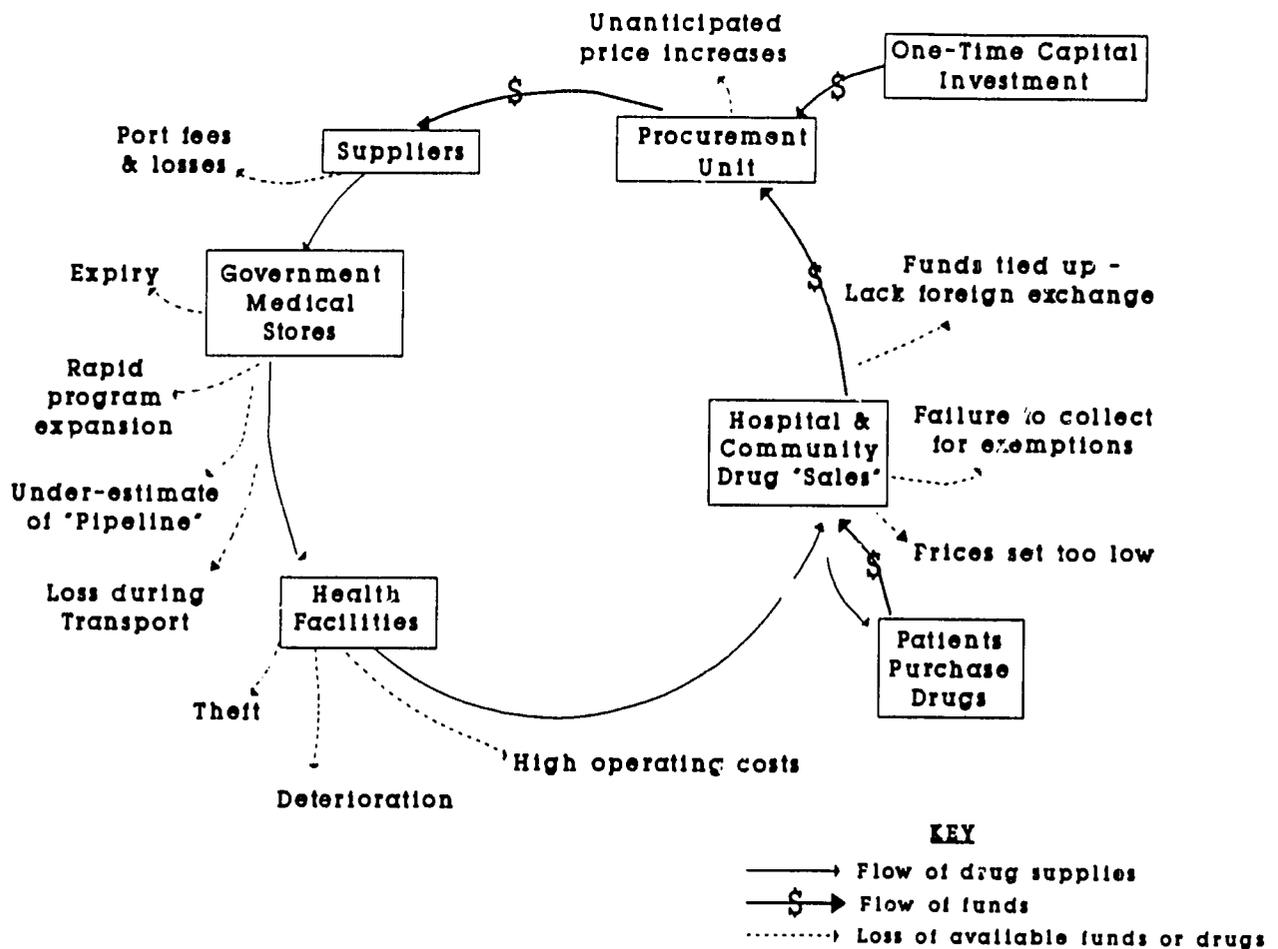
Drug sales programs, in which consumer contribution covers the cost of drugs received, are frequently conceptualized as "revolving funds." Start-up money is provided to purchase an initial supply of drugs which are then sold. The proceeds from the sale are used to purchase replacement stocks which are in turn sold. The cycle can be repeated indefinitely without further government allocations as long as the funds recovered from sales are sufficient to purchase replacement stock.

Revolving funds are attractive because they are theoretically self-financing, once start-up funds have been provided. They are particularly popular with foreign aid donors because the system is financially closed and should require no injections of funding from the government or outside to keep it going.

As is well known to all practitioners of revolving drug funds, the potential avenues by which it can decapitalize are myriad. The "Cycle of Terrors" diagram in Figure 2.2. illustrates a number of these threats.

FIGURE 2.2.

The Cycle of Terrors: Threats to Revolving Drug Fund Sustainability



The degree of success for nine African country experiences is shown in Figure 2.3. These experiences range from recovery of 110% cost, to little or no recovery realized. This highlights the necessity of careful advance planning.

FIGURE 2.3.

COUNTRY EXPERIENCES-
(Africa)

PROGRAM	DEGREE OF SUCCESS
CAMEROON	Community funds -- 10% markup Private sector backlash
CHAD	Recovered 100% + 10% margin (3 month period)
MALI Koro	Little or no cost recovery realized
NIGER	VHW difficulty managing money
NIGERIA	Several "natural experiments"
RWANDA	Consultation & drug fees cover 14-28% stockouts, depletion significant
SENEGAL Sine Saloum	Recovered 6-7% drug costs. Accounting & collection problems.
SIERRA LEONE	3 district pilot schemes Report increased utilization
ZAIRE	Recovered 59% of drug costs.

* Based on Shepard et al, 1986; Carrin, 1986; Over, 1980.

The following country experience summaries particularly focus on what are perceived as useful "lessons learned" from the country. The annexes contain a review of each of the eight country experiences in some detail.

2.2. LESSONS FROM GHANA*

Background

Though Ghana first introduced the concept of user charges in 1971, they were not really used as a means of recovering costs until 1985. The Health Fee Regulation of 1985 permitted drugs to be sold at full cost and for price levels to be adjusted to reflect increasing costs. The Ashanti-Akim district was among the first to be subject to the change in cost-recovery legislation and thus has been the subject of most study regarding this subject in Ghana. Health services and drug supply and financing mechanisms are delivered in the district at three levels: community health posts, larger health centers, and district level management (levels "A," "B," and "C"). The most important implications from the Ashanti-Akim experience follow.

Insufficient Health Center revenue control

Health facilities in Ashanti-Akim are not permitted to exercise sufficient control over the use of their revenues. Health centers are permitted to retain only 12% of collected funds, which is insufficient to provide staff with the incentive to collect and manage funds accurately, especially as they are underpaid and do not see the benefits of greater cost recovery (i.e., better working conditions, or bonus incentives). Moreover, patients who come to the facilities may be willing to accept the idea of paying larger fees for health care, but only on the expectation that the quality of care will be better. If the collecting facility cannot benefit more directly than is currently the case, people will stop coming to the health center because the quality of care is not improving while the cost is increasing.

Single large price hike dramatically affected health facility utilization

Experiences in implementing price changes in Ashanti-Akim indicate that gradual but consistent price increases are more acceptable to their patients than one very large price hike. Utilization at government health centers was greatly affected by the large price hike in 1985 -- patient attendance plummeted. This was not the case at a neighboring mission health facility which instituted steady price increases during 1984-1987, and attendance patterns did not fluctuate much. Since most developing countries struggle with higher rates of inflation than those faced in industrialized nations, the health sectors must be prepared to continually adjust to increasing prices.

Cash management suffered due to insufficient separation of responsibilities and lack of effective accounting procedures

Protocol for cash management at the health facility level did not preclude the same individual from being responsible for completing patient cards and collecting fees. The experience with one medical officer in an Ashanti-Akim center illustrates the potential abuse that can occur when the same person is responsible for both activities. The doctor collected the money in his consulting room, and at the end of the day the revenue collector reviewed the patient cards and assessed how much the doctor should have collected. It appears the doctor may have collected more and retained the difference.

*See Annex C for detailed Country Study.

Foreign exchange shortage and undeveloped domestic drug manufacturing capacity

Ghana is involved in a rigorous structural adjustment program and is using much of its foreign exchange export earnings to finance its current account deficit. Foreign exchange allocated for drug imports is very limited. Procurement of imported drugs is therefore difficult even if health sector cost recovery is high. Ghana has a limited domestic manufacturing capability which has seen only a limited development.

2.3. HAITI: The AGAPCO Experience*

Background

In 1978, Haiti had an estimated population of 4.5 million people, of which over 75 % lived in rural areas. It was, and still is, the poorest country in the Western Hemisphere. Health status is generally poor; the infant mortality rate is 149 per 1000 live births. In 1980, the Ministry of Health and the U.S. Agency for International Development launched a major Rural Health Delivery Systems Project to establish a community-based health care system primarily intended to serve rural Haitians. Lack of drugs was one of the major reasons cited for poor attendance at health facilities, along with personnel shortages and general lack of confidence in the Ministry of Health and the government.

At least one year before the project began, the Ministry's Division of Public Assistance Chief began to develop a proposal for a network of "community pharmacies" through which drugs would be sold. The initial proposal met with mixed reactions from donors, but over the next two years support was generated. Finally, a more detailed proposal for a Supply Agency for Community Pharmacies by the French acronym, "AGAPCO," was accepted by the Ministry and by U.S.A.I.D. Ultimately AGAPCO was established by Presidential decree as a semiautonomous agency accountable to the Minister of Health and an interministerial Administrative Council.

AGAPCO was to promote the creation of community pharmacies; regularly supply community pharmacies and Ministry health facilities with essential drugs; procure, storage, package and distribute essential drugs -- always denoting them by generic name; train and supervise community pharmacy staff; and provide pharmacies with administrative support needed to maintain adequate supplies, financial and stock records, and other activities. AGAPCO consisted of a central administrative unit and warehouse with regional depots in each of the four health regions.

After providing an initial stock, drugs were sold to community pharmacies on a cash-and-carry basis. After a start-up period of three years, AGAPCO's wholesale prices were expected to pay for the resupply cost of drugs and AGAPCO operating expenses. A 10 % mark-up for community pharmacies was planned to cover pharmacy clerk salaries and incidental expenses. Community pharmacies were to be created by the Ministry at the request of community groups.

By the end of 1985, its second full year of operation, AGAPCO had to its credit a number of accomplishments. A relatively stable central management staff had evolved, drugs were delivered to well-organized regional depots, over 180 pharmacies had been established (half of them operative) and their pharmacy clerks trained, a course-of-therapy packaging system had been put into operation and most government health care providers were aware of AGAPCO's existence.

Despite these accomplishments, AGAPCO was not coming close to achieving its objective of financial self-sufficiency. Financial performance showed large and increasing deficits, operating expenses had increased dramatically, major stock losses had occurred as a result of expiration of drugs,

*See Annex D for detailed Country Study.

and self-sufficiency seemed a distant possibility. In 1986, AGAPCO was revamped through a "resuscitation plan" in which problem areas were addressed.

Constraints to Financial Performance

In reviewing the first three years of AGAPCO experience, AGAPCO management, advisors, and donors identified two major categories of problems and constraints: operational level constraints and organizational level constraints. Table 1 lists these two categories and the problems at each level.

TABLE 1
AGAPCO PERFORMANCE, 1983-1985
WHAT HAPPENED?

A. OPERATIONAL LEVEL CONSTRAINTS

1. Demand projections too high
2. Sales too low
3. Rising operating costs
4. Inventory losses

B. ORGANIZATIONAL LEVEL CONSTRAINTS

1. Management turnover
 2. Technical support
 3. Organizational dynamics
-

Operational Constraints

Projections were too high for several reasons. First, it had been assumed that improvements in drug supply would increase health system demand. When problems with keeping dispensaries and health centers adequately staffed and open persisted, demand did not increase. Second, AGAPCO faced unanticipated "competition from within" as a result of drug sales efforts which had been informally established by health center staff. Finally, lack of reliable, complete health service statistics made it difficult to accurately project possible utilization changes.

While projected sales may have been overestimated, actual sales were substantially less than expected. Factors identified as potential contributors to lower than expected sales included, (1) selection of drugs based primarily on assessed health needs, rather than actual prescriber or patient preferences, (2) inadequate Ministry of Health and health provider support, (3) inadequate community support, (4) noncompetitive pricing due to high purchase costs resulting from poor procurement, (5) stockouts, (6) overexpansion in the number of pharmacies.

Organizational Constraints

While operational level problems were easier to grasp, it was the organizational level constraints which were perhaps more fundamental in explaining the gap between AGAPCO's expectations and its performance. Management turnover, technical support, and organizational dynamics were all factors affecting performance.

Of particular importance were the organizational dynamics. In the case of AGAPCO, funds flowed to it primarily from donors, either directly or through the Ministry of Health. Revenues from drug sales to patients were initially quite small. In practice, it was easier for AGAPCO management to obtain on-going donor funding than it was for management to increase sales to patients. In addition, neither prescriber groups nor community/patient groups were organized or perhaps motivated to communicate firmly with AGAPCO. Thus, AGAPCO's clients were not in a position to pressure AGAPCO on issues such as product selection, stockouts, course-of-therapy packaging, noncompetitive pricing, and lack of information about AGAPCO drugs.

The net result of these dynamics was that AGAPCO management was much more responsive to donor concerns than to patient and provider concerns. In the absence of verifiable performance indicators which tied donor-funding to progress toward self-sufficiency, AGAPCO management had been able to steadily increase donor support for operating costs without increasing drug sales.

3. Evaluation, Feedback, and Subsequent Resuscitation Plan

After AGAPCO management, donors, and advisors had accepted the situation which existed at the end of 1985 and understood some of the reasons for it, efforts were made to develop a "resuscitation plan" aimed at putting AGAPCO back on the road to self-sufficiency. This plan consisted of actions in internal management, marketing and donor dynamics. Internal management activities included improvement of the management information system, improvements in procurement, and strong support for keeping the same Director General in place.

"Marketing" activities included significant revision of the AGAPCO product list to make it more responsive to prescriber preferences, while still limiting selection to essential drugs identified by their generic name; publication of an AGAPCO manual containing information about the uses and pharmacology of all AGAPCO drugs; increased effort to supply the many non-governmental organizations (NGOs) which provide health services in Haiti; efforts to assure regular supervisory visits to AGAPCO pharmacies and to use these visits to promote proper use of AGAPCO drugs; adoption of a pricing policy which assured that AGAPCO mark-ups did not make products more expensive for patients than they would have been at private drug shops; and efforts to obtain lower prices through better procurement.

With respect to donor and institutional dynamics, four specific actions were recommended: (1) a "Consultative Council" consisting of bilateral donors and international agencies would be established to assist the Ministry of Health in overseeing AGAPCO; (2) indicators of progress toward self-sufficiency would be developed and routinely reported to the Consultative Council; (3) efforts would be made to tie funding from U.S.A.I.D. to the achievement of specific outputs

related to self-sufficiency; and (4) cost-recovery objectives would be reviewed to determine whether complete financial self-sufficiency was a realistic objective given the environmental constraints and the goal of providing essential drugs to a poor rural population.

With these recommendations in mind, AGAPCO management, donors, and technical advisors redirected their efforts. The following accomplishments were made:

- * the Consultative Council began operation;
- * 350 community pharmacy clerks were retrained;
- * the essential drug list was expanded;
- * an MIS system, including monthly stock review, was put in place;
- * promotional activities were expanded;
- * the AGPACO Handbook containing information on AGAPCO drugs was published.

By the close of fiscal year 1986, gross sales were up 40 %, operating costs had risen only minimally, and revenues were nearly covering drug costs. Large losses of stocks due to expiration occurred early in the year, but by the end, stock losses had also decreased markedly.

2.4. A LIBERIAN REVOLVING DRUG FUND VENTURE*

Background

The majority of Liberia's 2.5 million population in West Africa rely on subsistence farming for survival. Liberia's policy was for a small per visit fee to be charged for the general public, but for drugs and medical supplies to be given out free of charge. However, due to a severe decline in the economy and in GOL revenues, since 1984 there were essentially no new supplies of drugs and medical supplies provided. Visits to health facilities revealed a total lack of any useful stock. The inevitable consequence was a breakdown in the health service and a loss of confidence by the public.

There was a concern that if fees collected were remitted to the Treasury, no benefit would accrue to the health system. Liberia's President approved the retention of such fees in each county.

The National Medical Supply Depot, which had become defunct, was reorganized to become the quasi- autonomous National Drug Service with a trained manager being placed in charge. The use of donor funds allowed the restocking of about 50 drug items deemed vital for Primary Health Care. An important early policy adopted was the valuation of donated stock, and subsequent pricing for sales, at replacement cost from low-cost world market sources; otherwise the sales price would have been prohibitively high.

RDF design and community involvement

To assure that stock and funds for two counties would not be lost from the system, administrative management responsibility of the RDFs in villages, and for health posts (HPs) and health centers (HCs), was given to the community. To achieve this all RDF moneys collected would be retained by the community. Technical supervision would still be exercised by the CHS.

The mechanism used to maintain the community's motivation was to have the community raise funds for the seed stock at the Community Health Worker (CHW), HP, and HC levels in the amounts of \$120, \$300, and \$500 respectively; thus, the money collected and the stock belong to the community. The policy is that there are no exemptions except in the event of genuine emergencies, and then that the family or community is responsible for payment.

Mobilization and training

Physicians' Assistants in the counties were given a cash incentive bonus for mobilizing communities to participate in the scheme through setting up a community health council, selecting and sending a person for training as a CHW, and raising funds for the seed stock. By September 1987 the following numbers of communities were mobilized: 48 villages for CHWs, 26 for Health Post RDFs, and 9 communities for Health Center RDFs. The county hospitals also raised their own seed stock rather than use donor funds. Training is a critical component in setting up the RDFs at the various levels.

*See Annex E for detailed Country Study.

Results: patient attendances and financial performance

Anecdotally, it is understood that patient attendances had dropped to near zero in the absence of drugs and medical supplies, and that patient visits increased substantially after the RDF became functional. A random sample study was conducted in January 1989 of eight HC/HP facilities. On average for the eight facilities, patient attendances increased from 62.8 per month per facility in 1987 to 73.1 in 1988; this increase occurred despite disruptive personnel problems at three of the eight facilities. Also during 1987 the average drug sales was Lib\$100.82 per facility per month, which increased to Lib\$107.47 in 1988 (US\$1.00 = Lib\$1.60 approximately). The same study showed a surprising range of average RDF fees collected per patient; while the average was Lib\$1.43 per patient visit, at one facility the average was Lib\$0.76, while at another it was Lib\$2.65.

Regarding pricing, another study showed that during a three-month period in 1988, Lib\$9,340.87 was expended by 16 facilities in Sinoe County, while Lib\$25,412.35 was collected in drug fees for the same period of time. The gross margin is 172% above the purchase price. Neither county adheres to the MOH's pricing schedule.

Looking at cost recovery, according to records for Grand Gedeh County, there has been no difficulty in recovering costs; over a 13-month period (March 1987 through March 1988), the capital position (stock value plus cash) for 13 facilities increased 12% per month on average. An external evaluation in December 1987 found that people were generally enthusiastic about the RDF scheme. With the relatively successful demonstration of the county-wide RDF schemes in the two counties, strong interest developed on the part of other counties to undertake similar schemes.

Implications

- The lack of access by the National Drug Service to foreign exchange appears to be the most vulnerable aspect of the scheme.
- Several major lessons were learned by the Project: the financial management, management information, and supervisory systems were not adequately functioning for the rural facilities. It appears that insufficient attention was given to these factors during the planning phase.
- The advantages of donor synergy were apparent through the cooperative effort in the initial design planning of the RDF, and in the interest in devising similar schemes by other counties.
- It was essential for the country hospitals to be included in the RDF scheme.

2.5. MALI'S ENCOUNTER WITH COST RECOVERY*

Background

Mali's experience with health sector cost recovery is limited due to the country's socialist background. In fact, while the concept of user fees in the public sector was first accepted in 1983, it was not until 1985 that private medical practice was legalized. Though the majority of the country's eight regions remain in infant stages of cost-recovery efforts, two donor-sponsored projects have inspired more advanced implementation of user charges. In 1985, the World Bank sponsored three Circles sub-regions within the Kayes region (Vogel, 1988), and the Belgian organization Médecins sans Frontières initiated the Health Store project in the Gao and Tombouctou regions (Koita, 1988; Médecins sans Frontières, 1988; Ministère de la Santé Publique et des Affaires Sociales, 1988). It is instructive to examine the problems within these relatively successful donor projects, as well as to compare what successful elements from the projects could possibly be transferred to other regions or countries.

Inefficient and costly drug procurement through the State Pharmacy

Currently in Mali, with the exception of the Gao and Tombouctou regions, all areas throughout the country must officially procure their drugs through the People's Pharmacy of Mali (PPM), a parastatal formed in the early 1960s to import and distribute drugs. Health center managers at Kitu Health Center in the World Bank-sponsored Kayes Region estimate that if permitted they could procure their drugs at half the price offered by PPM (Vogel, 1988). Areas are not permitted to procure drugs through a competitive international bidding process. The PPM is an inefficient but deeply entrenched Malian institution. The liberalization of drug imports (accompanied by the necessary regulatory policy) would improve economic efficiency greatly and result in lower prices, as is evidenced in Gao and Tombouctou.

Lack of regular supervision and management oversight in financial and supply management

In the Tombouctou and Gao regions, explicit channels of information and funds have been designed and procedures appear to be well thought out. However, in some areas of the region the flow of information indicated on the charts seems to have remained on paper.

Education to change attitudes

In a country with deep-rooted social and political philosophies regarding the provision of health care, education is being used to change attitudes. Medical students in Mali are first introduced to the new concept of user charges during their rotations in medical school. If young doctors can accept the notion of paying for health care, a service previously seen as a right of each citizen, then it is hoped that the change in attitude will trickle down to patients.

*See Annex F for detailed Country Study.

Community involvement necessary in village-level projects

Village-level revolving drug fund depots have met with limited success in Kitu, Mali. The village is provided with an initial supply of drugs which eventually gets exhausted due to insufficient funds with which to repurchase new supplies. While the depot keeper is chosen among the villagers, the initial seed money (drug supply) is provided entirely from outside the community. Thus, there is little village incentive to oversee the depot keeper.

2.6. REVOLVING DRUG FUNDS IN NEPAL*

Background

In 1986, an estimated 130,000 infants and children under five years of age died in Nepal -- one in every five children died before their fifth birthday. Total public and voluntary sector pharmaceutical expenditures for 1986 were US\$3.7 million -- barely \$0.22 per capita, of which \$0.12 was for essential drugs, \$0.07 for family planning commodities, and only \$0.02 per capita for vaccines and related supplies. The 1986 HMG (His Majesty's Government) National List of Essential Drugs marked a major step in efforts to improve the drug list for government health facilities. While these efforts are important, a major limiting factor for effective pharmaceutical services remains insufficient funding.

Private Sector Pharmaceutical Supply. The total private wholesale pharmaceutical market is estimated to be over US\$10 million per year -- more than three times HMG, donor, and PVO expenditures. Of the 13,000 to 21,000 products, only 8 products were identified as oral rehydration preparations, the price for which ranged from \$0.05 to \$0.52 per packet.

Cost-Recovery Experiences. Although HMG policy officially holds that drugs are free, PVOs providing health care in Nepal have instituted, with tacit government approval, cost-recovery schemes to increase the supply of pharmaceuticals. Eight years of experimentation with revolving drug funds (RDFs) in at least five districts indicates that political feasibility in the form of community acceptance has been established, but only with nominal drug fees; managerial feasibility has been demonstrated, but only under conditions of substantial donor-supported or PVO supervision; and economic feasibility, even with partial self-sufficiency as the cost-recovery objective, has yet to be demonstrated.

An analysis was conducted of six years' experience with the Bhojpur Drug Scheme (BDS), which more than doubled drug supplies to the district's health posts and hospital. Patient attendances initially declined modestly coincident with the introduction of fees, but then increased gradually. Revenues have increased each year, but operating expenses have also increased. BDS also has been gradually, but steadily, increasing previously nominal drug fees -- hopefully without decreasing utilization by those most in need.

A Health Post Prescription Study was carried out in early 1988. Analysis of diagnoses found that scabies and other skin diseases were most common (19% of all patients), followed by acute respiratory infections (10%), diarrheal disease (10%), various gastrointestinal complaints (9%), and intestinal worms (8%). Under-5s were 16% of health post visits and, in each diagnostic category including diarrheal disease, the number of visits by patients over five far exceeded those by the under-5.

*See Annex G for detailed Country Study.

Analysis of treatment patterns showed a modest decrease over time in the number of drugs per patient for both age groups. Detailed analyses of treatment patterns for diarrheal disease, ARI, and scabies suggested overuse of antibiotics, use of significant quantities for drugs for mild illness, little distinction among treatments for different types of diarrhea, and little difference in overall treatment patterns for under-5s and adults.

Usage of specific products was also considered. Procaine penicillin injections were the most commonly prescribed drug for both age groups (40% of drug costs). At least 50% of procaine penicillin prescriptions were for scabies and other mild illnesses requiring only an oral antibiotic or no antibiotic. In the second year over 1/2 of ORS was consumed by the under-fives, but five years later under-5s received only 1/3 of ORS dispensed. ORS usage increased in absolute terms, but as an addition to antibacterials, rather than a substitute.

IMPLICATIONS

Selection. Impact of the national list of essential drugs will be greatest if HMG and PVOs adopt the list as the sole basis for routine purchasing.

Financing. Inadequate funding remains a major limitation to child survival efforts in most developing countries. Activities to increase funding could be:

- continued provision of government, donor, and PVO allocations for essential drugs and vaccines;
- more thorough analysis and consolidation of RDF experience to date;
- testing of drug fees which realistically balance actual costs, cost-recovery objectives, health priorities and ability to pay;
- development of RDF supply and financial management which can be administered without an excess of donor-supported or PVO supervision;
- development of measures which reasonably control RDF costs.

Use. Available information suggests economically wasteful and therapeutically unsound practices in many countries. Possible actions include completion of standard treatment schedules, support for supervision activities, and institution of a basic information system.

Private Sector Opportunities. With the majority of pharmaceutical expenditures in most developing countries going to the private sector, it is important to find ways to direct spending to achievable health objectives such as child survival. Possible actions include evaluation and revision of the drug retailer program, evaluating the extent to which districts underserved by the private sector could benefit from "social marketing" schemes, and initiation of a health care provider and public information program targeting the few messages which could make a difference (e.g., dangers and costs of injections, need for full courses of necessary antibiotics).

2.7. NIGERIA: DIVERSE EXPERIENCES IN DRUG REVOLVING FUNDS*

Experiences were analyzed of seven drug revolving funds (DRFs) in Nigeria, of which three were state parastatals, three were university teaching hospitals and one was a private voluntary organization.

Organizational base differences

At the teaching hospitals the DRFs are little more than in-house pharmacy shops with relatively simple organizational structures, i.e., a drug committee. On the other hand, the states' parastatal organizations are highly complex with three to four levels of administration. In these parastatals disputes and conflicts between the organizational players plague their operations; these conflicts particularly concern control of purchasing and use of revenues. The HMB/MOH split often encourages duplication, fraud and waste; it absorbs managerial energies in bureaucratic struggles; and jeopardizes the financial integrity of the state-run DRFs.

Another area of tension is between pharmacy staff, and the accounting/financial staff, who now play an important role in the revenue-generating DRFs. This tension has prevented basic steps such as inventory-taking from occurring.

Management handicaps

The quality of management capability and record-keeping often affects the DRF operation. Factors which appear to handicap staff include:

- Civil service practices, e.g., incentives, promoting the incompetent; hence it is difficult to attract competent staff.
- Discomfort in managing a private sector-type business.
- Pharmacists unwilling to give up authority.
- Insufficient resources for training and development.

It is difficult to gauge the extent of drug pilferage and diversion of funds.

Mixed financial experience

There is a paucity of financial data due to newness of DRFs, inadequate accounting systems, lack of finance skills by many key staff, and reluctance of management to share information. Four of the DRFs have generated sufficient revenues to cover drug procurement and some other operating costs, and have generated a surplus. Bendel State was able to generate a large surplus after covering some operating and depreciation expense.

*Adapted from "Assessment of Drug Revolving Fund Experiences in Nigeria," a report prepared by PRITECH consultants, 1988.

See Annex H for detailed Country Study.

The official policies that govern use of DRF revenues vary from requiring all DRF revenues be dedicated to drug purchases, to allowing them to be used for general institutional operating expenses. Three states have had major problems preventing funds from being used for non-DRF purposes; in only one of the three states is it a manageable burden.

In general, the DRFs pricing policies do not seem particularly well thought out or executed. Competitive price analysis is spotty and informal, and a basic understanding of the price elasticity of demand seems to be missing.

Exemption policies vary considerably. Some require cash from all customers. In three sites exemptions consume at least 20% of revenues and are a major reason why the DRFs are not profitable. In some instances the DRF account pays for the cost; in others the cost is borne by another agency. Examples of exemptions are staff, ward supplies, paupers, prisoners, emergencies, and patients with TB, leprosy and cancer.

Substandard quality

A substantial portion of the drug supply in Nigeria is fake, expired, or otherwise substandard. Without better education and regulation, the cheaper bad drugs will drive out the more expensive good drugs.

Impact on patient attendance

There was no clear evidence of the effect of DRFs on patient attendance. In the year following the introduction of the DRFs, one state and one hospital had a decline in attendance, the second state and one hospital had no change, while the third state and another hospital had an increase. Unfortunately, every institution, except the one with a decline, charged for drugs before they began their DRFs (with revenues supposed to remain within the scheme).

There are many factors that appear to affect attendances, including:

- Drug availability at DRF facilities versus private pharmacies;
- Public awareness of fake and substandard drugs;
- Conditions at DRF facilities, e.g., staff attitudes;
- Drug pricing;
- Availability of alternatives to modern medicine;
- Opportunity costs;
- Disposable income;
- Number and type of exemptions; and
- Seriousness of collection efforts.

While there are many opinions on the effect of the DRF on attendance, the consensus is that:

- Charging for drugs causes an initial drop in attendance
- Unavailability of drugs has a far greater effect on patient attendance than does charging for drugs.
- Drops in attendance are not necessarily bad, e.g., when drugs are free or subsidized, patients seek unnecessary medications or try to obtain drugs to resell them at a profit. Charging for drugs eliminates these practices.

2.8. REVOLVING DRUG FUNDS IN THAILAND*

Background

Of the approximately 50,000 villages in Thailand, about 26,000 of them have established revolving drug funds, and in half of them, 70-100% of the households participate in the scheme. The MOPH has been setting up drug funds since 1978, but the pace has accelerated recently because of the recognized success of the program. Because many funds also sell to households in other villages, effective coverage extends more broadly. The Government has turned to these funds as a way of coping with the economic burden of an increasing demand for services.

Initiation of Drug Funds

Most revolving drug funds in Thailand are established by hospital directors and Provincial, District, and Tambon (Area) Health Officers at the initiative of the MOPH. The establishment of a fund ideally involves the cooperation of village leaders and a majority of village households, with District and Tambon Health Officers playing an active part. Whoever initiates the fund, the MOPH begins the process by providing capital in the form of an inventory of drugs and medical supplies.

Drug Fund Capital

The initial capital provided by the MOPH in the form of drugs and medical supplies -- worth about 700-800 Baht (US \$32.50 - \$36.00) -- is small in comparison to what is raised in the communities within 2-3 years. Capital is raised from village households mainly by sales of shares in the drug funds. When share ownership is widely distributed, the amount of capital raised is indeed impressive; it is often 10 times as much as the amount put in by the MOPH.

Households purchased shares because they wanted to help the village obtain the benefits of a drug fund; some have done it as they respect the individuals setting up the fund. These are measures of the social contract in Thailand and are strongest in small, cohesive villages. Once a fund is well underway, the profit motive begins to play a part.

Drug Fund Management

Drug funds are managed by committees of 10-12 members, generally elected at village meetings. Members of the committee are usually from leading families; have higher than average household incomes; and hold important social positions in the village as monks, teachers, headmen, and members of other community development committees. There is very little training of fund managers in either management skills or basic pharmacology. VHVs (Village Health Visitors) are almost always members of the management committee, with the Tambon Health Officer serving as a consultant to the committee. There is little competition for the positions, and there has been very little turnover of committee members. One study found that 30-50% of RDF managers are compensated by means of a salary, percentage of profits, or free or discounted drugs.

*See Annex I for detailed Country Study.

Managerial responsibilities are divided among committee members, with the VHV or village headman serving as chairman. The VHV is usually responsible for drug sales and for giving advice and referrals connected with the use of drugs. He may receive compensation, which probably does not equal his foregone earnings as a farmer - in which case family members take over the farm work.

Involvement of the VHV at this level also leaves him with less time available to treat and refer health conditions that do not require drugs. This is a difficult cost to quantify, but it has important public health implications that cannot be overlooked.

The revolving drug funds tend to develop problems when the Tambon Health Officer is inactive or committee members lack commitment and energy; when income-producing opportunities are overlooked; when VHVs are not involved in sales, record-keeping, and inventory control.

Drug Supply and Pricing Policy

A PRICOR study found that over 70% of the villagers are recipients of the fund's services, and that the RDFs ensured the regular availability of supplies.

The drug funds order their supplies each month from the Government Pharmaceutical Organization (GPO), which maintains and distributes stock at each provincial health office, or from the private sector. The GPO system offers several advantages over private-sector supply systems: the GPO stocks the RDFs with "essential" drugs only, and it absorbs transportation costs. Through the GPO system most drug funds are able to sell drugs competitively at the 30% prescribed markup, and more than 85% make a profit.

Sale of Other Goods

Some of the more successful drug funds have become stores selling basic goods and some luxury items. People will generally buy there if the quality is equal to that of other sources, particularly when their purchases help to increase the earnings of the fund and their own profits from it.

Management problems

- The most common problems are incomplete records and inaccurate accounts.
- RDFs tend to develop problems when the Tambon health officer is inactive or committee members lack commitment and energy, and when the VHV is not involved in sales, record-keeping and inventory control. When drugs are sold from a shop separate from the VHV's house, medical guidance is limited, and drugs may be sold upon request like any other commodity.
- ORS sachets were not generally available, and people did not know how to mix it up from the raw materials.

- The need for improved supervision is cited.
- There may well be the need to strengthen the training component of VHVs.

Successful Revolving Drug Funds

The most successful RDFs are marked by a high -- often full-time -- managerial commitment from a competent, conscientious VHV who is paid for his/her work. Other marks of successful management are the active participation of the Tambon Health Officer in all aspects of the operation of the fund, managerial help from professionals at nearby MOPH institutions, and diversified income sources (primarily the sales of consumers' and producers' goods).

Along with good management, successful revolving drug funds are correlated with certain social characteristics: small, socially cohesive villages relatively isolated from other sources of drugs and supplies, with equitable land holdings, where villagers perceive the need for a drug fund. The demand for drugs is strong and consistent across all regions of Thailand; even when conditions are not ideal, the revolving drug fund has proven itself capable of meeting this demand while substantially reducing opportunity costs and retaining a market advantage.

The PRICOR study states there is no single model applicable to all communities. The essence and merits of setting up community financing mechanisms is in the assuring that pooled resources are self-generating and can be used for the community's benefit.

2.9. PHARMACEUTICAL COST RECOVERY IN ZAIRE'S MANY HEALTH ZONES*

Background

Zaire's experience in health care cost recovery is unique in Africa and throughout the developing world. Decentralized into 306 health zones in 1982, Zaire's health care system permits each zone to have full autonomy over the delivery and financing of its health care. This policy was implemented on a nationwide scale, and within a few years health centers were recovering, on average, 79% of their operating costs (according to a sample study of 10 health zones by R. Bitran in 1986). Compared to an average of 7% for all developing countries, and only 4% in African countries, Zaire's level of cost recovery is remarkable. Its experiences can be particularly instructive to other countries because individual health zone success varies, as each faces different circumstances and employs various methods of management and operations. Indeed, though Zaire's experience is unique, many of its successes and failures are not important lessons can be learned.

Good Management and Supervision Critical to Cost-Recovery Success

Typically, a health zone covers about 80,000 to 100,000 people and has one referral hospital and about 10 health centers, each covering up to 15,000 inhabitants. A Chief Medical Doctor, located at the zone's Central Office, is responsible for the management of the referral hospital as well as the health centers. In addition to providing supervision to the health centers and hospital, the Chief Medical Doctor oversees the procurement and distribution of needed medications to the health centers of his zone. Although many factors contribute to a zone's cost-recovery success (i.e., population served, proximity to city, etc.), it is virtually impossible for a zone to maintain a drug supply of adequate quantity and quality (as well as patients) without good central management. A Chief Medical Doctor who institutes "good central management" is one who secures a reliable central purchasing source and low prices for pharmaceutical supplies, performs regular supervision to the health centers, and arranges an information system which permits the zone to be sensitive to the needs of the health centers. Management training for the Chief Medical Doctors can be particularly helpful as a short refresher course and can inspire a total change in zone operating procedures.

Advantages of Health System Decentralization

Zaire's experience indicates that cost-recovery efforts are greatly enhanced when the health system is decentralized and facilities are permitted to reinvest the financial resources that they have raised.

All health staff have the incentive to manage the process of fee collections carefully, since the provision of care (and often their salaries) depends upon adequate revenues to meet costs. Patients seem much more willing to pay (as evidenced by their attendance) in facilities which maintain a good drug supply and do not want to pay if they perceive that the price of health care has risen, but the quality has not. Local reinvestment of community funds assures that those communities that are raising revenues through drug and health service sale will continue to do so.

*See Annex J for detailed Country Study.

Price Adjustments

Prices must be adjusted when costs rise, particularly in countries experiencing a high rate of inflation. Although inflation rates have exceeded 100% in recent years in Zaire, health centers in general have been able to keep pace with inflation by altering prices on an ongoing basis (Bitran, 1988). Most health centers realize that the sale price of a drug should be set according to the drug's anticipated replacement cost. Price adjustments are more difficult to implement in health centers that charge a flat fee for total treatment than those which charge separately for drugs and services. In addition to administrative difficulties involved in readjusting the all-inclusive fee to represent the average cost of treatment, patients may respond differently to the two kinds of price charges. Since prices differ between drugs, people expect to pay varying amounts in the latter case, but are more aware of price changes in the flat treatment fee.

Essential Drugs Program Promotion

Essential drugs programs or increased regulation of the private sector should be promoted. In their absence, pragmatic measures should be taken to avoid losing patients to the private sector. The average cost for a course of therapy can be lowered considerably by discouraging the use of non-essential drugs. In addition to a tremendous inflow and circulation of drugs of questionable quality in Zaire, health centers have difficulty attracting patients who prefer to buy the popular, non-essential drugs in the private sector. For example, health zone Ruashi, located near the city of Lubumbashi, was unable to maintain a revolving drug fund that had been capitalized by UNICEF because it provided only 20 essential drugs. People wanted other drugs, so sought them at the pharmacies in town or from one of the many drug vendors. Where public health centers are not providing popular, non-essential drugs and are losing patients by not providing the demanded drugs, they should consider supplying them to patients who request them (at a significant mark-up).

2.10. BRIEF EXAMPLES FROM OTHER COUNTRIES IN AFRICA

Benin

The sale of essential drugs is the basis for a cost-recovery scheme implemented in one region of Benin, with a population of 12,000. Generic drugs are bought through international organizations such as UNICEF and IMPAS and are then sold to patients at the health centers. Prices are set per treatment episode, varying according to treatment, with patients paying for the entire treatment at their first visit. All preventive care is free, and provision has been made to provide curative care free of charge to school children and indigents.

Since this is a community-managed system, the community not only pays for curative care but also, through its representatives, is involved in the setting of prices, in the management of income, and in the remuneration of village health workers.

Prices set at three times the actual costs of drugs, significantly less than prices charged on the open market, have been acceptable to the population. After three years of operation, this system permitted the recovery of up to 85% of local operating costs -- including the essential drugs, village health worker salaries, health complex maintenance, local transport, cold chain, and small office supply. Charging for treatments permitted a significant increase in the coverage of the target population with the most essential PHC services. This approach is now effectively being extended to other regions of the country. (Knippenberg et al., 1987).

Senegal

Community financing has been instituted through a number of different projects in Senegal. The best documented is the Siné Saloum Rural Health Project, where financing mechanisms have included fees for service, direct payment for drugs, cash or in-kind contributions for health hut construction or payment of village health workers, and local taxes which have been used in part toward support of health services. One problem identified early in the Project was competition between the health huts where charges had been instituted and other facilities at higher levels of the health system that were continuing to provide services and drugs free; this created a disincentive for villagers to seek care at the health posts, and was corrected by the Ministry instituting user fees at all levels. Financial viability has also been a problem, particularly early on when village health workers were collecting charges; since then, village health committees have taken on the responsibility of collecting and managing funds, and the national government has agreed that all revenue will stay at the village level. Community participation in and management of PHC services has become one of the most successful features of this project. (USAID Evaluation, 1984).

Chad

Even with substantial donor contributions, the Ministry of Public Health of Chad was unable to meet the country's estimated pharmaceutical requirements. In response to this problem, a pilot drug sales project was initiated in one region with the full support of the Minister of Public Health and local authorities. Drugs procured from non-profit suppliers in Europe were sold to outpatients at prices which included the drug cost plus freight, plus recurrent costs such as stationery, transportation within Chad, and the salary of the project administrator. Each patient had to have a prescription with the authorized rubber stamp of the prescriber; incoming cash was deposited in a special bank account controlled by a specially-appointed Supervisory Committee. The average charge paid for a prescription was US\$0.73, or 3.04% of average per capita income in this region. After three months, less than 1% of prescriptions were not filled. Organizers of the pilot project felt that the initial experience indicated that even low income patients were willing and able to contribute to the financing of PHC through the revolving drug fund. (Carrin, 1986).

3. FEASIBILITY AND SUSTAINABILITY OF PHARMACEUTICAL COST RECOVERY

In considering cost recovery of any type, and pharmaceutical cost recovery in particular, governments may ask themselves whether it is feasible to institute a system of cost recovery, where in the country it first should be initiated (since it is generally neither possible nor desirable to institute it everywhere at once), and, in terms of human and financial resources, how much effort will be required to successfully implement a cost recovery scheme. Governments may also wish to consider other financing alternatives such as insurance schemes, cost containment, and any other possible methods of securing the required funding. At the same time, donors considering support for governments may ask similar questions: Is this a good opportunity for cost recovery and, if so, what inputs will be required for successful implementation?

Sufficient experience with pharmaceutical cost recovery in several countries has enabled the identification of some of the factors which are associated with successful programs. This section outlines a series of political and cultural, economic, and managerial issues which appear to influence the feasibility and potential sustainability of pharmaceutical cost recovery. It draws from planning and implementation experiences in the eight countries described in Section 2, from other documented cost recovery experiences, and from several recent seminal papers. In instances where a commitment to cost recovery has already been made or in which such a commitment is inevitable, the questions raised here should help program planners assess the amount of effort which will be required to establish a sustainable program.

In parts of Zaire and Nigeria, seemingly successful programs have been started with little or no national and external assistance. Common characteristics associated with initial success appear to have been strong personal leadership, a recognition of the financial management requirements for cost recovery, adequate collection incentives, effective drug supply management, and sufficient autonomy to allow adaptation to local circumstances.

Three basic questions drive the assessment of pharmaceutical cost recovery feasibility and sustainability:

- (1) Political and Cultural Feasibility -- Is the concept of cost recovery for public health service politically and culturally viable?
- (2) Economic Feasibility and Sustainability -- Can enough funds be recovered to justify the effort and to make it successful over the long term?
- (3) Managerial Feasibility and Sustainability -- Given the human and physical infrastructure, can a cost recovery system be made to operate on a day to day basis?

3.1 Political and Cultural Feasibility

Is the concept of cost recovery for public health service politically and culturally viable? Is it acceptable to government decision-makers, to other influential groups within the country, and to the public? Country experience suggests that, until there is sufficient internal support for cost recovery in health care, policy recommendations from donors or other external organizations have little chance of acceptance and, if accepted, even less chance of implementation.

Several factors affect the political and cultural feasibility of pharmaceutical cost recovery, including the stance of potential groups in support or opposition, public acceptance of cost recovery, commitment to "free" services, national commitment to health, and social cohesion, particularly at the local level (Figure 3.1).

FIGURE 3.1
SUMMARY OF POLITICAL AND CULTURAL FEASIBILITY FACTORS

FACTORS	DESCRIPTION
a. Groups in Support or Opposition	What groups promote government cost recovery and what groups oppose it?
b. Acceptance of Cost Recovery:	Positive local experience with missions, voluntary groups? Public acceptance of limited government resources? Of need for cost recovery?
c. Commitment to "Free" Services:	Centrally planned versus market economy? Government willingness to change historical philosophy?
d. National Commitment to Health:	Demonstrated support for health care and pharmaceutical expenditures? Can RDF become a foreign exchange priority?
e. Social Cohesion:	Are local communities cohesive enough to support cost recovery and assist with oversight and accountability?

a. Groups in support or opposition. A critical element concerns groups which will support or oppose establishing a cost recovery scheme, the political influence exerted, and the degree of commitment on the part of the political leaders. A summary of potential supporters and opponents appears in Figure 3.2.

FIGURE 3.2

SUMMARY OF POTENTIAL SUPPORTERS AND OPPONENTS*

GROUP	SUPPORT	OPPOSITION
Ministry of Health	Drugs Available	Loss of prestige, medical groups may oppose
Government Health Staff	Drugs available for patients	Loss of control over drugs, no private use
Private Wholesalers	Possible new clients	Possible loss of market share
Retailers	Possible new clients	Possible loss of market share
Private Practitioners	Drug availability	Possible loss of market share
Traditional Practitioners	Drug availability	Possible loss of market share
Community	Drug availability	Want free drugs?

In market economies there may be opposition from the private sector to government programs which would compete with them. In Cameroon, for example, the "Pharmacies Populaires" were required to be a certain number of miles away from private pharmacies. In Haiti local producers tolerated and to an extent benefited from the government's revolving drug fund scheme until it attempted to include more NGOs in its sales network as part of an effort to achieve self-sufficiency. If proposals for a pharmaceutical cost recovery program include constraints which affect private sales, local manufacturers and distributors may oppose the entire program. An example would be restriction of manufacture of popular drugs not contained in a list of essential drugs.

To what degree is there political acceptance of decentralization, including retention of fees? In Liberia the President agreed that fees collected may be retained in the counties. However, implementation of decentralization policies meets bureaucratic resistance, e.g., staff discipline.

*Adapted from Susan Foster and Nick Drager, "How Community Drug Sales Schemes May Succeed," World Health Forum, Vol. 9, 1988.

The Government of Ghana has been endorsing decentralization of the health system since 1977 when the Ministry of Health adopted its PHC policy. While the district is seen as the center of planning implementation of community-based services, health facilities are permitted to retain only 12% of their revenue. The remainder is filtered upwards to the district and Ministerial levels.

b. Public Acceptance of Cost Recovery. To what degree is there acceptance by the public that the government has limited resources -- resources which are insufficient to meet health care costs? Zaire has the fourth lowest per capita income in the world. Though people are very poor, they have generally accepted the idea that they must pay for some services, such as health. People know that their country is wealthy in natural resources, but they have come to expect nothing from the government. The notion of 'self-help' is pervasive throughout society.

When revolving drug funds have been proposed in settings where drugs at health facilities are scarce, public reaction has generally been positive. In general, if pharmaceutical cost recovery actually results in a noticeable increase in the availability of drugs, public acceptance is much greater than government officials anticipate.

Public acceptance may be greater where there already is a positively perceived history of missions and PVO groups charging for pharmaceuticals. In Liberia many religious missions, with general acceptance by the public, have been operating successful pharmaceutical cost recovery schemes for a number of years. The charging of fees is well accepted at Catholic Church facilities in Zaire. In Nepal the Bhojpur Drug Scheme, a PVO, initially saw a modest decrease in patient attendance, but attendance then gradually increased, indicative of acceptance.

In other instances, the public often has difficulty accepting declines in government resources. In at least one African country where international prices have significantly declined for commodities on which government revenue is dependent, there is a widespread public perception that the marked decline in government services is attributable to untrustworthy government officials, rather than a real decline in revenue. In such a setting, it is difficult to arouse public support for charging for drugs at government health facilities.

c. Commitment to "Free" Services. How strong is the commitment to "free" services and how willing are officials to accept the reality that a policy of "free" drugs often means that drugs are freely unavailable? History, political philosophy, and public commitments by government officials may make it difficult to gain acceptance of drug fees, even if ultimate public acceptance and economic feasibility are possible.

d. National Commitment to Health. Is there sufficient demonstrated political commitment to health to expect that priority will be given to the increased foreign exchange requirements which are likely to result from increasing supply of and demand for pharmaceuticals? In many countries, health receives low priority for foreign exchange. Will revolving drug funds be permitted to purchase foreign exchange on the open market? Or will other arrangements be made?

e. Social Cohesion. At the village level the degree of social cohesion strongly correlates with successful revolving drug funds. In Liberia social cohesion decreases if multiple tribal groups reside in the same community. Cultural factors may define regional or zonal boundaries and create natural administrative units. Zaire's health system was decentralized into 306 health zones in 1982. In order for self-financing to operate successfully in Zaire, it was important that a sense of community exist. Delineation of zones based on geographic, tribal, and linguistic criteria meant that cost recovery schemes operated in relatively homogeneous communities.

Similarly in Thailand, a sense of obligation and responsibility, respect for leaders, and a social contract mechanism has helped to support community drug schemes.

3.2. Economic Feasibility and Sustainability

Can enough funds be recovered to justify the effort and to make it successful over the long term? The answer to this question depends on national and local economic strength, on patients' ability and willingness to pay, on being able to balance public health and economic objectives, on sources of "competition" with public drug sales programs, on sources for the required capital, and on policies regarding exemptions and subsidies.

FIGURE 3.3.

SUMMARY OF ECONOMIC FEASIBILITY AND SUSTAINABILITY ISSUES

FACTOR	DESCRIPTION
a. Macroeconomic Strength	Is economy growing or stagnating? Does balance payments status allow foreign exchange for drugs?
b. Ability and Willingness to Pay	Is level of disposable household income adequate? How well is wealth distributed? Is barter exchange practical?
c. Balance of Public Health vs. Economic Objectives	Does one undermine the other?
d. Sources of "Competition"	Competition from public and private practitioners? Private pharmacy competition, coverage, structure, price?
e. Capital Provision	What are requirements (seed stock, strengthened management support systems, training, etc.)? What source? Repayment expectations?
f. Exemptions	How define needy: age groups, disease groups? Influences access. How cover costs?

a. Macroeconomic Strength. How robust is the country economically? Is the economy stagnating? To what degree is the wealth distributed among the population groups and levels? Does the balance of payments and foreign debt status permit foreign exchange -- a critical requirement for sustainable cost recovery -- to be available for procurement and replacement of pharmaceuticals?

b. Ability and Willingness to Pay. Can sufficient funds be recovered on a long-term basis to meet the cost recovery objectives? What is the family's ability and willingness to pay for pharmaceuticals? What is the level of disposable household income in relation to prices for a course of therapy? Household survey data shows that the rural populations in Africa, Asia, and Latin America spend significant amounts of their disposable income on health care, as much as one-half of which is for drugs (Vogel, 1988; Cross et al, 1986)

Experiences in Benin, Liberia, Nigeria, Thailand and Zaire demonstrate that people will buy drugs from public schemes at prices which allow full cost recovery. But experience from other countries described in Section 2 indicates that this is not always possible. In Nepal, for example, increases in prices which themselves represent only a fraction of drug costs result in decreased utilization. Thus, the economic feasibility of revolving drug funds has yet to be demonstrated in Nepal, despite an eight year history of such programs.

DeFerranti (1986) has suggested that the prevailing daily agricultural wage in an area is a reasonable measure of what most patients would be willing to pay as a drug and/or consultation fee for a single outpatient encounter. Since each country has different income levels, this measure is useful for determining ability to pay among countries. Shepard (1987) verifies the validity of using daily agricultural wage by making simplifying assumptions about utilization of services, family size and annual income and determines that, while average daily agricultural wage is a reasonable benchmark for pricing, few countries actually charge fees that high.

If this "rule of thumb" holds for most countries, it suggests that recovery of drug replacement costs may be difficult in some of the poorest countries. The cost of essential drugs is effectively determined by international price levels, while agricultural wages are clearly determined locally. While there are few countries with an average daily agricultural wage below the \$ 0.50 to \$0.75 cost estimated for essential drug programs, this figure assumes a level of efficiency throughout the drug supply system which often does not exist. Even if local income levels are sufficient by economic analysis, there is still the marketing question: given the other options and the perceived value of public health services, will patients pay a price equal or greater than the replacement cost of the drugs?

c. Balance of Public Health versus Economic Objectives. Pharmaceutical cost recovery programs face an inherent tension between their public health objectives and their economic objectives. Compromises may be necessary. In Thailand, Senegal and Liberia, for example, public health objectives have at times been compromised when sales of drugs and non-drug items took precedence over appropriate treatment regimens.

d. Sources of "Competition". Revolving drug funds may face "competition" from several sources. There may be competition from within the health system, as in Haiti, where the staff at many health centers had already established informal drug funds. Physicians may refer patients to their own private practice, where drugs are often sold. And private retail drug dealers are ubiquitous in many areas. Not surprisingly, public drug funds seem to do best where competition is least.

One question for planners is whether pharmaceutical cost recovery at public health facilities will face unanticipated opposition based on competition with informal, but well-established parallel drug supply systems.

e. Capital Provision. If capital is provided by a lending agency, what are the repayment expectations? What is the source of the initial capital required to initiate a cost recovery scheme? Start-up costs may include seed stock, strengthening of management support systems, training of MOH staff, training and mobilization of communities. In Nepal, Haiti, and many Health Zones in Zaire, initial funding was provided by a donor as a grant. In Thailand it was provided jointly by the government and the communities. In Liberia it was provided both by donors and by communities. Nigeria is in the process of obtaining a World Bank loan for seed stock. In few instances is repayment of initial capital expected.

f. Exemptions. What are the local definitions of those who should be exempted from payment of fees? Some persons may be exempted by virtue of disease entity (e.g., communicable diseases such as tuberculosis and leprosy), medical indigency, or age (e.g., under fives).

How is the cost of treatment to persons exempted to be met? Does a revenue generation mechanism need to be built into prices charged persons not exempted? In Liberia this is dealt with on a county by county, and community by community basis. In Nigeria, plans are being devised for state budget allocations to be provided in advance for exemptions.

Whatever the arrangement, the economic sustainability of pharmaceutical cost recovery will be undermined by rigid adherence to broad categories of exemption in the absence of specific plans to reimburse drug schemes for exempted patients or illnesses.

3.3. Managerial Feasibility and Sustainability

Given the human and physical infrastructure, can a cost recovery system be made to operate on a day to day basis? Key issues are accountability, "commercial" orientation, supply management capacity, and human resources capacity.

FIGURE 3.4

MANAGERIAL FEASIBILITY AND SUSTAINABILITY FACTORS

FACTORS	DESCRIPTION
a. Accountability	Establish and maintain at all levels. Potential loss by many routes. What are staffing, incentive, and disciplinary measures required? Is there effective community leadership selection?
b. "Commercial" Orientation	Is business basis accepted? Ability to maintain accounting system? Other MIS systems? Stock and cash separation required from other MOH assets.
c. Supply Management Capacity	Is procurement strong enough to decentralize? Some flexibility is required. Is there sufficiency of related management support systems (financial, personnel, transport, general supplies, MIS, communication, maintenance)?
d. Human Resources Capacity	Can training, supervision, and monitoring requirements of cost-recovery system be met?

a. Accountability. A critical requirement is the ability to establish and sustain accountability at all levels of the system. This accountability applies to stock and funds held. Administrative controls as well as position incentives must be considered. Staffing levels and disciplinary measures are important. Particular problems arise when there is only one health worker posted in a rural area with a dispersed population. For example, village drug depots in Mali are staffed with one local depot-keeper and generally have difficulty managing the drug revenues and keeping the fund revolving.

Is administrative decentralization achievable? Cultural perspectives are often involved, e.g., roles of central authorities. RDF assets, cash and inventory, must be maintained with an integrity separate from other MOH assets. Experience dictates that revenues collected from drug fees can not be remitted to the government treasury, otherwise they would generally be applied for other purposes.

The routes by which capital can be lost are myriad, e.g., as a result of poor procurement practices, during transport, during storage, loss of cash, etc. RDF capital is likely to suffer loss if stocks or foreign exchange are not

available; losses are likely if emergency procurement orders are placed with local suppliers due to increased prices.

b. "Commercial" Orientation. Can a "commercial," businesslike orientation to financial management, including the accounting system, be accepted and implemented?

c. Supply Management Capacity.

What is the strength and status of related management support systems, e.g., financial management, personnel management, transportation, general supplies, management information, communication, and maintenance systems.

Can and should procurement be decentralized? Would the system be strong enough to function on a decentralized basis? Zaire's experience would indicate the decentralization of drug procurement is beneficial only if a reliable supplier exists through which the zone can obtain its supplies. While it seems clear that health center needs should be most closely met by decentralized ordering, the provision of supplies can be inefficient if each zone has ad hoc procurement procedures.

However, an RDF should have sufficient flexibility to act if stocks are not available centrally, if there is strong demand for non-essential items (which would otherwise likely be purchased from the private sector). A UNICEF-sponsored drug fund in health zone Ruashi in Zaire provides 20 essential drugs to the health centers of the zone. However, other popular drugs provided by the private pharmacies are not offered by the fund. As a result, health centers bow to patient demand and procure their non-essential drugs from the private sector, and drug costs are high.

What is the condition of the transport system and road conditions? In many areas of Zaire, infrastructure is virtually nonexistent. Transportation of drugs is thus difficult.

What additional staff must be provided for the system to operate effectively? Is the community leadership selection process effective, which is critical to successful community-level operations?

d. Human Resources Capacity. Cost recovery programs require higher levels of performance with respect to routine drug supply management as well as a new set of skills related to accounting and financial control. There must be a demonstrated ability to maintain records of inventory, fees collected, operating expenses and so forth.

The training absorptive capacity may also be a constraint. Can appropriate training strategies and curricula be devised? Is there sufficient basic literacy and education for the system to function at the various levels? In some cultures women with experience selling at the local markets and may be selected to hold the funds. In Liberia some communities rely on village school teachers to assist with fund management.

A critical requirement is the provision of continuing on-site supervision and monitoring. The sixth and seventh regions of Mali have designed thorough systems through which information is supposed to flow. The lack of supervision and monitoring has resulted in the failure to implement these systems in some areas.

4. IMPLICATIONS OF COUNTRY EXPERIENCES IN PHARMACEUTICAL COST RECOVERY

The country experiences summarized in Section 2 as well as country experiences from other published sources have a number of implications for policy-makers in governments and donor organizations, for governments themselves, for donors, and for individuals trying to plan and manage pharmaceutical cost recovery programs. Some of these implications are more operational and are therefore included in ANNEX A of this report. Observations from country experiences which have broader implications are presented here.

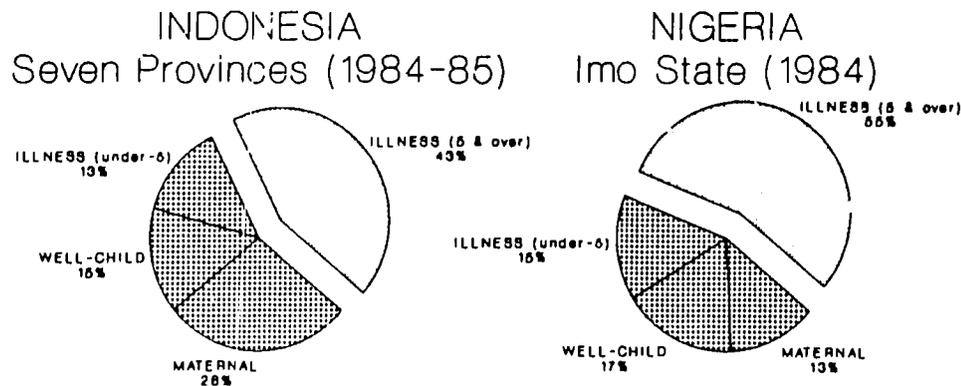
Many of the implications presented here appear cautionary. They are meant to be cautionary -- but not discouraging. Increasingly governments are choosing to increase revenues available for health care services through cost recovery mechanisms and donors are assisting them in this effort. Drawing lessons from cost recovery experiences to date is a first step in planning sustainable programs for the future.

4.1. Implications for Policy-Makers

Preservation of Child Survival and Safe Motherhood Objectives. Child survival and safe motherhood visits may constitute 40 to 60 % of primary health care contacts in a country (Figure 4.1), yet expenditures on vaccines and drugs for this group often represent a much smaller percent of the total pharmaceutical budget. Compared to their need, however, this group already under-utilizes preventive and curative health services. When cost recovery through drug fees is instituted, pricing and exemption policies must not create disincentives for this target group. Complete exemption ("free" care) could mean potentially as much as a 100 % mark-up for adult illness visits simply to cover the cost of all drugs and vaccines. Alternative financing mechanisms, e.g., budget allocations, would be a preferable financing method.

Drug Fees versus Service Fees. Should cost recovery efforts begin with drug charges, with charges for consultation and other services, or with charges for both? Drug fees are generally believed to be more acceptable to patients, and surveys of private expenditures confirm a willingness to pay for drugs. But a system of drug fees -- generally organized as a revolving drug fund -- is more difficult to manage than a system of service fees. Accountability problems are greater because both drugs and cash themselves have a value and drugs distributed must be balanced with cash collected. Regular collection of drug fees necessitates regular supply of drugs -- a task many programs already find difficult. It is suggested that if it is not feasible to initiate drug fees as well as service fees simultaneously, that drug fees be initiated first because of their acceptability.

FIGURE 4.1
The PHC/MCH Service Load



PERCENT OF PHC PATIENT CONTACTS

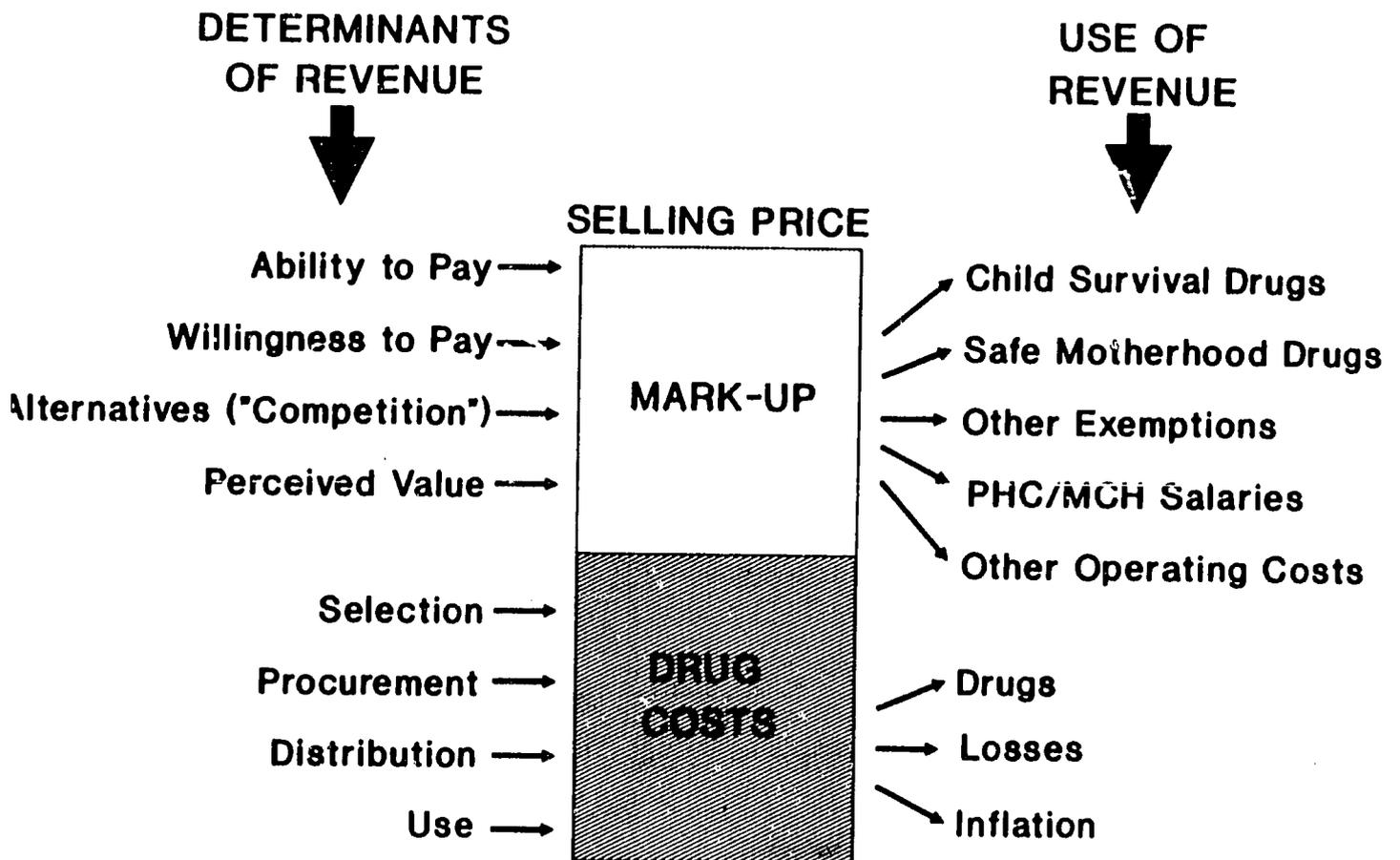
Cost-Recovery Potential Determined by Patients not Policy. Most experiences in pharmaceutical cost recovery suggest that, when equity-oriented exemption policies and administrative realities are considered, it is often a struggle for programs simply to recover the full replacement cost of drugs and associated delivery costs. There are notable exceptions such as recent experiences in Benin and Liberia, but it must be recognized that the cost recovery potential is determined ultimately by patients' willingness and ability to pay for drugs -- not by a policy which mandates a specified mark-up (Figure 4.2). Cost recovery objectives, drug costs and program costs can determine what one would like to charge for drugs. But the drug fee which can actually be charged without turning away significant numbers of patients will be determined by the patient: How far do I have to go, how long do I wait, and how good is the care? How much do I value these drugs? What are my other choices for drugs and health care? Are these the drugs I want or need? How much money can I spend on my health? Thus, quality of services, perceived value of the program's drugs, amount of competition from drug sellers, and other factors all have an influence on the patient's decision.

Figure 4.2 illustrates the determinants of revenue, selling price factors, and use of revenue.

Top-Down or Bottom-Up Implementation of Cost Recovery. Should cost recovery for pharmaceuticals begin at the community level or at the hospital level? With respect to user fees in general, it has been argued that the potential benefits can most readily be captured and the potential problems most easily overcome by beginning first in hospitals (Griffin, 1988; Vogel, 1988). Reasons for beginning at the hospital level -- which apply equally to drugs and to services -- include equity (hospitals generally serve high income population groups), revenue potential (large volumes of service are delivered at higher costs), administrative capacity, and ability to monitor the impact.

FIGURE 4.2

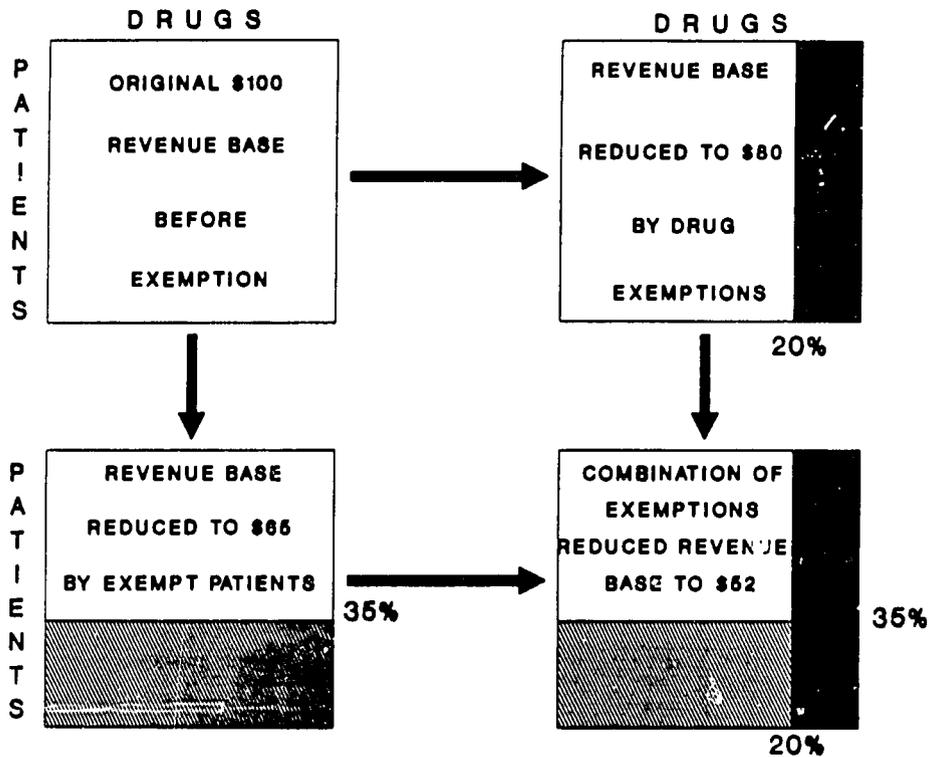
Cost-Recovery Potential Determined by Patients & Costs -- Not by Policy



"Equity" at What Cost? Countries which have embarked on pharmaceutical cost recovery generally attempt to maintain equity by establishing a series of exemptions or discounts (subsidies) for specific patient groups and disease categories. Patient groups typically include infants, children, and sometimes teenagers; pregnant women; the indigent; government employees; and special groups such as the military and prisoners. Disease categories frequently exempted include tuberculosis, leprosy, and cancer. The combined impact of these exemptions seriously undermines the financial viability of a drug cost recovery program; commonly adopted exemptions can quickly reduce the "revenue base" by one-half (Figure 4.3). Exemption and subsidy policies must be based on a financial analysis of their impact on cost recovery objectives. The results of such an analysis will generally lead to the conclusion that "not all "equities" are equal; exemption and subsidy priorities must be established and choices must be made.

FIGURE 4.3

Impact of Multiple Exemptions on the Cost Recovery Base of a Revolving Drug Fund



PATIENT GROUPS COMMONLY EXEMPTED:

- infants, children, teenagers
- civil servants, military
- paupers
- prisoners

DRUG CATEGORIES OFTEN EXEMPTED:

- vaccines
- tuberculosis drugs
- leprosy drugs
- emergency drugs

Adapted from: P. Cross et al., "Revolving Drug Funds: Conducting Business in the Public Sector." *Soc. Sci. Med.* Vol. 22, No. 3, pp. 336-343 (1986).

Pharmaceutical Cost Recovery Depends on Implementing Essential Drug Concepts. Several of the country experiences summarized in Section 2 confirm that implementing essential drug concepts is a basic requirement for viable pharmaceutical cost recovery programs. If patients are to pay an affordable price for therapeutic doses of needed drugs, then drugs must be carefully selected, the procurement process must assure low prices and high quality, storage and transport facilities must minimize losses and deterioration, distribution must be reliable, and prescribing practices must reflect good therapeutic value for the patient's money. Thus, a commitment to pharmaceutical cost recovery is a two-fold commitment: a commitment to a comprehensive essential drug program and a commitment to additional financial management functions.

4.2. Implications for Governments

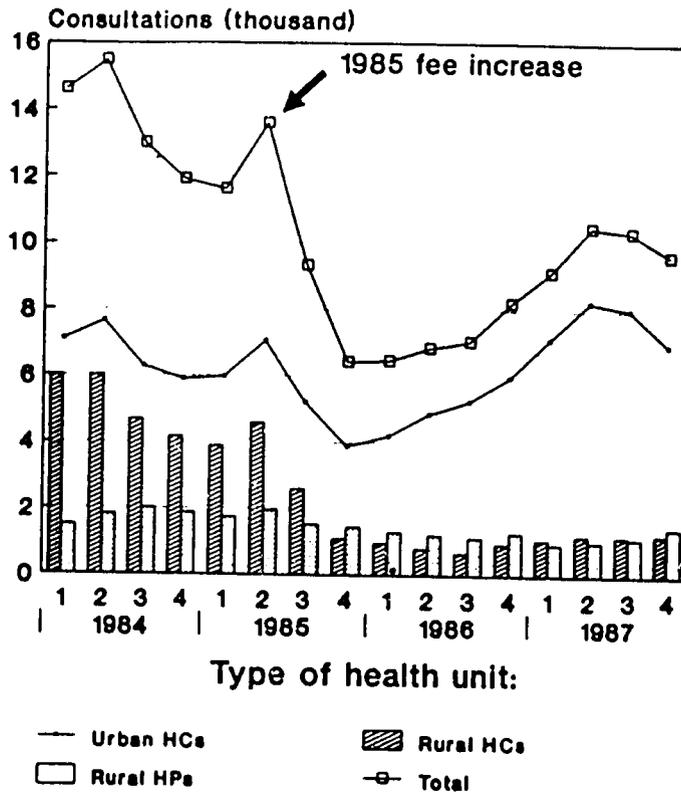
Cost-Recovery Revenue as Supplementary not Substitute Funding. It is important not to raise false expectations regarding the cost recovery potential of drug fees. Cost recovery should be meant to supplement current budgetary allocations -- limited as they are in many countries -- to provide an increased level of service, particularly to target populations. Patient fees are not meant as substitute funding for current budgetary allocations. Country experiences are virtually unanimous in demonstrating that only a portion of total recurrent health care costs can be generated through user fees. Capital funding from external sources is clearly required in most instances.

Monitor for Patient Impact. A common shortcoming of many drug revolving funds is their failure to carefully monitor the impact of drug fees on the volume and characteristics of patients served. Experience from Ghana (Figure 4.4) confirms largely anecdotal experience from some other programs: fees which are perceived as too high by a specific patient group can have a significant negative impact on health service utilization. Patient mix must also be considered. In one Nigerian state advisors were concerned that the drug revolving fund was attracting patients from mission and private health care, but discouraging use by poorer segments of the population. Drug funds are intended to finance increased care for otherwise underserved populations. If instead they attract already served patients from private and charitable health service and chase away the most needy, they have failed to meet their public health objective. Careful monitoring of patient utilization as well as the impact on nonuse of health services is the only way to assure that the program is doing more good than harm. It should be borne in mind that some decrease in utilization may be useful, e.g., to discourage social visits, and minor self-limiting illnesses.

Community Involvement Important for Sustainability. Experiences from Haiti, Liberia, Mali, and Thailand emphasize the beneficial impact of community involvement and the potential problems created by lack of effective involvement. Lack of accountability is one of the single greatest threats to the sustainability of cost recovery programs in public health services. The problem is greatest for drug funds, where both cash and drugs have a personal and tradeable value. Reliance on official channels of supervision is uncertain at best. A strong community organization can provide local enforcement of accountability, and a community is unlikely to be strong unless it is socially cohesive. Communities can also provide working capital for drug funds, as in Liberia and Thailand. This not only reduces government or donor start-up costs, but creates an inherent sense of "ownership" by the community.

FIGURE 4.4

UTILIZATION OF GOVERNMENT HEALTH CARE,
ASHANTI-AKIM DISTRICT, GHANA, 1984-1987



Of great importance is that this ownership produces an incentive for managing village assets. Finally, a drug fund must be responsive to its "consumers" if it hopes to survive. Organized local involvement encourages this responsiveness.

Capital Inflow Necessary to Begin Region RDFs Experiences in initiating RDFs appear to differ at the village and regional levels. While community involvement, including the raising of fund seed money, is necessary for ongoing village commitment, regional RDFs require a significant inflow of start-up funds. The Liberia experience is that capital funds are required not only for central or regional seed stock, but that funding is required for training of staff and village participants; additionally, if management support systems (e.g., financial and personnel management, management information system, transportation, general supplies, communication and maintenance) are weak, considerable assistance is required to strengthen them. The World Bank-sponsored Kita Circle Health Center in Mali claims that the most important factor contributing to their cost recovery success was having a large inventory of essential drugs at the project's inception.

Cost-Recovery Commitment is a Foreign Exchange Commitment. Most pharmaceutical cost recovery programs are established in situations in which current drug supply is considered inadequate and in countries which rely heavily on importation for finished pharmaceuticals and pharmaceutical raw materials. Under these circumstances, a successful cost recovery program will inevitably lead to increased foreign exchange requirements. Donor contributions may delay the need for additional foreign exchange, but only for a short time. Unless there

is demonstrated commitment to a feasible mechanism for making foreign exchange available to resupply drugs, drug revolving funds will raise false and ultimately unfulfillable expectations.

Controlled Financial Autonomy Improves Management. Several of the country experiences reviewed here describe a long history of ineffective cost recovery efforts based on systems which required all revenues to be returned to the central treasury. Experiences in Liberia, Nigeria, Thailand, Zaire, and elsewhere highlight the potential benefits of controlled financial autonomy for pharmaceutical cost recovery. Administratively separating revenues from drug sales from other government revenues has several advantages. It provides the responsible agency with an incentive to collect fees, since the agency sees the benefit of fee collection. It provides the financial flexibility necessary to buy drugs in economical quantities, at optimal times, and from low cost domestic and international sources. Finally, when drug funds are separated from other funds, managers can be held accountable for balancing drugs distributed with funds collected. The "control" is financial accountability.

Government as Provider, Government as Facilitator. Many developing country governments see their primary role and, in some cases, their only role in health as being the direct provision of health services for the general population. But the Bamako Initiative and other efforts to make health services more financially self-sufficient suggest a role for governments as facilitators, supporting efforts by private voluntary organizations and other not-for-profit non-governmental organizations (NGOs) to develop and test cost recovery schemes. In Nepal, for example, NGOs working through government health facilities were allowed to establish revolving drug funds, despite a continuing government commitment to "free" care. This resulted in improved drug supply and also allowed government to test the cost recovery concept without direct involvement. Government-supported drug revolving funds are now being initiated with WHO support.

Country Preparation. Careful thought should be given for a country to prepare itself for a cost-recovery scheme. Steps which must be accomplished include a comprehensive design, policy development and approach, organizational development, possible legal changes, strengthening of management support systems, training, information-education-communication steps, etc. Annex A, **Planning Steps for Implementation of Cost-Recovery Programs**, conveys a sense of the range of tasks to be accomplished.

4.3. Implications for Donors

Alternatives for Financing Child Survival and Safe Motherhood. Concern has been raised that efforts to establish pharmaceutical cost recovery will be directed at increasing the supply of essential drugs at public health facilities, while diverting human and financial resources from activities with a more direct impact on child survival and maternal health. Experiences in pharmaceutical cost recovery suggest at least three potential benefits of pharmaceutical cost recovery for financing child survival and safe motherhood:

- (1) Freeing funds from curative care -- If the supply of essential drugs for adult health can be made self-sustaining through cost recovery, then current allocations for drugs (however inadequate) can be redirected to supply of vaccines, ORS, prenatal supplements, and other services for which there is less demonstrated willingness to pay.

(2) Building financial management skills -- Pharmaceutical cost recovery provides a defined framework in which to build critical financial management skills appropriate to each level of the health system. Many of these basic financial management skills can readily be applied to other financing alternatives as they are explored.

(3) Generating public confidence -- The demonstrated willingness to pay and tangible return implicit in pharmaceutical cost recovery provide an excellent base on which to build confidence in revenue generation and, later, support for other financing mechanisms.

(4) Increased efficiency -- When drug stock availability is improved, typically patient attendance/utilization also improves. If other inputs remain constant, particularly staffing, the efficiency of the service will be increased.

Even if pharmaceutical cost recovery is pursued, cost containment strategies and other revenue generation alternatives (service fees, insurance and prepaid health schemes, cooperatives, etc.) should also be considered as part of an overall strategy for financing child survival and safe motherhood activities.

Structuring Incentives for Sustainable Cost-Recovery. Organizational and institutional dynamics may be different in donor-assisted pharmaceutical cost recovery programs than they are in "free" service programs, as illustrated by the revolving drug fund experience in Haiti (Figure 4.5). The contrast between retail pharmacy and a "free" donor-assisted program is telling. In the case of retail pharmacy, the incentives are clear: distributors profit by providing pharmacies the drugs they request, pharmacies profit by selling patients the drugs which they seek, and patients are satisfied when they receive a valued drug for their money. In the case of a "free" donor-assisted essential drug program (Figure 4.5 A), the organizational dynamics and incentives are also fairly clear: donors provide drugs (or funding for drugs) to the Ministry of Health, the Ministry distributes these to patients, and patients receive drugs without charge. Thus, the donor receives the satisfaction of giving, the Ministry is better able to serve its population, and patients receive a valued benefit.

For a donor-assisted cost recovery program, the organizational dynamics and incentives are less clear-cut. Program managers must be responsive to donor interests in the short-term and medium-term to assure a continuing flow of donor funding. Inevitably, this risks distracting program managers from understanding and responding to provider and patient interests, which are key to the long-term sustainability of the program. Donors should recognize this bind. Project monitoring should focus on definable indicators of progress toward realistic cost recovery goals, rather than input measures such as number of health staff trained, number of community drug funds started, or value of drugs provided.

Cost Recovery is Not Enough to Improve Pharmaceutical Availability. Simply charging for drugs will not assure that their availability will increase. Donors must be prepared to stimulate and support efforts to (1) allocate pharmaceutical resources based on health priorities, rather than historical demand and (2) contain pharmaceutical costs through careful selection, wise procurement, efficient distribution, improved cold chain management, and promotion of cost-effective drug use.

Human Resources Development Needs Much Greater than in "Free" Systems. In "free" drug supply systems, the task of program managers is to select, procure, and distribute drugs in their system -- however large or small the system is. In a pharmaceutical cost recovery program, drugs must not only be selected, procured and distributed down the supply system, but funds generated by their sale must be collected and cycled back up the system. After adjusting for planned exemptions and subsidies, cash collected must equate to drugs dispensed. Furthermore, lapses in a cost recovery scheme for the supply of drugs -- common in most "free" systems -- risk a permanent loss of working capital if health facilities go elsewhere with their revenues for resupply, i.e., and pay a higher price for stock. Thus, drug supply must be even more reliable in a cost recovery system. These requirements mean that cost recovery programs require a higher level of supply management capability and a new set of accounting and finance skills. Therefore, staff recruitment, training, and supervision needs for new projects can all be expected to be greater with a pharmaceutical cost recovery program than with a "free" system.

Support Diversity of Approaches. Country experiences, most notably from Zaire, Nigeria, and Thailand, suggest that circumstances vary considerably within a country and that programs are more likely to succeed when they are allowed the flexibility to adapt to local conditions. Allowing a diversity of approaches -- within the limits of public health objectives and accountability requirements -- also stimulates "natural experiments," efforts to solve common problems in different ways. Over time, these natural experiments provide insights which can be shared among communities and programs to improve the performance of cost recovery efforts.

Opportunities for Donor Synergy. A corollary to the importance of supporting diversity of approaches is the opportunity for donor synergy. In countries such as Liberia and Nepal, different donors have supported drug revolving funds in different parts of the country and the approaches taken have differed. The result has been cross-fertilization and a breadth of experience which might not otherwise have occurred. In the Liberian situation, for example, U.S.A.I.D. supported central efforts to establish a national drug service and revolving drug fund efforts in two counties. Programs assisted by other donors in eight of the twelve remaining counties contributed useful experience to the U.S.A.I.D.-assisted effort and these programs now hope to benefit from the U.S.A.I.D.-supported National Drug Service.

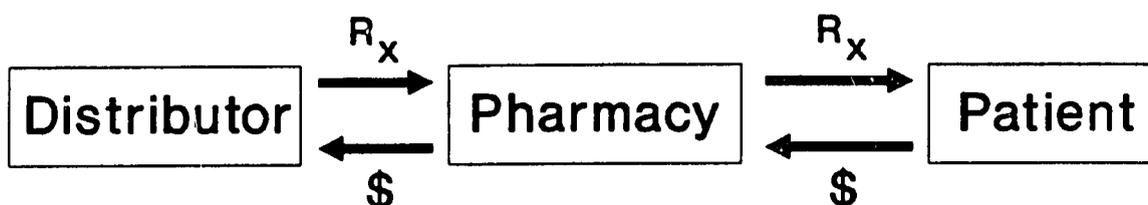
4.4. Implications for Program Planners and Managers

Management Requirements of Cost Recovery Can Be High. As noted above, human resource development requirements for pharmaceutical cost recovery can be much higher than in a "free" system. Basic supply management performance must generally be strengthened and, in addition, a whole new set of financial management skills are needed. Balancing supply of drugs and demand for drugs as well as drugs dispensed with funds collected both require more reliable information management than typically exists. On a small scale, the additional management requirements may not appear great, but for regional or national systems, they become considerable. These requirements must be considered in deciding whether and where to initiate cost recovery and in assessing how much effort will be required to establish a viable program.

FIGURE 4.5

ORGANIZATIONAL DYNAMICS AND COST-RECOVERY

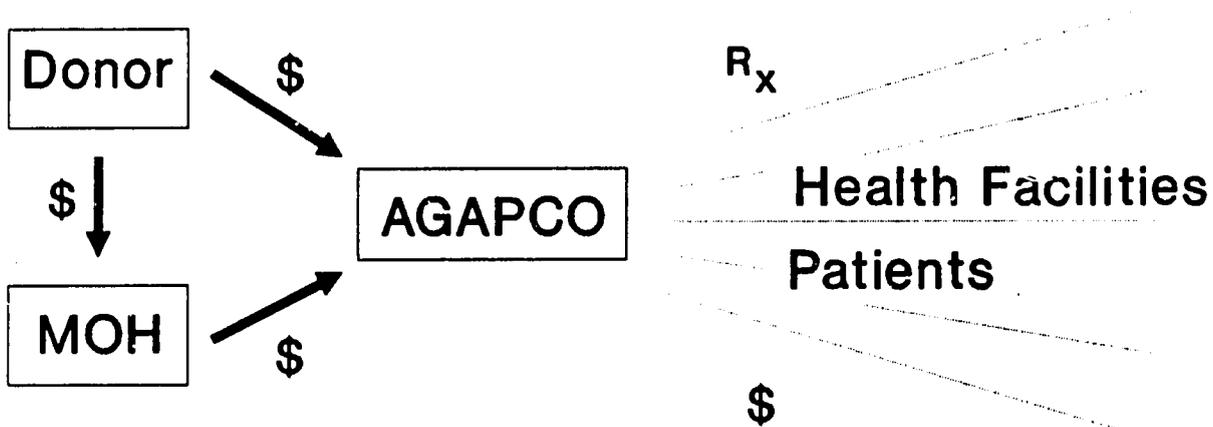
A. DRUG SALES THROUGH RETAIL PHARMACY



B. "FREE" DONOR-ASSISTED PROGRAM



C. DONOR-ASSISTED COST-RECOVERY PROGRAM



\$ - Funds R_x - Drugs

Financial Management Skills are Vital. The skills needed to manage the funds for a small community drug fund are no greater than those needed by the average seller at the local produce market. But the financial management skills required to design, implement, and monitor sustainable cost recovery programs which serve large portions of the population are not commonly found among health professionals. The role for program managers and accounting staff with financial management skills and something of a "commercial" orientation should not be ignored.

Indicators of Financial Health Critical to Monitor Progress. Immunization program managers have access to a variety of program indicators, including quantities of vaccines distributed, immunization coverage rates, infection rates, and so forth. With these indicators, the progress of the program and the likelihood of fatal epidemics can be monitored. Similarly, pharmaceutical cost recovery programs need indicators to assess progress toward sustainability. Without such indicators, the capital resources (drugs and cash), which are the lifeblood of a drug revolving fund, can be rapidly dissipated. Once start-up drugs and funds have been lost through over-exemption, underpricing, poor accountability, or other lapses, they are gone forever. An example of such an indicator is the capital position for each facility, which should be compared over time and with other facilities.

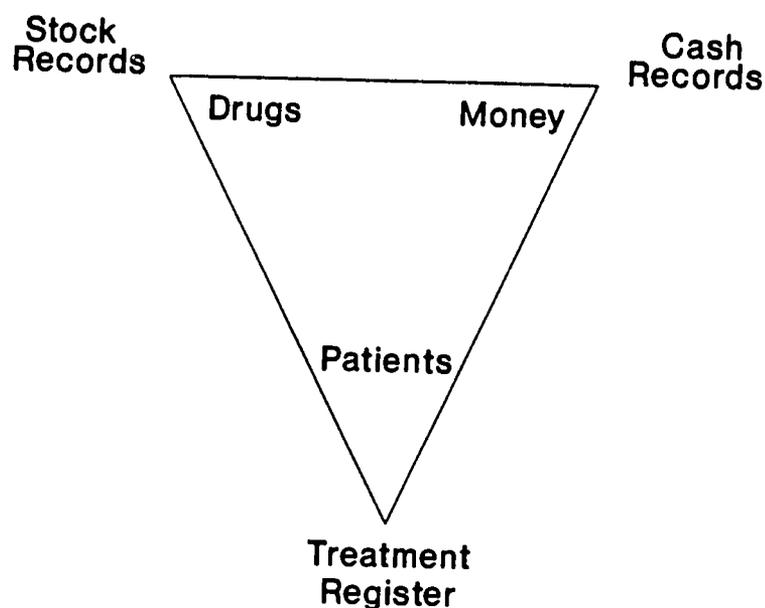
Both Human and Administrative Sides of Accountability are Critical. One of the central challenges in creating a viable drug fund is maintaining accountability in the collection of funds and distribution of drugs. On the human side, distant supervisors who rarely visit, and absence of incentives for fee collection, can hardly be expected to assure proper management of drugs and funds. Active participation of a community oversight body and development of personal or facility incentives for fee collection can be quite important. Supervision on a regular and continuing basis is critical.

On the administrative side, basic systems are needed to assure that patients treated, drugs dispensed, and cash collected adequately match each other. Figure 4.6 illustrates the basic administrative elements for maintaining accountability at the health center level. In addition, reliable mechanisms are required for cash management and transfer of funds for resupply.

Understand the Patient as a Consumer. Whether or not one finds it acceptable, "free" systems can and do treat patients as recipients. Patients are provided with the drugs and services policy-makers, health system managers, and providers are willing and able to provide. The drugs and services provided are not always those that patients would prefer. In contrast, except in areas where no other health services are available, pharmaceutical cost recovery programs must understand patients as consumers. A patient must value the drug, the package, and the treatment process he or she must go through to receive the drug if he or she is going to pay for the drug. Otherwise there will be poor compliance. Similarly, the prescriber must value the drug. In Haiti, failure to appreciate this fundamental characteristic of revolving drug funds seriously undermined program viability. In Thailand, the more successful community funds have accommodated to patient interests by broadening their selection. The concept of patient as consumer must be considered in selection, pricing, communication activities, packaging, and other aspects of program implementation.

FIGURE 4.6

The Health Center Revolving Drug Fund Accounting Triangle



FOR SUSTAINABILITY WITHOUT SUBSIDY:

Patients Treated = Money Collected
Money Collected = Drugs Dispensed
Drugs Dispensed = Patients Treated

Health objectives need not be ignored, but patient perspectives need to be appreciated.

If Charges are Imposed, Quality Must Improve. In Zaire, Liberia, the West Africa countries described by Vogel (1988) and elsewhere it has been observed that reasonable charges are accepted by patients only if services improve. Experience suggests that cost recovery may be initiated before services improve, but that quality improvements such as more reliable drug supply or more responsive staff must come relatively quickly after the imposition of patient fees.

Cost Recovery and Rational Drug Use. One concern raised about drug revolving funds is that, in creating incentives for health workers to collect drug fees, they may also create an incentive for over-prescribing. The alternative argument, that drug fees may lead patients not to buy all the drugs they have been prescribed, has also been raised. Evidence to suggest significant over-prescribing resulting from the imposition of drug fees is largely anecdotal. Given that drug revolving funds are most often started in circumstances in which drug supply is quite inadequate, this is not surprising. Experience from

Nepal does suggest that simple pricing decisions can have a significant effect on drug use: the program which charges separately for each item dispensed, on the average, one-half the number of drugs per patient that is dispensed by the program which charges a standard flat drug fee regardless of the number of drugs prescribed. Thus, while drug use patterns should be monitored and pricing decisions should support rational drug use, concern about rational drug use should not in itself prevent the initiation of drug fees.

Covering Costs of Vaccines. In contemplating recovering sufficient income to meet the costs of vaccines, it is necessary to consider not only the procurement costs of the vaccines, which are approximately 6% of total drug costs in some countries, but to also cover the costs of transporting the vaccines and maintaining a cold chain - which are roughly five times as much as the procurement costs.

Planning Steps for Implementation of Cost Recovery Programs. A number of pharmaceutical cost recovery programs have failed because of inadequate planning, which is a complex undertaking. Missions and other groups in the field carry much responsibility for this area without benefit of adequate resources for the task. Annex A outlines in brief form planning steps required for implementation. It is suggested that a greater level of effort be undertaken to provide the needed assistance for this.

5. ISSUES REQUIRING OPERATIONS RESEARCH

There is now considerable experience in primary health care financing and, in particular, in pharmaceutical cost recovery. Nevertheless, many of the necessary technical and managerial tools needed to plan and implement sustainable cost recovery programs are still not generally available to people in the field. A logical extension of efforts to collect cost recovery experience would be to synthesize country experience into practical guidelines for program development and management. Examples of common planning and implementation issues are: definition of realistic cost recovery objectives, creation of both the human and administrative sides of accountability, setting of prices based on local ability and willingness to pay, and establishment of appropriate but financially viable exemption policies. These and other planning and implementation issues are outlined in Annex A.

Though much information exists within available country experience, there are a number of questions which remain unanswered or which must be asked individually by each country wishing to consider pharmaceutical cost recovery. Operations research efforts are clearly needed throughout the planning and implementation of cost recovery programs.

Figure 5.1. outlines some of the operations research questions which need to be considered. Examples of specific questions are listed and examples are given of methods which might be used to address these questions. Some of the key questions include the following:

Cost recovery objectives. What are reasonable cost recovery expectations for most countries? In practice the cost recovery potential is determined ultimately by patients and costs -- not by a policy which mandates a specified markup. Ability to pay, willingness to pay, available alternatives ("competition"), and perceived value (quality of drug and service) together determine what price can be charged. Margin left for non-drug PHC/MCH costs (staff, vaccines, etc.) is the difference between the "selling price" and the replacement cost of drugs. The experiences reviewed here suggest considerable variation in cost recovery potential and provide little basis for suggesting that large mark-ups (100 to 200 % over landed costs) are possible in most environments.

Alternative levels of cost recovery need to be studied and compared to assess ability and willingness of patients to pay. The variables in costs to recover include the costs for direct purchase, storage and distribution (including transportation), supervision, stationery, salaries, exemptions, as well as the costs of vaccines and ORS.

Impact on patients and health care patterns. Does large-scale cost recovery distort health care patterns? A common failure of revolving drug funds is not monitoring the impact of drug fees on volume and characteristics of patients served. Declines in patient attendance have been noted. But little before-and-after information is available. Do public sector user fees for drugs pull patients from existing mission and private services, while dissuading mothers, children and the poor? Is there greater use of drug sellers and non-therapeutic care? Patient mix (age, sex, and presenting health problem) must be considered and not simply number of attendances.

Alternative Financing and Prices Schemes. Are drug fees generally more successful than service fees, prepayment, or other forms of resource mobilization?

The demonstrated willingness of patients to pay for drugs in the private sector is often taken as support for beginning public sector revenue generation with drug fees. None of the country experiences reviewed allowed us to evaluate the validity of this approach in contrast to revenue generation based on consultation fees, prepayment, or other mechanisms. Under the mechanism of pharmaceutical cost recovery, studies are needed concerning alternative methods of pricing, e.g., uniform mark-up, use of bands, cross-pricing (to encourage use of certain pharmaceuticals and discourage use of others), one uniform fee, etc.

Alternative methods for covering costs of exemptions. A number of methods for covering the costs of exemptions can be devised, e.g., require village councils to provide payment, cover through increased mark-up, provision of budget allocation from government. The feasibility of the methods should be assessed in varying contexts.

Creating Incentives for Sustainability. Country experiences suggest the following ways to build incentives for sustainability into cost recovery projects, including close community involvement, decentralized fund management, adequate staffing and training for the greater management requirements of cost recovery programs, and flexibility in program design. Comparative analyses within countries and among countries should consider the relative importance of these and other factors in creating the basis for sustainability.

Models for maintaining accountability. Circumstances in urban areas differ markedly from rural areas as do circumstances among countries (e.g., literacy, presence of trained persons such as bookkeepers, social cohesiveness, levels of household income, access for supervision, etc.) Studies should be conducted to define the most advantageous mechanisms for creating the human and administrative controls necessary for cash and drug management.

Alternative models of coordination between agencies. Multilateral and bilateral donors have played and likely will continue to play an active role in the development of cost recovery programs. Often multiple donors are involved in an individual country and various models of coordination and complementarity exist. What are the advantages and disadvantages of the various alternatives: division by geographic area, division by programmatic area (maternal and child health delivery, essential drugs, financial management, etc.), etc.

Timeframe required for sustainable cost recovery schemes. The increased complexity and human resource development requirements of cost recovery schemes suggest that a longer timeframe is required than would be expected in service delivery project without cost recovery. Is the planning period 24 months, instead of 12 months, and the implementation period six to eight years, instead of three to five years?

Definition of key indicators. A wide range of possible performance indicators exists. It would be useful to define which are the most critical. Just as immunization programs have a variety of program indicators in order to avoid epidemics, cost-recovery programs need to develop indicators to assess financial well-being and patient impact.

This list of potential operations research issues may at first appear formidable. Yet in the context of planning and implementing an individual program, some issues will stand out as more critical than others. The important step for planners and implementers is to consider the full range of operations research issues and to identify which ones are of greatest potential relevance to their program.

TABLE 5.1

OPERATIONS RESEARCH ISSUES IN PHARMACEUTICAL COST RECOVERY

PLANNING AND IMPLEMENTATION PHASE	
Examples of Operations Research Questions	Examples of Methods
PROGRAM FEASIBILITY AND DESIGN	
<ul style="list-style-type: none"> ● Willingness and ability to pay -- Cost recovery potential of drug fees? ● Human resource requirements -- What are staffing and training requirements? ● Logistics system requirements -- What improvements are needed to support a cost recovery program? ● Models for accountability -- What are locally appropriate, reliable methods for cash management, record-keeping, supervisory oversight, etc? ● Community involvement -- Who to involve and how? 	<ul style="list-style-type: none"> - Focus group discussions - Household survey - Manpower and training assessment - Logistics system assessment - Identify and test alternative systems - Power structure analysis - Ethnographic survey
IMPLEMENTATION AND MONITORING	
<ul style="list-style-type: none"> ● Patient impact -- Changes in utilization patterns, including number of attendances and patient mix. ● Impact of exemptions -- How is utilization and program financial status affected by exemptions? ● Financial impact -- Sustainability and effect on health budgets. ● Impact on drug use -- More or less rational? 	<ul style="list-style-type: none"> - Utilization time series - Before/after household survey - Users/non-users interviews - Comparison of alternate policies in different areas - Financial analysis of exemption impact - Financial performance indicators - Government expenditure time series - Before/after drug use analysis - Prescriber focus group discussions
CROSS PROGRAM EVALUATION	
<ul style="list-style-type: none"> ● Predictors of Success -- Where does pharmaceutical cost recovery work and why? ● Donor Coordination -- What are effective coordination models? Programmatic? Geographic? ● Timeframe for Sustainability -- How long do programs take to become managerially and financially sustainable? 	<ul style="list-style-type: none"> - Case study - Financial audit - Management audit - Comparative analysis - Comparative analysis

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ANNEXES

ANNEX A

PLANNING STEPS FOR IMPLEMENTATION OF COST RECOVERY PROGRAMS

These planning steps are offered as an outline particularly for use in the field by parties concerned with the selection, feasibility analysis, and planning of pharmaceutical cost-recovery schemes.

The steps are brief and in outline form. The list of **REFERENCES** will be of more detailed assistance to parties involved in the planning and implementation process. In all instances, parties planning pharmaceutical recovery programs must recognize that each country situation will differ from others, and that no single pattern or design will be applicable; adaptation is essential.

OUTLINE OF PLANNING AND IMPLEMENTATION STEPS

A. Situation Analysis

1. Establish need for cost recovery on a case-by-case basis by documenting the situation.
2. Conduct problem analysis, identifying issues to be studied.
 - Access to coverage problems and appropriately used pharmaceuticals.
 - Availability, use and misuse of resources.
 - Pharmaceuticals availability key problems; if not available, why not?
3. Definition of objectives:
 - Program objectives, i.e., public health, economic, etc.
 - Cost-recovery objectives: what range of costs should appropriately be attempted for recovery?

B. Strategies

- I. Identify alternative financing methods for capital (start-up) and operating funds, e.g., government financing, donor financing, community financing for capital and operating, insurance, treatment card fee, employer-provided or funded, cooperatives, etc.
 - Consumption and other taxes earmarked for purchase of drugs
 - Lotteries and proceeds of betting
 - Mutual funds, cooperatives, health cards, insurance schemes, and other types of prepayment schemes
 - Donor funding
 - User charges

2. **Assess feasibility:**
 - **Political and cultural:**
 - Groups in support or opposition
 - Acceptance of cost recovery
 - Commitment to "free" services
 - National commitment to health
 - Social cohesion
 - **Economic feasibility and sustainability:**
 - Macroeconomic strength
 - Ability and willingness to pay
 - Balance of public health versus economic objectives
 - Sources of competition
 - Capital provision
 - Exemptions
 - **Managerial feasibility and sustainability:**
 - Accountability
 - "Commercial" orientation
 - Supply management capacity
 - Human resources capacity
3. **Select strategy:** It is suggested that persons experienced in local cost recovery programs advise on strategies (and problems).

C. Policy and Organization

1. **Identify policies required, e.g., decentralization, PHC/MCH, essential drugs, levels to participate, cost-recovery objectives, community financing, coverage, exemptions and related subsidies, procurement, pricing, annual audit, supply management, revenue retention, in-service training, IEC requirements, oversight, general organizational arrangements, requirements, etc.**
2. **Organization required:**
 - Entities involved and major spheres of responsibility
 - Functional responsibilities - centralized vs. decentralized
 - Geographic and institutional scope of project
3. **Staging/phasing steps**
4. **Role of communities: seed stock and/or recurrent financing, ownership, management,**
5. **Accountability relationships**

D. Financial Planning

1. Identification of market

- Target population for a sales program
- Ability and willingness of target population to pay
- Revenue implications of the size of target population

2. Estimation of RDF costs

- Capitalization costs
 - * drug pipeline
 - * working capital
 - * installing/improving distribution system
 - * staff training
 - * strengthening other management support systems
- Drug costs for replacement of drugs sold
- Operating costs.

3. Establishment of cost recovery objectives

- What portion of drug costs, operating costs, and capital costs will be covered?
- Financial responsibility: who is putting up the money?
- Sources of supplementary funding or subsidy.

4. Pricing strategies and definition of role of subsidies, surcharges, and exemptions

- Will some drugs and/or groups of persons be exempt?
- Should markups be higher on some drugs and lower on others?

E. Management

1. Legal status

- Relationship to Ministry of Health?
- New laws and statutes needed?

2. Commercial/business orientation vs. government operations

3. Secure foreign exchange on continuing basis

4. Selection of drugs and medical supplies

- Levels of care
- Range of drugs to provide, considering need and demand

5. Quantification

- Need
- Demand
- Impact of stock-outs (greater in RDF scheme).

6. Procurement

- Local manufacture, formulation, packaging? What range of items?
- Overseas import
- Avoiding emergency purchases.

7. Quality assurance: drugs need to appear and be of good quality.

8. Distribution network -- need to prevent disruption of supply

- Number and placement of storage facilities
- Transport arrangements
- Distribution strategies (push, pull, variations of each)
- Control mechanisms, strategies

9. Accounting and MIS

- Cash management
- Cost control (greater in RDF scheme)
- System for valuing stock
- Inventory control/management strategies
- Sales data
- Trial balances, income statements, balance sheet
- Drug consumption data

F. Community Involvement/Participation

- Community mobilization
- Relationship to provider, e.g., Community Health Worker
- Capital generation; sense of ownership; investment
- Training of community leaders and parties with responsibilities
- Financial management responsibilities
- IEC requirements

G. Staffing, Training, and Supervision

- Define additional staff requirements to achieve accountability
- Recruit staff for specific locations
- Develop curricula for training
- Provide training: inservice workshops/refresher courses, pre-service training, community participant training
- Supervision and support - **CRITICAL**
 - * Regular basis
 - * Define content
 - * Supervisory checklist

H. MIS, Monitoring and Evaluation

1. Define MIS requirements

- Information (stock, financial, patient utilization) flows and design
- Analyses of information (who analyzes and how?)
- Use of information, e.g., changes in drug use

2. Evaluation: set criteria; analysis of data.

3. Feedback and reformulation of scheme; effectiveness of changes made?

4. Frequency reports and evaluation?

I. Operations Research on Health Service Impact and Sustainability

1. Health service impact: e.g., monitor attendances (volume and patient mix) prior to implementation and during operations. Monitor coverage.

2. Sustainability: economic and managerial

- Capital status
- Can program operate without expatriate advisors?
- Can program operate over long-term without supplementary external funds?

3. Changes in patterns of drug use, e.g., prescriber/user, public sector/private sector.

4. Profile of non-users: increasing or decreasing?

5. Shifts in patient care-giving patterns

- Positive: away from non-therapeutic care
- Negative: away from rational treatment.

J. Implementation Plan

1. Schedule of implementation

- Time required for total implementation
- Phasing in funds, procurements, training, opening sales points.

2. Who will implement

- MOH personnel
- Role of technical assistance (local or expatriate)
- RDF personnel.

3. Start-up costs

- Planning activities
- Drugs and medical supplies
- Initial operating costs
- Promotional activities
- Training
- Travel and per diems

4. Evaluation

- Performance indicators required - what to evaluate
- Frequency of evaluation
- Alternative implementation strategies based on results

5. Potential barriers to implementation

- Political barriers and opposition
- Financial barriers
- Management and logistical barriers.

ANNEX B

ANALYTIC FRAMEWORK FOR COUNTRY STUDIES

The following is the analytic framework which was generally used for writing the country studies for the Bamako Initiative-related paper for U.S.A.I.D.: Financing Primary Health Care: Experiences in Pharmaceutical Cost Recovery.

A. Background and Organization.

1. Basis of organization and control. Describe origin of scheme. Description of how cost recovery plan is organized and controlled.
2. Community involvement. What is community relationship? Some schemes are conceived for sustainability reasons with community being responsible for raising funds for seed stock, day to day administrative supervision, revenue generation for PHC activities, etc.
3. Political environment. What political factors impact the initiation and operation of pharmaceutical cost recovery?
4. Parallel providers. What is the role of parallel providers, both private and NGOs?
5. Insurance coverage. To what extent is the population covered by insurance schemes?

B. Impact on Patient Attendances. What is impact of availability of pharmaceuticals and cost recovery on patient attendances and health? Are there significant changes in the patient mix? Is access positively or negatively impacted? Is there reduction in morbidity and mortality?

C. Finance and Financial Management.

1. Capitalization. What is method of establishing the capital requirements and source of capitalizing the scheme?
2. Cost Recovery. What is the country's experience in recovering costs?
3. Financial Management. What exemptions allowed, and how are costs met? What is method of setting and adjusting prices, and how compare with private sector prices? Assess MIS, performance monitoring, financial accountability, integrity of revenues, adequacy of foreign exchange, stock control, cash management, audit, etc.

D. Management.

1. **Planning.** Assess degree to which prior planning has been conducted on rational and comprehensive basis.
2. **Logistics.** Assess adequacy of logistics system, including inventory control, resupply system, transport, etc.
3. **Training and supervision.** What in-service and pre-service training activities were undertaken of staff and community participants? What methods are used and how satisfactory is supervision (administrative and technical)?
4. **Sustainability.** What implementation problems? What is long-term viability of the scheme: economically, financially, socially, politically? Are there incentives for success built into scheme?

E. Implications of Pharmaceuticals Cost Recovery Experience.

1. What are the implications of the pharmaceuticals cost recovery experience to developing country governments, to donors, to mission groups, etc.?

GHANA

A. BACKGROUND AND ORGANIZATION1. General Background

Ghana's population of 13 million live in 69 health and 110 politico-administrative districts. According to UNICEF (Mandl et al., 1988) "currently 35 of the districts are in various stages of developing PHC with community involvement, training of community health workers, and cost-recovery schemes."

The government of Ghana initiated its policy of charging for health care in 1971 when it passed the Hospital Fee Act. The introduction of fees was designed to reduce excessive demand and to contribute to the costs of curative services. Though the principle of user fees was established by this act, the charges were so low that only a small percentage of total costs were recovered. In 1985, the pivotal Health Fee Regulation permitted fee levels to rise substantially resulting in patients paying the full cost of their medicines, except for vaccinations and certain contagious diseases like tuberculosis and leprosy. The main aim of this legislation was to raise revenue -- specifically 15% of recurrent expenditure. Consultation charges varied according to the level of health facility visited. The concept of drug cost recovery was further emphasized in 1987, when another Regulation left consultation fees at the 1985 level, but provided for full cost charging for drugs. Since inflation has eroded the consultation charges, drug costs are currently the main component of fees (Waddington et al., 1989).

Income from user fees at all health facilities is channelled to the Ministry of Health in Accra, with each health facility permitted to retain a fixed percentage of their revenue depending on the level of the institution. Health centers and clinics may retain 50% of their revenue and may spend 25% of that (12% of total fees collected). Hospitals may retain 50% of their revenue and may spend 50% of that (25% of total fees collected). The 50% of revenue not retained by the health facility accrues directly to the Treasury, while the retained revenue not spent by the facility goes to the Ministry. Health centers and clinics are encouraged to use this retained income for the purchase of items such as stationery, cleansing agents, bed linen, electric bulbs, fuel and lubricants for vehicles and generating plants, as well as for the maintenance and repair of minor equipment and building. Where possible in time of emergency the fund would be used to supplement feeding and purchase drugs and dressings (MOH, 1985; Waddington, personal correspondence).

Three levels of health services in each district determine drug supply and financing mechanisms: Level "A" is the community level which is staffed by community health workers who are responsible for collecting funds. Level "B" is health posts and health centers staffed by professional health workers, and level "C" is the district health management team which oversees all health services in the district (Mandl et al. 1988). Drugs are provided at Level A by community RDFs. Level B and C do not operate

RDFs but charge a flat fee for consultation and drugs which supplements budgetary allocations. The supply of drugs moves downward while the flow of revenue travels upward. (This will be discussed further in the "Financial Management" section.)

Much of the work examining cost-recovery in Ghana focuses on the Ashanti-Akim district. This district has a population of 183,000, and about 70% live in rural areas (Waddington et al., 1989). As one of the first nine districts chosen in 1979 for Primary Health Care (PHC) development, it has been considered a model for other districts designing approaches to community financing (Mandl, 1988). Charges were introduced at Ashanti-Akim government facilities in mid-1985, making health facilities in this district amongst the first to be subject to the Health Fee Regulation policy change. For these reasons, this country study will focus on experiences within the Ashanti-Akim district.

2. Community Involvement

Members of the community are very much involved in the provision and management of Level "A" health care. Community members form Community Health Committees (CHCs), which are responsible for selecting Community Health Workers (CHWs). The district health management team has encouraged the creation of CHCs and has established specific conditions for their functioning. The revenue (mainly raised through drug sales) is collected at the community level and turned over to the treasurer and secretary of the CHC. The health committees use the revenues for replenishing drugs, compensating the CHW, transportation costs, sanitation, records and other clerical supplies and other miscellaneous expenses (Mandl, 1988). When drug sales do not generate enough money to pay the CHWs salaries, the community can use "payments in kind," such as performing services on the health worker's farm, to compensate the worker (Waddington et al., 1989).

The communities of Ashanti-Akim have always been very supportive of local programs designed for their development. Likewise with the establishment of a revolving drug fund, the communities were able to collect the necessary money to provide the initial capital of the program, and a room for the community health workers (Mandl, 1988).

3. Political Environment

One critical condition for cost-recovery success is decentralization of the health system. Decentralization of community resources generated from user fees is particularly important since revenues will more likely be collected by workers, and patients will more likely come to the drug fund if they see a direct result of their cost-recovery efforts: namely improved supply. Decentralization, however, can be a strong political issue as the government must relinquish a degree of central decision making and power. In Ghana, fortunately, the government has been endorsing decentralization of the health system since 1977 when the Ministry of Health adopted its PHC policy. The district has thus been seen as the center of planning and implementation of community based services (Mandl, 1988). When pharmaceutical cost recovery was emphasized in 1985, the government had already released control and was encouraging community efforts. In fact, popular press and television is reported to often carry stories on the necessity for decentralization in all aspects of Ghanaian government (Vogel, 1988).

Since government procurement of drugs from local manufacturers and foreign suppliers is still mainly centralized, these vested interests have not been threatened by the change in pharmaceutical cost-recovery policy and, thus, have not registered major opposition.

4. Parallel Providers

Private sector restrictions on the importation of drugs have been relaxed since 1985, resulting in reasonable quantities of a wide range of drugs on the Ghanaian market. Many drug stores supply the larger villages of Ghana, while the general store and private drug peddlers supply the smaller villages. Drugs are dispensed without any written information and in partial dosages. (In fact, salesmen interviewed by a WHO consultant regarded their willingness to sell small quantities as a crucial factor in attracting customers.) Traditional and religious practitioners are also consulted for medications for which the patient can make payments in cash and kind. "Quacks" are also widespread in Ghana and attract patients by, in part, conducting business in the evenings when the government facilities are closed. Private clinics are generally more expensive than government institutions and are geared to an upper economic scale market (Waddington et al., 1989).

B. IMPACT ON PATIENT ATTENDANCE

Studies have not examined if the 1985 increase in pharmaceutical prices has had an effect on the health care of the population, as measured by health status indicators. Yet, Vogel of the World Bank has expressed caution regarding possible detrimental consequences of the higher prices. Since a patient's diagnosis, not economic status, is the basis for determining the fee, the user fee scheme is said to be regressive to income (i.e., those with lower income are paying a relatively higher fee than those with higher income). Low income people are responsible for paying a higher relative cost and they have less money for other needed goods, like food; this could possibly have detrimental effects on the health status of the poor. Vogel draws a comparison between Ghana and the situation in the United States, where some critics of the Reagan era claim that the recent rise in infant mortality rates among blacks is due to reductions in the Medicaid program in the early 1980s (Vogel, 1988).

The effect of the 1985 policy on utilization (which affects health status) has been examined. Utilization declined after the large increase in user charges in 1985. Rural health center utilization dropped massively and, while it has recovered slightly, it has not rebounded to 1984 levels. Urban health centers were better able to recoup attendance rates after the initial drop in utilization (Waddington et al., 1989). This dramatic effect on utilization after 1985 may partly be attributable to the drastic price change, rather than the price itself. As evidence, a mission hospital which was unaffected by the dramatic increase in price at government facilities has steadily increased its fees over the 1984-1987 period. Utilization, however, has remained unaffected by the price increases (Waddington et al., 1989).

While some of the response to user fees at government facilities can be explained by the unexpected jump in prices, the price itself acts as a deterrent for seeking medical care and drug supplies. Utilization is

lowest during the second quarter of the year (April-June); though need for medical care is probably highest during this rainy season, income is at its lowest level since this period precedes the main harvest (Waddington, 1988).

In addition to the cost of care, other important determinants of government health facility demand are quality of care and availability of drugs. While utilization of health care at the government centers has dropped during the past few years, attendance rates at private facilities have increased; thus there has been a shift in demand towards the private sector (Waddington, 1988). This may be of concern too for its ultimate effect on health status since fewer checks on the quality of care exist in the private sector. (This is clear by comparing the number of expired drugs available at government versus private facilities (Waddington et al., 1989).)

Health care personnel interviewed in Ashanti-Akim said that the increase in fees caused patients to present later with their illness than they might otherwise have done (Waddington, 1988). If this is true, health status can be affected as people delay treatment and thus reduce its efficaciousness.

C. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

At the community level, peculiar to Ashanti-Akim, the initial capital for community drug funds is provided by money collected from the community (Mandl, 1988).

2. Cost Recovery

In 1987 in Ashanti-Akim, 15% of all MOH costs were recovered through the consultation/drug fee. Of that amount, 90% of revenues came from drug sales. Eighty-one percent of the replacement cost of drugs was raised through drug sales. The shortfall was due to drugs provided free to Ministry of Health staff and their dependents and to the unanticipated rise in the replacement costs (Waddington et al., 1989).

3. Financial Management

Exemptions: At the community level ("A") no fee exemptions are permitted for indigents, since the extended family is expected to help out when necessary. Patients receiving care for leprosy, tuberculosis and natal services are exempt from payment. At the health center ("B") and regional ("C") levels, Ministry of Health staff and their immediate dependents are exempt from payment, as are those who cannot afford to pay and those being treated for leprosy and tuberculosis (Waddington et al., 1989).

Pricing: Drug prices are based on cost. However, costs do not include distribution within the country. At the community level, drugs are sold at a price that includes overhead expenses and is designed to realize a 100% profit. At the health center level, each health center sets its own prices based on a set fee for each diagnosis which includes consultation

charge and the cost of drugs. If the drug costs rise, the prices are readjusted. (While drug prices are adjusted for inflation, health center patient cards have not risen since 1985 (Mandl, 1988).)

Charges at health centers are sometimes more expensive than the same drugs if bought from a peddler or at the drugstore (e.g., 250 cedi in the government center versus 140 cedi in a drugstore). Since health centers are permitted to establish their own system of pricing, various methods have been devised. For example, some health centers operate a modest system of cross subsidization, thus charging less for very expensive treatments that are considered too high. Most health centers are reluctant to issue credit to patients and tend to be relatively strict about receiving cash in hand before drugs are dispensed (Waddington et al., 1989).

Integrity of Revenues: Since the large fee increase in 1985, health centers are officially permitted to retain 12.5% of their total revenue. In practice (at least in Ashanti-Akim), 25% is retained. Each health center uses its revenues for supplies such as washing bowls, coolers, buckets, benches, and paint. To improve financial accountability, the District Medical Officer and the District Secretary must approve health center proposals for using their 25% of revenue. This system apparently works well. Though paperwork under this system sometimes causes delays in purchasing (of about a month), previous requisitions for such items had been slow and often unsuccessful (Waddington et al., 1989).

MIS and Monitoring: Health centers obtain drugs at regional headquarters where requests for drugs are compared with the revenue generated by the facility. If requests are for considerably more than the income of the health center, the request will not be granted (Waddington et al., 1989).

A six-page directive entitled "Modalities for Collecting New Hospital Fees" was issued by the Ministry of Health in 1985. It gives specific instructions about record-keeping and how fees are to be collected in drug dispensaries.

The three levels of health services also act as a hierarchical form of monitoring and supervising health workers. Specific conditions for the functioning of the village health committees have been established by the district health management team which outline sanctions for noncompliance, such as not keeping accurate accounts and not meeting at regular intervals. Level "B" health centers (staffed by professional health workers) train and supervise Level "A" (community) workers. The District Health Management team (Level "C") oversees all health workers in the district. It consists of the district medical officer of health, the district public health nurse, the district communicable disease control officer, the district hospital medical officer, and the district health inspector. The district health management team reports to the regional medical officer of health in each of the ten regions of Ghana, who in turn reports to the Ministry of Health in Accra (Mandl, 1988).

Cash Management: Though cash management seems to operate well in most facilities, the collection of fees in one Ashanti-Akim health center was abused. The medical officer collected the money in his consulting room and at the end of the day, the revenue collector looked at the out-patient

cards and assessed how much the doctor should have collected. It appears the doctor probably collected much more and kept the difference (Waddington et al., 1989). This type of abuse is possible since the same person who completed the patient cards collected the fees.

Foreign Exchange: Structural reform in Ghana has led to a shortage of foreign currency necessary to purchase drug imports. Although there is a local drug manufacturing capacity, it is small and dispersed (Vogel, 1988).

D. MANAGEMENT

1. Planning

Accurate planning for the replacement cost of drugs seems to be lacking. As a result of this and the exemption policy, drug sales do not cover their full replacement value (Waddington et al., 1989).

2. Logistics

A list of 10 basic drugs and other supplies is provided to the community health committees by the district health management team. The drugs are replenished at set intervals for an agreed upon price, when all the conditions for performance by the CHWs and CHCs are met. Health centers collect drugs from the regional headquarters based on their request and past cost-recovery performance. Sometimes drugs are in short supply. The district health management team obtains drugs through the Christian Health Association of Ghana, which in turn gets supplies from suppliers in the Netherlands and from drug manufacturers in the country (Mandl, 1988).

3. Training and Supervision

Members of the CHC receive periodic training from the District Health Management team as well as ongoing supervision from the health center staff. The CHC supervises the CHWs. Supervisory visits are seen as very important. The District Health Management team ensures CHC participation by charging the committee for their visit if they are unavailable. If the CHC does not permit the team to perform supervision, the ultimate sanction is the suspension of the committee (Mandl, 1988).

4. Sustainability

Health facilities are troubled by inadequate drug supply which has resulted in a reduced credibility of health services, low morale and high attrition rate of health workers. In fact, Ghana has experienced serious manpower disruptions in the health sector, including the migration of skilled health workers because wage levels did not reflect cost-of-living increases (Vogel, 1988).

Drug supply must be improved in order to keep drug funds operating. People will not pay for consultations and drugs if the latter are unavailable, and indeed, they will not attend the health facility for consultation alone. Ghana could get "more for its money" by purchasing drugs through competitive bidding and relying more on the private sector. Drugs

are in great demand and have provided most of the revenues so far; but they could provide even more if efficient procurement and distribution policies were followed by the government.

The Ministry of Health, in an effort to improve the drug availability problems, has recently adopted an essential drugs program and is planning on starting a national program of training in the rational use of drugs. Since health facility cost recovery depends on the public's ability to pay for services and supplies, the country's general economic condition is an important indicator of sustainability. According to a World Bank Report entitled "Africa's Adjustment and Growth in the 1980s," released on March 8, 1989 (reported in the *New York Times* of March 9), "agricultural production, exports, and gross national product of the 45 countries south of the Sahara have risen since 1985, and food output is expanding faster than the population for the first time since 1970." The report cites Ghana as one of the best performers in recent years, due to its adoption of market-oriented programs. The favorable turn of economic climate is particularly encouraging for health care since the nation's increase in GNP is coming from an emphasis on agricultural production. Benefits from this rural activity are more widespread than achieving a higher GNP through a government-owned activity, such as mining.

E. IMPLICATIONS

Health facilities must be permitted to have greater control over the use of revenues generated by them. Retention of 12% of collected funds is insufficient to provide staff with the incentive to collect and manage well since they are so underpaid. Moreover, people may be willing to accept the idea of paying greater fees for health care but only on the expectation that the quality of care is better. If the collecting facility cannot benefit more directly than is currently the case, people will cease coming to the health center because the quality of care is not improving, while cost is increasing.

Experiences in implementing price changes in Ashanti-Akim indicate that gradual but consistent price increases are more acceptable to patients than one large price hike.

Since most developing countries struggle with higher rates of inflation than that faced in industrialized nations, the health sectors must be prepared to continually adjust to increasing prices. While all sectors are affected by inflation, the health sector is hit particularly hard since recurrent costs represent a much larger portion of investment expenditure than other development sectors. These price changes should be made on an ongoing basis.

**A DRUG SALES PROGRAM IN HAITI:
THE AGAPCO EXPERIENCE***

A. BACKGROUND AND ORGANIZATION

1. General Background

In 1978, Haiti had an estimated population of 4.5 million people, of which over 75 % lived in rural areas. It was, and still is, the poorest country in the Western Hemisphere. Diarrheal disease, acute respiratory infections, malaria, and other acute infections accounted for the majority of illness and death. Malnutrition, poor sanitation, and poor water supply all contributed to generally poor health status and to an infant mortality rate of 149 per 1000 live births.

Government health facilities in Haiti included 132 dispensaries, 30 health centers, and 16 hospitals. In addition, there was almost an equal number of private health facilities and a small number of "mixed" facilities operated with a combination of public and private resources. Available information suggested that government health facilities received about 1.2 million attendances per year (0.25 attendances per capita), 50 % of which were to dispensaries.

In 1980, the Ministry of Health and the U.S. Agency for International Development launched a major Rural Health Delivery Systems Project to establish a community-based health care system primarily intended to serve rural Haitians. An important element in the project was funding for the supply of drugs for primary health services. Prior to the Project, the Ministry's drug budget was grossly inadequate (less than US \$0.10 per person), storage conditions were poor, and distribution to health facilities unreliable. "It's about one week's supply and the drugs they send are not the ones we need," commented one rural health officer about the drug supply situation. Lack of drugs was one of the major reasons cited for poor attendance at health facilities.

AGAPCO was established as a semi-autonomous agency accountable to an inter-ministerial Administrative Council composed of representatives from Public Health and Population, Commerce and Industry, Finance and Economic Affairs, and Social Affairs. Day-to-day operations would be managed by a Director General, nominated by the Minister of Health and appointed by the President.

*Based on personal observations (J. Quick) and AGAPCO Cases I-IV:

Cross, P.N. and J.A. Bates. AGAPCO I: "The Decision to Sell Drugs," and AGAPCO II: "Designing a Drug Sales Program." Boston: Management Sciences for Health (1984).

Austin, J. and M. Huff-Rousselle. AGAPCO III: "AGAPCO Financial Plan," and AGAPCO IV: "Implementation Experience." Boston: Management Sciences for Health (1986).

The decree which established AGAPCO specified that AGAPCO would have the following responsibilities:

- (1) Promote the creation of community pharmacies;
- (2) Regularly supply community pharmacies and Ministry health facilities with essential drugs;
- (3) Procure, store, package and distribute essential drugs -- always denoting them by generic name;
- (4) Provide periodic supervision to community pharmacies;
- (5) Undertake initial and in-service training of community pharmacy staff;
- (6) Provide pharmacies with administrative support needed to maintain adequate supplies, financial and stock records, and other activities.

The decree specified that AGAPCO would provide drugs to non-profit community pharmacies and pharmacies operating within Ministry of Health facilities; under no circumstances was AGAPCO to sell drugs to commercial pharmacies.

The AGAPCO central administrative unit was responsible for financial policies and procedures, product selection, price setting, marketing and promotion, drug procurement, central warehousing, repackaging, and distribution to regional depots. In addition, four regional depots were established to serve the Northern, Southern, West, and Transversal Health Regions. After providing an initial stock of drugs, drugs were sold to community pharmacies on a cash-and-carry basis. Once drugs had been purchased by community pharmacies, AGAPCO had no direct control over either the drugs or the funds collected.

2. Political Environment

At least one year before the project began, there was concern on the part of some Ministry of Health officials that the Ministry's operating budget would never support an adequate supply of essential drugs. In May, 1979, a WHO temporary advisor from Togo, which then had a well-developed drug sales program, worked with the Ministry's Division of Public Assistance Chief to develop a proposal for a network of "community pharmacies" through which drugs would be sold.

With his proposal completed, the Public Assistance Chief organized a national committee to promote the concept and lobbied for support in each health district. The initial proposal met with mixed reactions from donors. While all agreed that additional revenue was needed for the Ministry to adequately supply drugs, there was concern that the proposal provided no details concerning the financial and managerial requirements of the drug sales program.

Finally, in June 1981, two years after the concept was first introduced and nearly one year after the Rural Health Project began operation, a substantially revised proposal was presented by the Public Assistance Chief and resident technical advisors. The proposal for a Supply Agency for Community Pharmacies (by the French acronym "AGAPCO") contains the following key components: organizational structure for AGAPCO; financial plan; staffing plan; capital cost estimates for procurement and distribution of drugs; and scheme for course-of-therapy packaging.

Since the Public Assistance Chief had already spent considerable time and effort developing support for the AGAPCO concept, the plan was quickly endorsed by the Minister of Health and by U.S.A.I.D., the principle proposed donor for AGAPCO. One more potential barrier remained: Haitian law required that agencies which bought and sold goods on behalf of the government be legally established as parastatal enterprises. Not surprisingly, as the Public Assistance Chief initiated the legal process to establish AGAPCO, staff from the Government's State Procurement Service, which had previously been responsible for drug procurement, began to raise objections to establishing a separate drug procurement and distribution entity.

The proposal was finally put before the President's Cabinet. After several rounds of drafting and redrafting, the decree was approved by the Cabinet, accepted by the Chamber of Deputies, and signed into law by the President for Life in September, 1982.

3. Community Involvement

The AGAPCO decree specified that community pharmacies would be created by the Ministry of Public Health at the request of either community groups which would actively participate in establishing the pharmacies or community committees representing philanthropic organizations. Community responsibilities included: preparation of space for the community pharmacy; hiring a pharmacy clerk to sell drugs on a prescription basis; assuring proper accounting of community pharmacy revenues; and making decisions about the use of drug sales revenues.

Because of the importance attached to the careful selection of community groups and proper orientation of new pharmacy clerks, several steps and guidelines were established for organizing new pharmacies:

- (1) Each AGAPCO pharmacy was linked to a clinical facility.
- (2) Once a site was proposed, an AGAPCO staff member functioned as a community organizer, making three visits to each community -- the first to explain the AGAPCO program to the community council; the second to check on community progress in equipping a secure, well-ventilated room and recruiting a pharmacy clerk; and the third to actually stock, organize, and open the pharmacy.
- (3) Each community signed a contract with AGAPCO which specified the obligations of AGAPCO, the obligations of the community, guidelines for operating the pharmacy, and that initial drug stocks are supplied to the community not as an outright gift, but on consignment.
- (4) Pharmacy clerks hired by the community were required to attend a standard training session prior to receiving their initial drug stocks.

Community committees were responsible for overseeing community pharmacy operations and for determining how sales revenues would be used. The AGAPCO contract specified that revenues would be used primarily for resupply from AGAPCO. But pharmacies were to sell drugs at a standard mark-up which averaged 10 % over the cost from AGAPCO. Community committees were given discretion to

determine how these funds would be used. In general it was expected that they would be used to pay the pharmacy clerk's salary, cover give-aways to indigents, and cover losses. In practice, communities also used revenue to pay for public transport for someone to collect drugs at the nearest AGAPCO regional depot, for cold chain refrigerator fuel, and sometimes other staff salaries.

B. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

Total capital requirements for essential drugs during AGAPCO's first three years of operation were estimated to be US\$2.5 million. This was financed primarily through the Ministry of Health, grants and loans from U.S.A.I.D., and in-kind contributions of essential drugs from UNICEF. The Ministry of Health contribution was to come from the proceeds from the sale of food aid commodities provided by another U.S.A.I.D. program.

Operating costs from the first four years were projected to be nearly US\$400,000 for AGAPCO personnel, transport, repackaging supplies, communications, and sundry expenses. Capital expenditures for storage facilities and vehicles were modest.

It was agreed that donors would support both capital and operating costs for AGAPCO's first few years, while AGAPCO used revenues from drug sales to build up sufficient cash reserves to support procurement of drugs on an on-going basis after the project ended.

2. Cost Recovery Objectives and Pricing

AGAPCO used a cost-plus approach to pricing in which the mark-up was intended to cover the following costs:

- * Replacement cost of drugs (including inflation),
- * Wholesale mark-up to cover AGAPCO operating expenses,
- * Retail mark-up to be retained by community pharmacies for their expenses.

As noted above, the retail mark-up was set at an average of 10 %, with the mark-up for individual drugs varying considerably depending on the purchase price and health importance of the drug. Overall, retail prices -- including both AGAPCO and community pharmacy mark-ups -- averaged 28 % above cost (C.I.F.) prices.

While commercial pharmacies in Haiti sold drugs in single unit doses, AGAPCO pharmacies would only sell drugs in prepacked course-of-therapy quantities. Price lists were printed and distributed at least every year.

3. Financial Projections

Table 1.a. contains the financial projections prepared in 1982 at the time that the final AGAPCO proposal was presented for approval by the Ministry of Health. The figures project a gradual growth in operating expenses with a rapid growth in drug sales revenues. Quite predictably for a new enterprise, losses are projected for the first three years. But AGAPCO was projected to be generating a small surplus by the fourth year of operation.

TABLE 1.a
AGAPCO FINANCIAL PROJECTIONS (1982) (US \$)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Sales	458,700	1,264,400	2,123,100	2,419,800
Cost Drugs Sold	437,600	1,206,100	2,025,300	2,308,400
Operating Costs	79,100	99,800	105,200	107,200
Surplus or (Deficit)	(58,000)	(41,500)	(7,400)	4,200
Number of Comm. Pharm.	45	88	130	NA

TABLE 1.b.
AGAPCO FINANCIAL PERFORMANCE (1986)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Sales	NA	316,300	269,800	386,900
Cost of Drugs Sold		182,500	260,100	324,500
Expiration Losses		---	360,500	273,900
Operating Costs	NA	172,700	292,000	294,800
Surplus or (Deficit)	NA	(38,200)	(642,500)	(506,300)
Number of Comm. Pharm.	43	120	188	NA

The table also indicates the expected growth in the number of operating community pharmacies. By comparing the growth in project sales with the growth in the number of community pharmacies, it is apparent that roughly one-half of the project growth would come from increasing the number of outlets and one-half from increasing the average turnover at each outlet.

Table 2 contains the AGAPCO Expense Budget for 1985-1986. It is based on actual audited AGAPCO accounts for the years 1984 and 1985 and estimated growth in operating costs. Over one-third of operating costs were attributable to administrative salaries. At this time, the AGAPCO staff included the following positions:

- * Director General
- * Technical Director (pharmacist)
- * Accountant
- * Secretarial and clerical staff (3)
- * Community development/promotion expert
- * Course-of-therapy repackaging staff (7)
- * Central store staff (3)
- * Regional depot staff (6)
- * Other staff (3)

In comparison to the original plan (Table 1.a.), operating expenses had grown much more rapidly than expected. Salaries were generally in line with projections, but non-salary expenses such as promotional materials, staff training and refresher training, repackaging supplies, and rent were considerably more than had been anticipated.

4. Financial Management

An important element in the decree which established AGAPCO was the provision that it be "an organization having legal entity and administrative and financial autonomy..." This provision allowed AGAPCO to establish separate bank accounts, to deposit sales revenues directly into its accounts, and to procure drugs with these funds -- without regard to the Ministry of Health budget cycle or the Government of Haiti fiscal years. In principle, this provided the financial independence necessary to procure and distribute drugs according to demand.

Considerable effort was made by the project's technical advisors to establish appropriate accounting systems at each level of the system. Record-keeping at the community pharmacy consisted of a drug sales form, a drug ledger, a cash ledger, a form for recording of expenses, and a record of drugs received on consignment. Community pharmacy clerks were to prepare a monthly report of sales and purchases.

The Community Pharmacy Operations manual provided basic instructions for recording information of drug sales and cash receipts and for balancing accounts.

Accounting systems for cash received and for drug stocks were also established at AGAPCO regional depots. At the central level, AGAPCO maintained a full-time accountant responsible for all AGAPCO accounts. Annual audits were performed by an independent, internationally known accounting firm each year for most of

TABLE 2

**AGAPCO EXPENSE BUDGET
OCTOBER 1985 - SEPTEMBER 1986**

Salaries	\$ 91,050	
Per Diems		
Supervision	\$10,080	
Promotion	7,720	
Extension Research	1,260	
Administration	3,675	
Training (a)	<u>19,360</u>	42,095
Supplies and Materials	26,745	
Rent	9,000	
Printing and Duplicating		
Administration	13,925	
Promotion	<u>23,000</u>	38,925
Contracted Services		
Promotion (b)	17,400	
Administration	<u>9,320</u>	36,720
Transport	8,691	
	<hr/>	
	\$253,226	

(a) Training 372 clerks

(b) 1 daily television spot commercial during six months

the initial years of AGAPCO operation. To facilitate tracking of project funds and AGAPCO funds, separate bank accounts were kept for receipts from AGAPCO sales and for capital and operating funds providing by donors.

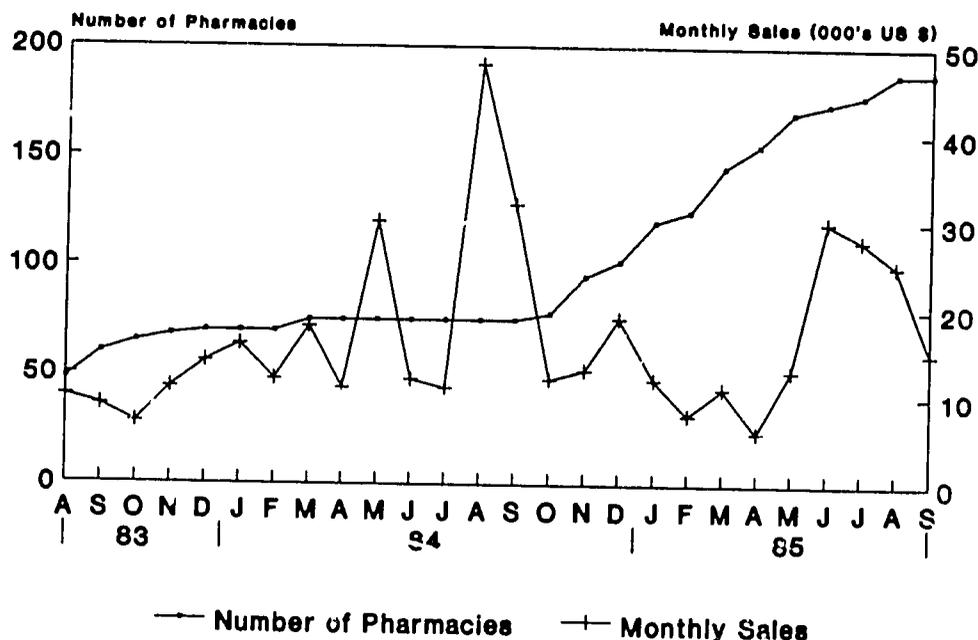
By the end of 1985, its second full year of operation, AGAPCO had to its credit a number of accomplishments. A relatively stable central management staff had evolved, drug stocks had been moved to a new and better organized central warehouse, drugs were delivered to well-organized regional depots, over 180 community pharmacies, of which half were operational, had been established and their pharmacy clerks trained, the course-of-therapy packaging system had been put into operation and upgraded based on experience, prices lists were regularly distributed and periodically updated, and most government health care providers were aware of AGAPCO's existence.

Despite these accomplishments, AGAPCO was not coming close to achieving its objective of financial self-sufficiency. Financial performance for fiscal years 1984 and 1985 (Table 1.b.) showed large and increasing deficits, not the steady progress toward self-sufficiency which had been projected. The situation at the close of 1985 was characterized by the following observations: sales had actually declined during the third year (1985); operating expenses had increased dramatically; major stock losses had occurred as a result of expiration of drugs; and self-sufficiency was nowhere in sight.

While AGAPCO management and advisors saw regular deposits being made into AGAPCO accounts and the number of pharmacies steadily increasing during 1984 and 1985, there was limited attention paid to the overall financial health of AGAPCO. Figure 1 shows the growth in the number of AGAPCO pharmacies in comparison to a highly variable, but overall flat pattern of monthly sales.

FIGURE 1

NUMBER OF PHARMACIES & MONTHLY SALES
AGAPCO, HAITI, 1983-1985



• Drugs only; special sales not include

When the situation which existed at the end of 1985 became clear to all involved, systematic effort was directed to identifying and correcting the underlying problems. A series of analyses were undertaken, including a financial analysis, a market analysis, an analysis of procurement options, and an analysis of ways to improve the use of information for management decisions. These efforts revealed a number of short-comings in AGAPCO operations.

C. MANAGEMENT

1. Planning and Performance

In reviewing the first three years of AGAPCO experience, 1983-1985, AGAPCO management, technical advisors, and donors identified two major categories of problems and constraints: operational level constraints and organizational level constraints. Table 3 lists these two categories and the individual problems at each level.

Operational Level Constraints

Projections too high. In comparison to projections, AGAPCO performance would appear rather poor (Table 1.a. versus Table 1.b.). The experience of the first three years had, however, provided additional information which suggested that projections were unreasonably high at the outset.

First, it became apparent that increases in the drug supply may be necessary for increased health service utilization, but they are not in themselves sufficient. Problems with keeping dispensaries and health centers adequately staffed and open during working hours remained. Stories of doctors assigned to rural dispensaries spending most of the week practicing in one of the cities were common. In some locations patients raised questions about the quality of care provided. Aside from deficiencies or perceived deficiencies in the health system, some observers pointed to a general ambivalence and distrust of all Haitian government services.

A second factor in the high sales projections was an under-estimation of the amount of "competition from within" which AGAPCO would face. At the time AGAPCO was planned, it was known that at least eight districts had officially operating drug revolving funds which had already been independently started in their health facilities. What was not known was the extent to which dispensary and health center staff in other facilities had informally established their own drug sales programs. In some facilities these were started primarily out of an interest in patient welfare and the AGAPCO program was welcomed. In other clinics, staff had a personal interest in the clinic's revolving drug fund. In these clinics, AGAPCO drugs could often be seen being sold side-by-side with the clinic's own drug stocks -- chosen by clinic staff based on their prescribing preferences.

Lack of information on pre-existing informal drug sales mechanisms also meant that the pre-AGAPCO supply of drugs was under-estimated and, therefore, potential increases in utilization based on increased drug supply were over-estimated.

TABLE 3

AGAPCO PERFORMANCE, 1983-1985 -- WHAT HAPPENED?

A. OPERATIONAL LEVEL CONSTRAINTS

1. Projections too high
2. Sales too low
3. Rising operating costs
4. High procurement costs
5. Inventory losses

B. ORGANIZATIONAL LEVEL CONSTRAINTS

1. Management Turnover
 2. Technical Support
 3. Organizational Dynamics
-

Finally, reliable, complete health service statistics were not readily available. This made it difficult to accurately assess changes in utilization patterns before the advent of AGAPCO and, therefore, difficult to accurately project utilization changes which might be stimulated by an increase in the availability of drugs.

Sales too low. While project sales may have been over-estimated, actual sales were substantially less than they might have been. Several factors were identified as potential contributors to lower than expected sales, including:

- * product selection,
- * inadequate Ministry of Health and health provider support,
- * inadequate community support,
- * non-competitive pricing,
- * course-of-therapy packaging,
- * stock-outs,
- * restriction of sales to prescription only,
- * over-expansion in the number of pharmacies.

AGAPCO's drug list was one frequently mentioned factor in low sales. AGAPCO's initial list of 66 essential drugs was based on assessed health needs, rather than on a study of actual prescriber preferences or utilization patterns. Products chosen for certain conditions as rational and cost-effective therapy were not in common use. In the absence of clear and convincing justification to prescribe the AGAPCO product, doctors and nurses prescribed non-AGAPCO drugs for these conditions. In addition, there were a number of very commonly prescribed drugs which AGAPCO simply had not included on its list. This was particularly true for larger health facilities -- health centers and hospital out-patient departments.

Aside from product selection, AGAPCO was afforded varying degrees of support from central and regional Ministry of Health officials and from the prescribers themselves. In part this was a predictable response to a new concept, but in part it reflected insufficient effort on the part of AGAPCO staff and advisors to explain and promote the AGAPCO concept.

Community support also proved more variable than had been hoped. In some communities, the responsible officials actually diverted revenues from community pharmacy sales, thus making resupply inadequate or impossible. In other communities, leaders simply failed to encourage community members to patronize AGAPCO pharmacies.

AGAPCO had initially adopted a "cost-plus" approach to pricing which made the retail price an average of 28 % above the purchase price (C.I.F.). It appeared that this approach would result in prices consistently lower than those of the private pharmacies in towns and some rural communities. In practice, AGAPCO prices were sometimes equal to or higher than those found at local drug shops. This occurred when AGAPCO used cost prices for donor-supplied drugs which were higher than local wholesale prices, when procurement lapses necessitated procurement on the local market at local wholesale prices, and when local drug outlets made a specific effort to under-cut AGAPCO prices.

Related to pricing was the policy of dispensing drugs only in course-of-therapy packaging. While patients could buy small quantities of virtually any drug at local pharmacies -- thus allowing patients to adjust quantities to the cash in hand -- at AGAPCO pharmacies they were forced to pay for a full course of therapy. While this is sensible for products such as antibiotics, the concept was not well appreciated by patients (nor by some prescribers), and purchase of smaller quantities of symptomatic treatments such as analgesics was not encouraged.

Despite management's efforts, AGAPCO regional depots began to experience stock-outs in popular items. This resulted in part from lapses in information management and in part from difficulties in the transition from donor-assisted procurement to direct procurement. The effect of these stock-outs was a loss of sales.

Finally, in an effort to demonstrate "growth" AGAPCO rapidly expanded the number of pharmacies during 1985. This meant that considerable effort went into opening new pharmacies, rather than supervising and maintaining existing pharmacies. The result was that average sales per pharmacy decreased substantially over this period. In addition, the opening of a large number of new pharmacies meant that the three-visit process for screening new communities and the training programs for new pharmacy clerks were abbreviated.

Rising operating costs. While drug sales were substantially less than projected, operating costs rose more rapidly than expected. Staff salaries were generally in line with projections, but, as noted earlier, non-salary expenses such as promotional materials, staff training and refresher training, repackaging supplies, and rent were considerably more than had been anticipated.

Programmatically, the additional operating expenses fell into two main categories: expansion of the pharmacy network and promotional activities. Problems with over-expansion have already been described. With respect to promotional activities, planning was done largely in the absence of sound marketing

experience. Funds were invested in media promotion without a clear sense of costs versus expected benefits of individual promotion investments.

High Procurement Costs. In the transition from donor supply of stock to procurement by AGAPCO, insufficient attention was given to developing procurement procedures. As a result, emergency local procurements were obtained at local wholesale prices which were often higher than retail prices. Also, no mechanism was established to insulate procurement staff from pressures which would have been obviated had a disinterested body been established to exercise oversight.

Inventory losses. Finally, Table 1.b. shows considerable expenses in 1984 related to "expiration loss." That is, losses from inventory because drugs had expired and were unable to be distributed to patients. These losses resulted in part from the overall over-projection of program growth, in part from long procurement pipelines, and in part from the procurement process proceeding rapidly in the absence of a fully functional management information system. During the first years of the project, a system was not yet in place which could simultaneously track drugs on order and predict actual consumption patterns to provide accurate forecasts of actual requirements.

Organizational Level Constraints

While operational level problems were easier to grasp, it was the organizational level constraints which were perhaps more fundamental in explaining the gap between AGAPCO's expectations and its performance. Starting a national essential drug revolving fund is in many ways as complex as starting a national distributing business. Consistent management, learning from experience, and attention to personal and organizational incentives must be present. For AGAPCO, management turnover, technical support, and organizational dynamics were all factors affecting performance.

Management Turnover. During the first several years of operation, AGAPCO experienced regular turnover in the central management staff, including the Director General, the Technical Director, and their support staff. Once a more permanent Director General was placed in charge, there was a learning period of over one year during which the Director General became sufficiently familiar with AGAPCO, its objectives, its constraints, and its general financial position to grasp the kinds of actions which were needed to achieve financial viability.

Pharmacy Personnel. Some AGAPCO depots were run by people lacking any knowledge of record keeping, so drugs were not restocked. In addition, salaries for pharmacy clerks often depended on drug sale profits. This created incentives for dishonesty. This was not the case in pharmacies staffed by MOH paid auxiliaries. A formal system for evaluating pharmacy employees and managers did not exist, and thus personnel varied greatly in terms of competence.

Technical Support. In the first years of operation, the technical advisors worked systematically with AGAPCO staff to establish basic mechanisms for recruitment of community pharmacies, training of pharmacy clerks, managing drug storage facilities, and accounting for drugs and cash. During the second and third year, increased assistance was provided for the development of a formulary manual, revision of the drug list, and other drug management and essential drug activities. But assistance in the area of financial management and control and the area of marketing and promotion came only after significant problems in self-sufficiency and potential sustainability had been identified.

Organizational Dynamics. A critical factor in explaining the performance of any individual or organization is the incentives and motivations to which that individual or organization responds. In the development of any new health institution, the incentives often reflect the dynamics of the organizations involved in the effort.

Figure 2 contrasts the organizational dynamics for drug sales through (a) retail pharmacy, (b) a "Free-Service" donor-assisted program, and (c) a donor-assisted cost-recovery program. In the case of the retail pharmacy, the incentives are clear: distributors profit by keeping providing pharmacies the drugs they request, pharmacies profit by selling patients the drugs which they seek, and patients are satisfied when they receive a valued drug for their money.

In the case of a "free" donor-assisted essential drug program (Figure 2.c.), the organizational dynamics and incentives are also fairly clear: donors provide drugs (or funding for drugs) to the Ministry of Health, the Ministry distributes these to patients, and patients receive drugs without charge. Thus, the donor receives the satisfaction of giving, the Ministry is better able to serve its population, and patients receive a valued benefit.

For a donor-assisted cost-recovery program, the organizational dynamics and incentives are less clear-cut. In the case of AGAPCO, funds flowed to it primarily from donors, either directly or through the Ministry of Health. Revenues from drug sales to patients were initially quite small. In practice, it was easier for AGAPCO management to obtain on-going donor funding than it was for management to increase sales to patients. In addition, neither prescriber groups nor community councils and committees nor patient groups were organized or perhaps motivated to communicate firmly with AGAPCO. Thus, AGAPCO's clients were not in a position to pressure AGAPCO on issues such as product selection, stockouts, course-of-therapy packaging, non-competitive pricing, and lack of information about AGAPCO drugs.

The net result of these dynamics was that AGAPCO management was much more responsive to donor concerns than to patient and provider concerns. In the absence of verifiable performance indicators which tied donor-funding to progress toward self-sufficiency, AGAPCO management had been able to steadily increase donor support for operating costs without increasing drug sales.

2. Logistics and Operational Management

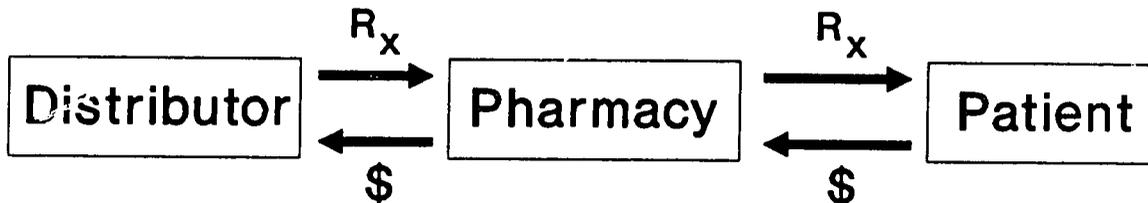
As noted above, AGAPCO was organized as a central management unit located in Port-au-Prince, the capital city, with four regional depots to serve each of the geographically defined Health Regions. Day-to-day management of AGAPCO was the responsibility of the Director General who, unfortunately, was replaced frequently during the first several years of the project as Ministers of Health were rotated.

Even before AGAPCO was officially created, the Ministry of Health, working with Rural Health Project advisors, had established an essential drug list consisting of 66 items identified by generic name. Selection was based primarily on an analysis of available morbidity data which identified the major health conditions treated at dispensaries and health centers.

FIGURE 2

ORGANIZATIONAL DYNAMICS AND COST RECOVERY

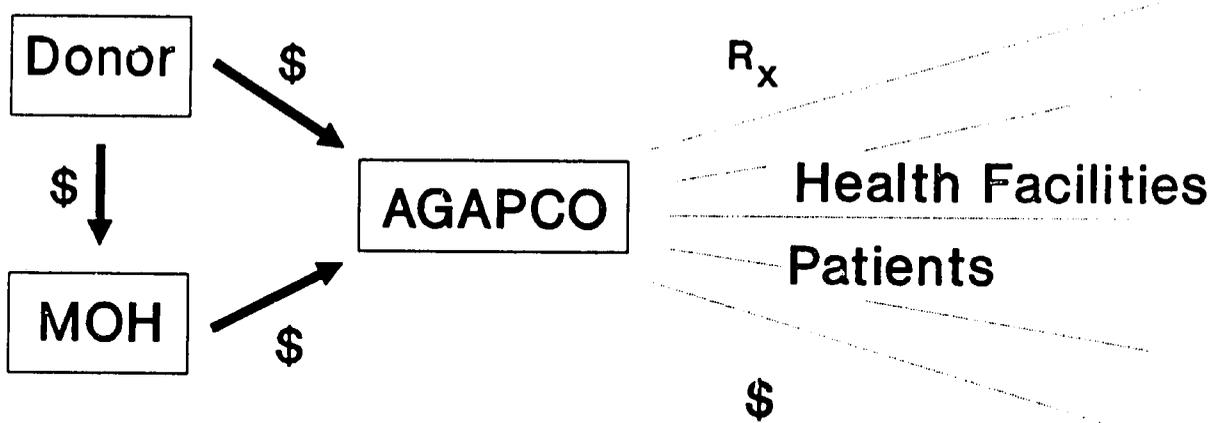
A. DRUG SALES THROUGH RETAIL PHARMACY



B. 'FREE' DONOR-ASSISTED PROGRAM



C. DONOR-ASSISTED COST-RECOVERY PROGRAM



\$ - Funds Rx - Drugs

For the first three years of the project procurement was managed primarily by the donors, with supplies coming from a combination of Haitian, UNICEF, and U.S.A.I.D. sources. A significant logistic problem for AGAPCO staff was inadequate information about drugs on order, expected arrival dates, and anticipated unit costs (necessary for making price lists). During the third and fourth years of the project, there was a gradual transition to procurement by AGAPCO staff. Because earlier procurement had been handled largely through donor-specific purchasing procedures, AGAPCO staff had acquired little experience in buying drugs on the international market. Pressures to favor local suppliers in the face of often local higher prices became a political as well as an operational problem for AGAPCO management.

From the central warehouse, drugs were distributed on a regular basis to the regional depots. From these depots, drugs were collected by individual community pharmacy staff -- generally on a cash-and-carry basis.

A system of standard course-of-therapy packaging was adopted from the beginning. This approach was intended to simplify dispensing and accounting for community pharmacy clerks. It also made it substantially easier to balance records of drugs dispensed and funds collected. Drugs were provided in clearly labeled, pre-sealed plastic sachets. A repackaging operation was set up at the central office and supervised by the Technical Director, a pharmacist.

With respect to drug use, initially little information was provided to prescribers about AGAPCO products. The price list was widely circulated to inform prescribers and pharmacy clerks about both drug availability and prices. But a formulary manual describing AGAPCO products, indications for use, and other pharmacological information was not prepared and distributed until the fourth year of the project.

3. Training and Supervision

A critical element of the start-up process for AGAPCO was the recruitment and training of community pharmacy clerks. AGAPCO community development staff would assist community councils or committees in identifying and selecting candidates. Each candidate had to meet basic selection criteria such as having completed elementary school and being of good character.

Once selected, pharmacy clerks were required to attend a one-week course with candidates from other communities. At the course, clerks were provided with a Community Pharmacy Operations manual which included basic instructions for dispensing, record keeping, and other aspects of community pharmacy management. The course including the following topics:

- * arranging drug stocks in the community pharmacy;
- * rules regarding prescription-only sale of AGAPCO drugs;
- * drug dispensing procedures;
- * procedures for recording each transaction;
- * maintaining the drug ledger and cash receipts ledger;
- * record-keeping for other expenses;
- * keeping drug stock records and records of drugs received on consignment;
- * balancing accounts;
- * preparing a monthly report of sales and purchases.

Pharmacy clerks were given a Community Pharmacy Starter Kit which contained forms, books, office supplies, and simple equipment needed to set up the pharmacy (measures for liquid preparations and so forth).

At the beginning of the project, limited provision was made for refresher training or training of new pharmacy clerks recruited by the community to replace clerks who had left. Once the gap was identified, additional courses were conducted. The "training" expense listed in Table 2 represents the cost of this activity -- one of the unplanned expenses when the original financial projections were prepared.

It was originally intended that staff from the regional depots would supervise pharmacy clerks. In practice, this proved difficult. In effect, day-to-day supervision of pharmacy clerks was provided by the clinical staff at the health facility in which the pharmacy was located or, for community pharmacies not located in a health facility, clinical staff from the nearest dispensary or health center. While this approach was adequate for some supervisory needs, the quality of supervision was variable. Most importantly, clinical staff were not able to reinforce AGAPCO accounting and pharmacy management procedures.

As a result of problems with providing supervision, AGAPCO created a central position for "sales promotion" and obtained the assistance of Peace Corps workers, who were able to visit the community pharmacies on a more regular basis. Despite these efforts, resupply information available from the second year of the project onward suggested marked differences among pharmacies in their performance.

4. Sustainability

After AGAPCO management, donors, and advisors had accepted the situation which existed at the end of 1985 and understood some of the reasons for it, efforts were made to develop a "resuscitation plan" aimed at putting AGAPCO back on the road to self-sufficiency. This plan consisted of actions in internal management, marketing, and donor dynamics.

Internal Management

A series of internal management activities were recommended, the most important of which were improvement of the management information system, improvements in procurement, and strong support for keeping the same Director General in place. Management information efforts were aimed at helping management to use accounting information for monitoring progress toward self-sufficiency. Efforts were also made to improve inventory control information for the purposes of making procurement more timely, eliminating stock-outs at the regional depots, and reducing losses from expiration. Procurement efforts were aimed at completing the transition from donor-assisted procurement by establishing sound procurement procedures and identifying reliable low-cost suppliers. Finally, efforts were made to retain the Director General and to support him and his staff in upgrading their skills in specific management areas.

Marketing Activities

A major commitment was made to re-orienting AGAPCO to its health provider, patient, and community clients. Specific efforts were made to address all elements of the marketing mix: product, promotion, price, and place.

Product. The first product-related change was to establish and post at all AGAPCO pharmacies a list of drugs which could be obtained without prescription. Although non-prescription dispensing occurred at some AGAPCO pharmacies, the pharmacy clerk training program had emphasized the importance of dispensing all drugs only on prescription. Encouraging and publicly advertising non-prescription sales was a new concept.

The second action in this area was to significantly revise the AGAPCO product list to make it more responsive to prescriber preferences. Not only was the range of products enlarged, but participation in the selection process was broadened to give health providers a greater sense of participation. Selections were still limited to essential drugs identified by their generic name, but the list was broadened to include more antibiotic choices for health centers and hospitals, new categories of drugs such as ophthalmic preparations for conditions in addition to conjunctivitis, and newer essential drugs.

Finally, efforts would be made to improve the appearance and quality of AGAPCO's course-of-therapy packages and to make available smaller packets of symptomatic treatments such as aspirin.

Promotion. Activities to promote AGAPCO essential drugs included the following:

- * publication of an AGAPCO manual containing information about the uses and pharmacology of all AGAPCO drugs;
- * increased effort to supply the many non-governmental organizations (NGOs) which provide health services in Haiti;
- * efforts to assure regular supervisory visits to AGAPCO pharmacies and to use these visits to promote proper use of AGAPCO drugs; and
- * regular printing and distribution of attractively presented AGAPCO price lists.

Most of these activities were carried out by AGAPCO staff. In addition, local marketing professionals were contracted to provide assistance in specific areas.

Price. The issue of pricing was tackled at two levels. At the retail level, a policy of competitive pricing was adopted in which AGAPCO management began more regular monitoring of commercial prices to assure that AGAPCO markups did not make products more expensive for patients than they would have been at private drug shops. At the wholesale level, efforts to strengthen procurement practices and obtain drugs at lower prices were aimed at maintaining low cost prices so that operating expenses could be covered by a mark-up which would still keep prices below commercial retail levels.

Place. During 1985 AGAPCO had pursued a policy of rapidly increasing the number of AGAPCO outlets. As noted earlier, this policy actually undermined AGAPCO's ability to adequately support existing pharmacies. As a result, the resuscitation plan called for a freeze on opening of new pharmacies and increased supervision of existing pharmacies. The only additional outlets would be those managed by institutional NGO clients.

Donor Dynamics

With respect to donor and institutional dynamics, four specific actions were recommended:

- * a "Consultative Council" consisting of bilateral donors and international agencies would be established to assist the Ministry of Health in overseeing AGAPCO;
- * indicators of progress toward self-sufficiency would be developed and routinely reported to the Consultative Council
- * efforts would be made to tie funding from U.S.A.I.D. to the achievement of specific outputs related to self-sufficiency; and
- * cost-recovery objectives would be reviewed to determine whether complete financial self-sufficiency was a realistic objective given the primary goal of providing essential drugs to an otherwise under-served rural population and environmental constraints in operating an organization such as AGAPCO.

With these recommendations in mind, AGAPCO management, donors, and technical advisors redirected their efforts.

D. RESULTS OF EFFORTS TO INCREASE SUSTAINABILITY

In the following year, AGAPCO made a firm start in implementing its resuscitation plan. The following activities were undertaken:

- * the Consultative Council began operation,
- * 350 community pharmacists were re-trained,
- * the essential drug list was expanded,
- * an MIS system, including monthly stock review, was put in place,
- * promotional activities were expanded,
- * the AGAPCO Handbook containing information on AGAPCO drugs was published.

In a turbulent change of government one regional store and its stock was lost.

By the close of fiscal year 1986, according to financial statements, gross sales were up 40 %, and operating costs had risen only minimally. Large losses of stocks due to expiration occurred early in the year, but by the end, stock losses had also decreased markedly.

THE LIBERIA SOUTHEAST REGION PHC PROJECT REVOLVING DRUG FUND***A. BACKGROUND AND ORGANIZATION****1. General Background**

The majority of Liberia's 2.2 million population (1987) in West Africa rely on subsistence farming for survival. Some are able to bring in a small amount of cash through sales of rice grown by the traditional slash and burn method, from wild meat, and a bit of coffee grown in some sections. A diminishing few hold jobs as rubber tappers, laborers for the logging concessions and in the iron ore mines; unlike other industries, the revenue from the maritime operations is a steady source of income for Liberia. However, the trickle down theory does not seem to extensively apply to this poor country.

Liberia's policy regarding fees at government facilities was that while a per visit fee was charged for the general public (but many groups of persons were exempted from all fees), drugs and medical supplies were provided free of charge. This cost recovery for health services began in 1975, but by 1983 the drug and medical supply system began to fail, leading to severe shortages in 1984. Causative factors included scant budget provision for drugs, low fees, multiple exemptions, widespread failure to collect, and return of collected funds to the central treasury.

Over recent years Government of Liberia revenues have been sharply declining, with the result that the expenditure for health has decreased proportionally. Priority by the government is given to the ability to meet salary payments, which are often several months in arrears. The effect on drugs and medical supplies is that essentially since 1984 there have been no further purchases of stock.

Also by 1984 the Ministry's National Medical Supply Depot operations came to a halt as a result of lack of funds from the central government and the large accounts receivable amount of \$2.8 million, 70% of which was owed by the tertiary referral center. In addition, \$673,000 was owed to suppliers, and there was a bank overdraft of \$700,000 outstanding. The Depot was declared defunct in 1986; most of the stock consisted of non-essential items, a large portion of which had already expired.

Visits to health facilities revealed a total lack of any useful stock. The inevitable consequence was a breakdown in the health service and a loss of confidence by the public.

A significant step taken by the Ministry of Health was the devising of the essential lists of drugs and medical supplies, which were adopted in 1985. There are 12 drugs listed for use by CHWs, and an increasing number according to the level of training up to 137 for a district-level hospital.

*Based on personal observations (R.B. Blakney) and Fierman (1987), SER PHC Report (1988), MOH MED/NDS Assessment (1989), and MOH Sinoe County Report (1988).

The MOH's National Medical Supply Depot was reorganized to become the quasi-autonomous National Drug Service with a trained manager being placed in charge. With the use of USAID funds, and some drugs from other donors, an attempt was made to restock the National Drug Service, but funds were insufficient to permit the entire range of essential drugs from being procured. Consequently, the essential list was prioritized, with priority being given to those vital drugs required at the primary and secondary levels; 50 drug items classed as vital were stocked at the National Drug Service.

An important early policy adopted by the National Drug Service was the valuation of stock donated, and subsequent pricing for sales, of replacement stock from low-cost world market sources. Otherwise the prices would have been prohibitively high.

Locally-established revolving drug fund schemes or other forms of cost recovery are now operating in 10 of Liberia's 13 counties. These programs have been developed with support from a variety of donors and have benefited from cross-fertilization. Although only two of these counties participate in the NDS-related revolving drug fund, there is considerable interest in expanding the scheme to support revolving funds in all 13 counties.

2. Basis of Organization and Control

In 1984 a USAID-supported project, the Liberia Southeast Region Primary Health Care (SER PHC) Project commenced operations for two underserved counties and for strengthening the drug and medical supply system. The two counties are Grand Gedeh County and Sinoe County (with 1986 population estimates of 109,007 and 65,448 respectively). Funds were designated by USAID to be used for RDF seed stock.

Among key objectives for the project were the bringing of life back to the County Health Services (CHS) through decentralization of responsibility and authority, strengthening and institutionalization of eight management support systems, cost recovery for most non-salary expenses, and development of the community program (including training of community health workers [CHWs] and community health council members). The eight management support systems are drugs and medical supplies, general supplies, finance, personnel, transportation, health information (MIS), communication and facilities maintenance.

Essentially, there are discrete Revolving Drug Funds at each level. At the central level is the National Drug Service (NDS), while at the county level there are Supply Depots' RDFs and county hospitals' RDFs, both operated by the CHS. For the two SER PHC counties, each Health Center (HC), Health Post (HP) and community with a Community Health Worker (CHW) have community-owned and operated RDFs. The number of RDF schemes organized by the SER PHC Project are shown in Figure 1 below.

FIGURE 1

Number of SER PHC RDF Schemes Organized by Level

Facility	National	County Health Service	Community
National Drug Service	1		
CHS Supply Depot		2	
County hospitals		2	
HCs & clinics			32

3. Community Involvement

With concern being very high on the part of county health service officials that the design of the RDF must assure that stock and funds are not lost from the system, a RDF design workshop was held in order to take advantage of RDF lessons learned by private voluntary organizations, particularly mission programs, which enjoy a marked degree of success. Many small government health posts have only a physician's assistant or nurse staffing the facility, with no clerical staff; furthermore, supervisory visits are infrequent, particularly during the 6-month rainy season when many roads are often impassable.

With the above factors in mind, decision was made that the administrative management of the RDFs in villages, for health posts and for health centers, should be the responsibility of the community. All RDF moneys collected would be retained by the community to achieve this, but technical supervision would still be exercised by the CHS. However, there was still doubt as to how a community's motivation to accept this responsibility could be maintained. The mechanism agreed was to have the community raise the seed money for stock at the CHW level (\$120 required), and at the HP and HC level (\$300 required); both the money collected, and the stock, would then belong to the community.

Mobilizing the communities to be responsible for the RDFs, as well as selecting and supporting CHWs in the rural settings, was a major undertaking for the SER PHC Project. Including the training of physicians assistants in how to mobilize communities, etc., there were at least 31 separate workshops and training events, with 1074 participants (many attended more than one event) in Grand Gedeh County alone.

Physicians' Assistants (PAs) in the counties were given an incentive bonus for mobilizing communities to participate in the scheme through setting up a community health council, selecting and sending a person for training as a CHW, and for raising of funds for the seed stock.

4. Political Environment

Due to the near total absence of drugs at government facilities, there were pressures for making changes in the systems which would enable charges to be made for inexpensive drugs. There was also a concern that if fees collected were remitted to the Treasury, no benefit would accrue to the health system. Consequently, the Minister of Health made a specific request to the President that such fees collected could be retained for use in each county; the request was approved.

5. Parallel Providers

The role played by private physicians and pharmacies is to provide services in the urban areas, mainly the capital city of Monrovia, with practically none located in the rural settings - both towns and villages. There are medicine shops in many rural towns, but they operate under very questionable conditions, e.g., dispense antibiotics and administer injections without a prescription. Additionally, many "black baggers" work the towns and villages, but their practice is entirely illegal. Some villages selected black baggers to be trained as Community Health Workers, which did not work out satisfactorily.

6. Insurance Coverage

Practically speaking, there are no insurance schemes other than for a very small percentage in the capital city. Many concessions, such as Firestone Rubber Company and iron ore operations, do provide health services to employees and their families, but these are limited.

B. IMPACT ON UTILIZATION

Anecdotally, it is apparent that patient utilization of government services had decreased to near zero due to lack of drugs, and that patient visits increased when drugs were introduced. With the advent of the revolving drug funds, patient attendances at the village level were quite strong, and attendances at health posts, health centers and hospital OPDs showed considerable increase.

In January 1989 the Ministry's MED (Monitoring, Evaluation and Development) Unit, and the NDS (National Drug Service) conducted an assessment on a random sample basis of eight health centers and health posts in Sinoe and Grand Gedeh Counties. Data on the eight facilities for 15 - 27 months were collected and site visits were made to assess individual problem areas. Figure 2 shows the number of patient visits and RDF receipts by quarter. In the assessment it was found that for all of the facilities the average number of patient visits increased from 62.8 per month in 1987 to 73.1 per month in 1988. (MED/NDS Assessment, 1989).

C. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

The method of capitalizing RDFs varies by level. Centrally, stock for the National Drug Service was mainly from a grant by USAID (through the SER PHC Project), but also partially from PL-480 program rice sales proceeds and from some existing stock on hand. At the county level, the CHS Supply Depots were capitalized through stock valued at approximately \$30,000 provided without cost from the National Drug Service. The two County Hospitals used some funds on hand and initially borrowed \$3,000 each in PL-480 development funds from the SER PHC Project, which were repaid within two years. For Health Centers, Health Posts, and CHWs communities raised funds to meet the seed stock cost.

2. Cost Recovery

A mechanism utilized by the SERPHC scheme in monitoring the financial performance of each RDF is the monthly or quarterly financial report, which each scheme is supposed to submit (a feature which has not enjoyed universal success). This report shows income received, payments made, cash on hand, prepayments, inventory value, and capital position (stock and cash). Using this report, performance of each scheme is tracked and compared with RDFs at the same level.

As shown in Figure 2, the MED/NDS Assessment found that the monthly average of RDF receipts per facility increased from Lib\$100.82 (1987) to Lib\$107.47 (1988). However, looking at individual facility averages, it is noted that the monthly RDF receipts increased for four and decreased for four; the site assessments noted that significant personnel problems exist in three of the facilities. It is acknowledged by the SER PHC Project that a major remaining gap for the project to remedy is to improve the frequency and quality of supervision. It is of interest to note the range of RDF receipts collected per patient visit, ranging from Lib\$0.76 to Lib\$2.65, which is felt to be indicative of considerable variation in willingness and ability to pay for drugs.

Since County CHS recently completed an evaluation of their RDF scheme. For 16 facilities operating RDFs they found that over a three month period that Lib\$9,340.87 was spent purchasing drugs, and that Lib\$25,412.35 was collected in drug sales over the same period of time; this would be an average mark-up of 172%, a large amount. While it is clear that they are not sustaining a loss, there may well be problems in their figures, e.g., opening inventory figures were not considered in the exercise.

Figure 3 shows a summary of the RDF capital position on a monthly basis at 13 facilities in Grand Gedeh County between March 1987 and March 1988 (13 months). Each of the facilities commenced with the \$300 they raised; at the end of the 13 months the \$3,600 capital position had increased to \$10,001.17, an increase of 159% in aggregate for the 13 months, which is an average of 13% per month. The highest was an increase of 417% (32% per month), the lowest 43% (3.6% per month), and the median 125% (10.4% per month). These increases were achieved despite some withdrawals from the capital (see Figure 3 for Gbarzon HC, Pola Clinic, Konobo HC, Killepo Clinic and Jarkaken Clinic), which appears to have been done by the Community Health Council to meet village development expenses.

FIGURE 2

REVOLVING DRUG FUND RECEIPTS AND PATIENT VISITS BY QUARTER

(October 1986 - December 1988, Eight Facilities in Liberia)

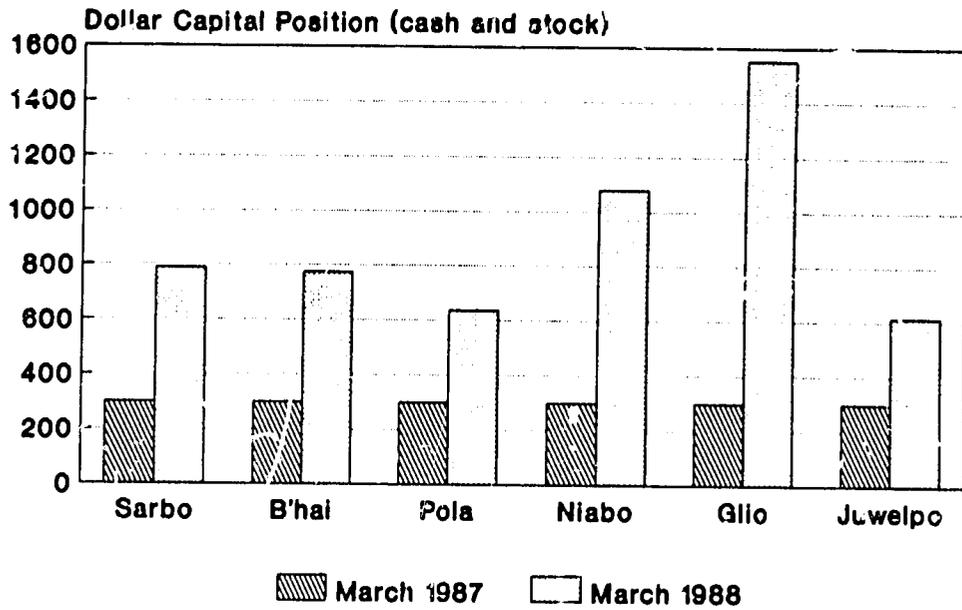
SITE	OCT-DEC 86	JAN-MAR 87	APR-JUN 87	JULY-SEPT 87	OCT-DEC 87	JAN-MAR 88	APR-JUN 88	JULY-SEPT 88	OCT-DEC 88	TOTAL	RDF RECEIPTS PER VISIT	1987 AVERAGE PER MONTH	1988 AVERAGE PER MONTH	
SINOC COUNTY:														
Tannah Wiah Town HP														
Patient Visits	275	115	179	279	259	120	180	171	214	1792		69	57	
RDF Receipts	\$227.00	\$105.10	\$174.00	\$331.65	\$251.75	\$110.25	\$131.25	\$158.75	\$177.50	\$1,667.25	\$0.93	\$71.88	\$48.15	
Saywon Town HC														
Patient Visits	126	31	71	95	156	145	405	377	310	1715		29	103	
RDF Receipts	\$93.80	\$21.80	\$48.55	\$63.35	\$96.75	\$148.00	\$469.35	\$451.50	\$359.75	\$1,752.85	\$1.02	\$19.20	\$119.05	
Tubmanville HC														
Patient Visits	190	167	179	190	193	118	218	291	322	1678		60.8	79.1	
RDF Receipts	\$194.25	\$132.00	\$194.25	\$223.50	\$293.75	\$181.30	\$320.10	\$360.45	\$390.00	\$2,095.35	\$1.25	\$70.29	\$104.32	
Pellohken HC														
Patient Visits					26	31	36	11		111		8.7	9.4	
RDF Receipts					\$13.50	\$29.50	\$28.75	\$12.50		\$84.25	\$0.76	\$4.50	\$7.86	
GRAND GEORGE COUNTY:														
Tuzon Clinic														
Patient Visits					206	145	228	251	170	998		68.7	66	
RDF Receipts					\$708.25	\$351.25	\$571.75	\$553.75	\$456.00	\$2,641.00	\$2.65	\$236.08	\$161.05	
Gbarzon HC														
Patient Visits			111	75	97	84	79	50	57	553		31.4	22.5	
RDF Receipts			\$208.60	\$183.85	\$204.20	\$131.40	\$150.30	\$53.60	\$72.75	\$1,004.90	\$1.81	\$68.29	\$34.02	
Glio Clinic														
Patient Visits			532	388	227	280	345	539	538	2849		127.4	141.9	
RDF Receipts			\$770.35	\$521.70	\$356.35	\$437.15	\$605.50	\$716.80	\$669.00	\$4,076.85	\$1.43	\$183.16	\$202.37	
Konobo HC														
Patient Visits			438	219	311	252	299	268	448	2235		107.6	105.6	
RDF Receipts			\$676.60	\$317.40	\$402.30	\$415.90	\$468.90	\$415.70	\$894.50	\$3,591.30	\$1.61	\$155.14	\$182.92	
AVERAGE PATIENT VISITS												62.8	73.1	
AVERAGE RDF RECEIPTS												\$1.43	\$100.82	\$107.47

FIGURE 3
SUMMARY OF RDF CAPITAL POSITION AT 13 FACILITIES
 (Grand Gedeh County, Liberia, March 1987 - March 1988)

FACILITY NAME	3/87	4/87	5/87	6/87	7/87	8/87	9/87	10/87	11/87	12/87	1/88	2/88	3/88	PERCENT INCREASE
B'HAJ CLINIC	300.00	385.72	401.66	493.96	530.30	543.59	595.02	603.90	650.05	680.90	704.44	753.17	774.32	158
GBARZON H. C.	300.00	405.50	453.69	467.16	476.31	557.98	302.60	350.25	386.70	505.20	580.80	620.10	673.48	124
POLA CLINIC	300.00	300.00	484.20	561.95	546.20	557.26	574.82	577.00	577.00	580.64	608.93	629.53	638.13	113
NIABO CLINIC	300.00	400.07	465.98	534.08	633.28	708.28	733.85	890.15	901.50	920.30	967.60	1043.85	1078.50	259
KOMOBO H. C.	300.00	506.92	756.98	897.50	734.98	802.83	881.48		601.45	645.30	688.60	779.65	855.10	165
GLIO CLINIC	300.00	258.15	428.75	995.40	1089.35	1190.46	1285.80	1290.15	1310.60	1368.34	1403.80	1459.94	1551.00	417
POTU CLINIC	300.00	384.80	325.73	325.40	348.49	399.99	485.79	679.05	701.40	728.00	740.00	732.30	753.91	151
KILLEPO CLINIC	300.00	340.85	408.70	474.70	523.75	581.60	491.87	330.80	570.10	600.50	630.25	647.00	670.25	123
JARFAKEN CLINIC	300.00	326.90	335.65	376.95	424.45	481.15	386.86	390.50	398.00	400.11	417.38	463.19	497.11	66
GBEAPU H. C.	300.00	149.40	192.75	379.76	388.07	385.28	405.83	404.26	402.69	401.12	399.55	409.93	429.93	43
JUWELPO CLINIC	300.00	369.55	392.70	394.50	445.45	482.65	504.90	526.48	548.06	569.64	584.35	604.35	615.30	105
SARBO H. C.	300.00	435.07	446.27	500.22	555.67	551.64	577.67	634.73	691.79	748.86	907.44	765.50	789.14	163
TOTAL:	3,600.00	4262.93	5093.06	6399.58	6696.30	7242.71	7226.49	7418.74	7739.32	8148.91	8633.14	8908.51	9,326.12	159

FIGURE 4

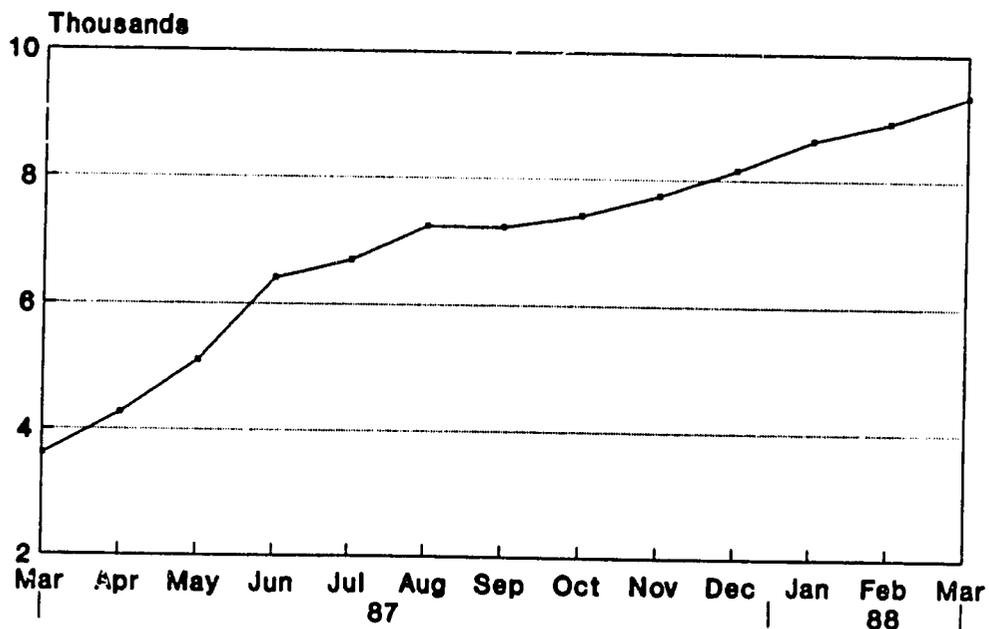
**Pattern of RDF Capital Position Growth
for Six Selected Facilities in Liberia**



Source: I.S. Narula Report in SERPHC
Interim Report, August 1988.

FIGURE 5

**Pattern of RDF Capital Growth by Month
for twelve facilities in Liberia**



Source: I.S. Narula Report in SERPHC
Interim Report, August 1988.

Figure 4 shows the pattern of growth by month in aggregate for all facilities over the 12 months. Figure 5 displays the pattern of growth for six selected facilities (which did not obviously withdraw capital during the period), between March 1987 and March 1988.

In November 1987 an evaluation team reported that in the majority of communities visited, the people were generally very enthusiastic about the RDFs, and both sales and profit figures were good; however, improvements particularly to completing of records and reporting should be made (Fierman et al, 1987).

3. Financial Management

a. Exemptions. Except in medical emergencies there are to be no exemptions from payment of the drug fee. In all instances indigent cases at the HC, HP and CHW levels are referred to the Community Health Council for consideration. No exceptions are made for chiefs and their families, politicians, health workers, etc.; they all must be referred to the Community Health Council according to the policy established during the training workshops.

b. Pricing. A survey of prices of major items was conducted in Monrovia and in Sinoe County's major town (Greenville). The national fee-for-service policy, adopted in November 1986 by the Ministry of Health, initially set the level of charges for drugs arbitrarily based on a mark-up of 150% above the FAS price of drugs from a low cost source (specifically International Dispensary Association/Amsterdam), with the provision that the level of mark-up should be reviewed with a view to adjusting it a year later. Additionally the policy specifies for simplicity and convenience that four charging bands should be used (Lib.\$1.00 equivalent to US\$1.00 at the time the policy was instituted), as shown in figure 5 below.

FIGURE 6

Fee-for-Service Policy Drug Prices

Low cost items	charge of Lib.\$.25
Medium cost items	charge of Lib.\$.50
High cost items	charge of Lib.\$1.00
Special cost items	individual prices set for unusually high cost items

These prices were below prices in the private commercial sector. One advantage of the above price structure is that specific drug items can be moved between categories when cost changes require. Contrary to the Ministry's Fee for Service Policy, which establishes standard prices for all the Ministry's facilities, both Sinoe County and Grand Gedeh County set their own prices separately for each item; there are problems associated with this practice.

c. MIS, Accounting and monitoring. A comprehensive management information system was designed, but it has been only partially implemented, and data are difficult to obtain. Accounting systems appropriate to each level have been designed and implemented, with reasonable but incomplete adherence. The National Drug Service has been given responsibility to conduct ongoing general monitoring of RDF schemes. The evaluation team found there was need for a monthly report to be prepared for each RDF showing total value of drug sales, average drug sales per patient, and the profit and percentage of profit to sales (Fierman et al, 1987).

d. General financial management. There is reasonable security of cash and stock. As fees for drugs are not remitted to the Treasury, revenues are to remain within the specific scheme. With communities being responsible for managing their own funds and stock, an incentive is present for this to be done; however, it frequently is not adequately managed. While an annual audit is required of each facility RDF, to date it is unknown whether any have been actually carried out.

e. Foreign exchange. The point of greatest vulnerability to the RDF scheme is inadequate availability of foreign exchange. The National Drug Service's stock is being depleted, with only small amounts of foreign exchange being made available by Liberia's national bank -- despite multiple strategies being pursued to access it. The advantage of accessing foreign exchange through the National Bank of Liberia is that the official rate of exchange has the Liberian dollar at par with the U.S. dollar. While the parallel market rate is approximately Lib\$2.00 = US\$1.00, acquiring foreign exchange through the parallel market is an option, but would drastically increase the price of stock.

D. MANAGEMENT

1. Planning

The process employed for designing the RDF scheme consisted of visiting a number of existing RDF schemes in four different counties, then a number of persons experienced in operating RDFs in Liberia came together for a two-day RDF design workshop to formulate the basic conceptual design. Systems were designed, RDF operations manuals written for each level, systems implemented, field-tested and minor modifications were made to the schemes and manuals as a result of a one-day evaluation workshop in February 1988.

2. Logistics

It was required that stock provided by the USAID grant through the SER PHC Project be procured from U.S. sources. Delays were encountered in the National Drug Service obtaining its initial stock, mainly due to the U.S. procurement services agent not meeting delivery dates. Inventory control at the central level (NDS) appears to have been reasonably good; some NDS staff were terminated due to leakage problems. However, as one progressed down the line, inventory control appears to have been less frequently exerted and effective.

Maximum and minimum stock levels were set for the CHS Supply Depot and for the county hospitals, while maximum levels were set for the HC, clinic and CHW levels. While this method of resupply appears to have been feasible, it was probably honored more in the breach at the HC and clinic levels, particularly due to inadequate capitalization.

The design of the CHW resupply system provided for the supervising physician's assistant at the HC or HP to also be the resupply point for the CHWs, with the reasoning that better control could be achieved. However, this resupply mechanism was not implemented -- perhaps due to complexity of the control system -- and CHWs have found it necessary to travel to the CHS Supply Depot to purchase and replenish their supplies; for many CHWs this is a considerable distance and expense.

The original design provided for deliveries from the central level to the CHS headquarters, however as the National Drug Service was unable to implement this provision, transportation of supplies was almost entirely dealt with on a "pull system" basis, i.e., users found it necessary to pick up their supplies from NDS as well as from the CHS Supply Depot. An essential component of the SER PHC Project was the provision of motor vehicles at the CHS headquarters level, and motorcycles for physicians' assistants at the health centers and clinics.

The evaluation team had the impression that insufficient attention was being given to checking of stocks at the facilities, and that community members should be actively involved at this point.

3. Training and supervision

Extensive in-service and community participant training was undertaken with relative success, and curriculum development activities for pre-service training incorporated the new systems. Three days RDF workshop training was given to physician's assistants, and part of the three-week training to CHWs by the PAs was devoted to RDF operations. Two-day orientation and training programs were provided for community persons participating. In all of these training events, long-term strategies and adult learning methodologies were employed. For instance, for training Community Health Council members, RDF role play drama situations were employed; in the part I drama participants identified problems such as:

- No drugs available
- Staff don't pay attention to their duty or work
- There is too much dependence on the government for everything
- People should have money for good health and not spend it all on "dead body" business (wakes, feasts, etc.)
- Poor quality drugs often supplied, and are frequently expired.

Following a part II drama, participants identified areas to improve the health services, e.g.:

- People are willing to pay money for drugs
- There needs to be good record keeping
- The treasurer only releases money after the Community Health Council approves the expenditure

- The treasurer checks drugs regularly
- Educate the community about the RDF and the need to pay for the medicine and the health services
- "No money - no drugs" (no exemptions should be allowed), etc.

These steps are critical in gaining acceptance of responsibilities which must be borne by the communities.

In November 1987, the team of evaluators found "in a number of instances, village development council members (for CHW level) did not have a clear understanding of either their specific roles or functions, particularly as they related to performance of their administrative tasks." At the HC/clinic level, they found that in 8 of the 9 facilities visited, council members were all involved in the management to some degree, e.g., receiving and holding cash, checking stocks, authorizing purchases and checking monthly reports (Fierman et al, 1987).

While supervision appears to have been reasonably adequate in Sinoe County of the Health Centers and Clinics, in Grand Gedeh it was clearly inadequate at that level. Supervision of CHWs by the physicians' assistants appears to be inadequate for both counties. Supervision in general appears to be a major deficiency of the SER PHC project; remedial efforts are now underway to strengthen this aspect. The evaluation team found there is need for more follow-up support and supervision of RDFs by the county finance officers as well as clinic supervisors (Fierman et al, 1987).

4. Sustainability

A number of problems must be resolved prior to being able to expect the overall RDF scheme to be sustainable over the long term.

a. Foreign exchange. Thus far, the National Drug Service has been unable to secure adequate amounts of foreign exchange from the National Bank/Ministry of Finance. The securing of foreign exchange is absolutely critical, and it is strongly preferable for it to be at the more advantageous rate. If foreign exchange must be obtained at the parallel system rate (which is technically illegal), it is feared that the consequent much higher prices would have the effect of denying access to many persons.

b. Supervision. Occasionally decapitalization commences to occur in a facility, but strict disciplinary measures applied immediately appear to be controlling this. However, the reporting of the decapitalization is often late in being detected and communicated. This is indicative that the supervision mechanism is inadequately defined and developed. Some resistance exists, e.g., among physicians assistants, who feel that supervision is equivalent to punitive action rather than of a planning, support and strengthening of skills nature. This component must be remedied.

c. Decentralization and management support systems. In Liberia it was essential for authority and considerable responsibility to be decentralized, and for the management support systems to be strengthened.

d. Community ownership/operation. In Liberia at the Health Center, Health Post, and Community Health Worker levels, it appears clearly advantageous for the community to have ownership of the fund and be administratively responsible for operating the RDF, with secondary advice and supervision from the County Health Services. This encompasses:

- Community responsibility for raising the money for the seed stock.
- Community primary responsibility for accountability of funds and stock.
- Major task of mobilizing and training community persons.

e. Monthly reports. It is essential for monthly reports to be submitted and monitored for all MOH facility RDFs. It could be less frequent, e.g., quarterly, for CHW schemes.

f. Economic and social feasibility. If the present pricing levels can be preserved without undue increases, it appears that the RDF system is economically feasible. Adjustments downward in the revenue withheld at each level are probably feasible, which could compensate for some increases in cost of foreign exchange. Additional studies should be conducted to determine to what extent, if any, persons (especially infants and women) are denied access to health care due to indigency for which exemption from payment is not provided -- the community health council is to resolve the problem.

g. Financial feasibility. Strong financial management systems are required for long term sustainability, particularly at the CHS headquarters level. At this point, Grand Gedeh's system appears to be adequate (although reporting must be improved); however, the operation of Sinoe County's system requires strengthening.

In the Liberian context it is evident that concurrent strengthening of the other seven management support systems is essential for long-term sustainability.

h. Incentives. At the central level, one of the reasons for the National Drug Service being semiautonomous from the MOH is in order for it to provide remuneration at a level which is reasonably comparable to the private sector, which is a considerable incentive for good performance. In the design of the RDF scheme, it is suggested that if a scheme is financially successful, the governing committee could consider the granting of some additional monetary incentives to staff.

Monetary incentives were provided to physicians' assistants to successfully mobilize communities, and it may be necessary for incentives to be given to motivate them to give the required supervision of the CHWs -- particularly if the extent of physicians' assistants being allowed to have private practices is limited.

At the community level, monetary incentives exist because:

- (1) The seed stock has been provided by the community itself, and there is no possibility of a donor making up losses.

(2) The community acquires funds for development projects.

Additional small financial incentives may need to be provided at various levels, particularly when there is deflation of the currency, and salary payments may be several months late.

E. IMPLICATIONS

1. There are significant advantages to involving the community, particularly to enhance the possibility of RDFs which are sustainable over the long term. When national resources limit the number of staff posted to rural facilities, and population is quite dispersed, turning to the communities to exercise direct financial accountability over the RDF seems clearly advisable.

2. It appears essential to preserve the incentives at the various levels in order to sustain interest of the parties carrying out the tasks.

3. Many diverse components must be provided in order for a broad RDF scheme to function, e.g.,

- a. decentralization and the strengthening of management support systems
- b. allowing of RDF fees collected to be retained at the operating levels.
- c. reporting mechanisms must be functioning.

4. When supply of drugs and medical supplies decreased to negligible amounts at GOL facilities, patient utilization decreased to nearly zero. When drugs and medical supplies were provided on a for-charge basis, utilization strongly increased. There wasn't much sensitivity to price changes.

MALI

A. BACKGROUND AND ORGANIZATION1. General Background

Mali, with its population of 7.6 million, is organized into 8 regions, which are further subdivided into Circles (a sub-region), Districts, and Villages. Though official health sector cost-recovery efforts began in December, 1983, they are not yet widespread throughout Mali. According to the World Bank (Vogel, 1988) "the greatest obstacle to widespread cost recovery is the consuming public's perception of the unavailability of drugs." Patients will not pay user charges to health personnel when pharmaceuticals are not available. Drug shortages are mainly attributable to the inefficiencies of the People's Pharmacy of Mali (PPM), the government drug import and distribution parastatal, through which public sector health facilities must procure their drug supplies (see "Political Environment" for a description of PPM).

Two donor-sponsored cost-recovery projects have met with some success. The World Bank initiated an experiment in cost recovery at the Circle level in 1985, examining the three Circles of Kita, Bafoulabe, and Kenieba in the Kayes region. Though these centers purchased their supplies from PPM, aggressive management compensated for the inefficiencies inherent in the PPM procurement procedure. A regional attempt at cost-recovery was started by the Belgian group Médecins sans Frontières in the 6th and 7th regions of Gao and Tombouctou in 1985. In these regions, the PPM was sidestepped and drugs were procured directly by the project. The World Bank project is discussed briefly in this section, and the Médecins sans Frontières experience is described in greater detail throughout the country study.*

Health center prices differ at the three health centers of Kita, Bafoulabe, and Kenieba because the local council for each health center is responsible for establishing the price structure. Cost-recovery success has varied. Kita Health Center's experience is the most encouraging: After incurring deficits for the first seven months of the cost-recovery experiment, Kita's performance turned around and has shown positive monthly balances. The average monthly return on "sales" (revenue in excess of costs) in 1986 was 12.6%. Expenditures on medication represented 64.5% of total expenses. Kita personnel complain that the unreliability and cost of PPM drug supply are the greatest threat to their cost-recovery program. They estimate that drugs could be purchased at half their current price if the supply were rationalized and bought on the competitive international market. Kita management felt that the single most important factor towards their success was having a large inventory of essential drugs at the project's inception.

Health center Kenieba achieved an average annual cost-recovery rate of 98%. Though this is a very high level of cost recovery, it would not provide enough revenue to finance the replacement cost of the drugs without

*Description of the World Bank project is drawn largely from Vogel (1988). Discussion of the Médecins sans Frontières effort is drawn from Koita (1988), Médecins sans Frontières (1987), and MSPAS (1986).

receiving a government subsidy. The 2% deficit is attributable to Kenieba's policy of providing free medications to the health center personnel. Kenieba has since halted its free drug distribution to anyone other than indigent care.

Health Center Bafoulabe has encountered financial difficulties, though the extent of the problem is unknown due to the absence of financial data. The reason for cost-recovery difficulties appears at least partly due to this lack of data, indicating insufficient management controls and supervision.

The three Circles (along with all Circles in Mali) are experimenting with village-level distribution of drugs through village drug depots. An initial stock of drugs is given to an individual in the village (who is usually retired from the health care system and is literate) to serve as depot keeper. The drugs are sold at a 15% mark-up to replenish the initial stock from sales. The depots in Kita have not been able to cover the replacement costs of medications with the revenues, and stocks have begun to diminish. Though the depot keeper is chosen from among the villagers s/he faces little supervision.

The history of the drug distribution and cost-recovery program of the Médecins sans Frontières is different from that of the World Bank in that drug distribution was initially started as a response to a regional emergency, not a cost-recovery experiment.

Magasins Santé Sécheresse ("Drought Health Stores") were established in 1984 in the 7th region of Mali by the Médecins Sans Frontières. These Magasins were designed to deal with the cyclical periods of famine and socio-economic hardship occurring in the Northern country due to the annual drought. Their role was to provide essential medicines for health facilities and food for community nutrition centers. Drugs were distributed free of charge by the managers of the Magasins Santé Sécheresse upon presentation of a ticket-prescription given by the prescribers of the various health centers. In 1985, the drought ended and socio-economic conditions improved, removing the urgency from the Magasins Santé Sécheresse's activities. Nevertheless, the consequences of the drought (both in terms of the peoples' lives in the 7th region, and the economic situation of the country in general) were expected to continue for several years. It was therefore logical to reorient the project originally designed for drought relief towards the medium-term. The Magasins Santé Sécheresse became Magasins Santé (Médecins Sans Frontières, 1987).

With the goals of integrating the project into community health activities and preparing the community to take responsibility for the project, the Magasins introduced a modest fixed payment for a week of health care treatment which included drugs. In 1987, both the 6th and 7th regions of Mali (Gao and Tombouctou) had installed a distribution network for essential drugs through the Magasins Santé (Médecins Sans Frontières, 1987).

2. Political Environment

The government of Mali formed the People's Pharmacy of Mali (PPM) during its Socialist Regime of 1960-68 as a parastatal that would import and sell drugs. The PPM had very inefficient purchasing policies, including the absence of competitive bidding processes and the purchase of many different kinds of drugs in small quantities. Despite the passage of the

essential drug legislation in 1985, PPM was selling over 2,000 kinds of "specialty" drugs, but periodically running out of essential medicine (CH. 2). Eighty-six percent of PPM purchases are made by negotiation with foreign suppliers, to whom they are vulnerable because of their past payment record (Abel-Smith and Creese, 1989). Despite the overpriced purchases, PPM was still able to realize a profit because of the great demand for drugs. The PPM, in theory, continues its monopoly on importation of drugs and has a large number of retail shops and stores. In reality, several agencies import their own drugs directly and in addition, illegal imports enter from neighboring countries. It is also noted that some PPM branches, despite instructions from headquarters, sell drugs at prices higher than officially sanctioned (Vogel, 1988).

As a result of the inefficient operation of the PPM and the need for under the table operations of other importers, drugs are not being procured at the lowest possible prices. Though free market pharmaceutical importation would be economically more efficient than the present monopoly situation, the government is not willing to accept that solution to its pharmaceutical problem. Moreover, Mali's socialist experience during its first eight years of independence has left a lasting impression upon the way people perceive the nature and solution to problems. While the private medical practice and provision of drugs has flourished throughout most of Africa, in Mali private medical practice was not permitted until 1985 (Vogel, 1988).

In 1987, the professional associations' position on PPM and the import of drugs was expressed. The main recommendation was that the pharmaceutical market should be split into two: PPM should be responsible for importing only essential drugs, and other wholesalers should be able to import all other drugs (Abel-Smith and Creese, 1989).

3. Parallel Providers

Private medical practice was legalized only in 1985. Though it has not yet been greatly developed, the failure of the public sector to provide the quality care, including the necessary pharmaceutical supply that people expect, may well lead to the growth of the private health sector.

The importation of drugs is now officially limited to the PPM. However, if they fail to improve drug procurement and distribution, the parallel market (illegal imports through neighboring countries, or unofficial import agencies) is expected to continue its growth (Vogel, 1988).

4. Insurance Coverage

Government ministries, in theory, pay 80% of health care costs of employees and their families. In practice, the government rarely pays, and often it is the provider who must absorb the loss. The National Social Welfare Institute (INPS) is a family welfare, retirement, accident, and health insurance fund. Fifty-five thousand salaried employees in the formal labor market and almost 2,000 within INPS are covered by the insurance, which is paid by employer contributions. The INPS is considered to be very bureaucratic and disorganized (Vogel, 1988).

B. IMPACT ON PATIENT ATTENDANCE

Utilization of health services in Mali's 6th and 7th regions, as recorded in the control register, is estimated to be only about half of the real utilization. Even with correct registering, however, certain districts have utilization rates well below average. Utilization rates, in fact, vary greatly between prescribers and districts. Possible causes for this variance include differences in health facility organization, reputation, personnel, regularity of supervision, location, and the effects of the same fee on districts of different economic status (Médecins Sans Frontières, 1987).

C. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

Regional wholesalers in Gao and Tombouctou are supplied with essential medicines either by the Ministry of Public Health and Social Affairs (through PPM) after an international bidding process, or by UNICEF donations. In 1986, UNICEF provided bi-annual donations that were responsible for a good part of the initial supply. Procurements financed by UNICEF are made directly by ordering from UNIPAC (MSPAS, 1986).

2. Cost Recovery

The cost recovery plan functions as follows: Patients buy a ticket that allows them to have a medical consultation and the necessary medications for a seven-day period of illness. Ten percent of the revenue is retained by the health facility and used for the maintenance and operation of the health center. The rest of the revenue is collected by the head physician of each Circle and put into the Circle's bank account. Needed medicines are purchased with this money raised through user fees. The goal is to gradually lower the percentage of medications bought with international aid funds. For the month of July 1986 (one year after the beginning of cost recovery) user-cost revenues had reached the point where they were paying for 47.3% of the medications used (Vogel, 1988).

3. Financial Management

In both the Gao and Tombouctou regions, fee exemptions are given to indigents (with certificates), patients receiving care for leprosy and tuberculosis, and in Tombouctou direct family members of health personnel are also granted exemptions. In all cases, prescribers are instructed not to pass a maximum limit of 15% of non-payers. Both regions appear to have had difficulty maintaining that exemption level. In 1986, though 8.95% of the population had authorized exemptions in Tombouctou, 23.54% did not, in fact, pay. In Gao, 13.46% had authorized exemptions, while 22.09% did not pay for the services and drugs they received (Médecins Sans Frontières, 1987).

Before 1986, consultation fees (which include payment for drugs) were different at each health facility. Since then, consultation tariffs have been made uniform by each region. Patients are charged a flat fee for

both consultations and drugs; however, this fee is not determined on the basis of cost analysis and appears to be set at too low a level to recover costs. Moreover, these prices have not been readjusted since mid 1986, despite inflation.

A management information system has been designed to keep track of dispensed drugs, revenues, and prescriptions. Patient health cards and dispensary cards are aggregated at the district and regional levels. The registered quantity of drugs and revenues can then be compared to the actual cash in the bank account and drugs in stock. The system is designed as follows:

A prescriber gives a patient a ticket-prescription if s/he needs it. If the patient is part of the non-paying category, he gets a blue ticket-prescription, otherwise a white ticket is given and the fixed fee is paid. The prescriber notes in his consultation book the amount paid or in the case of non-payment, the reason why the patient did not pay. The patient then goes to the Magasin de Distribution where, if it is a peripheral store, the same prescriber will dispense the drugs and keep the ticket-prescription. At the end of the month, s/he totals the receipts and expenses, completes the monthly accounting sheets, and sends it to his Médecin Chef (Head Doctor). If the prescriber is at the district level, the prescribing nurse (who operates the Magasin) deposits the revenues with the Médecin Chef and obtains a signed receipt. At month's end, the Médecin Chef totals the receipts by prescriber and completes his monthly accounting sheet. He should have 90% of each prescriber's revenues, since the health centers are permitted to retain 10%. The Médecin Chef deposits the money in to the bank account after receiving the signature of the regional director. The regional director keeps the bank statements and uses the money in the bank to replenish stocks (Médecins Sans Frontières, 1987). Financial control can be exerted by matching the records at each stage. Three times annually, the Médecin Chef sends the records of all consultations by all prescribers to the regional director. The data are used to determine if there is a difference between quantities of medicine distributed and revenues received (MSPAS, 1986).

When this financial control is applied to Tombouctou, a large discrepancy exists when the actual drug stock on the shelves is compared to the consumption records. The consumption records indicate that a greater quantity of drugs should be remaining. This is attributable to several factors such as many sick people receiving medicines but not being registered, prescriber's records not being collected by the Médecin Chef, and pilferage. Indeed, it is estimated that only 42% of drugs actually dispensed in Tombouctou were registered while 64% of dispensed drugs in Gao were recorded (Médecins Sans Frontières, 1987).

D. MANAGEMENT

1. Planning

Planning appears to be conducted only partly on an economically sound basis. In order to estimate drug costs, the CIF price of drugs (import price at port) is multiplied by a factor of 1.288 to reach a final cost

which includes transportation and distribution (Médecins Sans Frontières, 1987). This multiplication factor was derived from a comprehensive cost study conducted by the Health Store project. Unfortunately, this information is not being used where it could be most helpful -- that is, to establish health center fixed fees. Drug costs are a major proportion of total operating costs. Total operating costs divided by utilization figures could provide health centers with a much more accurate average cost of treatment.

After all data are collected from the health centers and districts (see financial management), regional workshops occur bi-annually to analyze the data and discuss needed changes. Two distribution stores closed and three more have opened since 1986 because of geographic planning reasons (i.e., demography and utilization rates) (Médecins Sans Frontières, 1987). Drug consumption information is analyzed at each level of the region which serves to avoid shortages and surpluses of drugs.

2. Logistics

Drugs are distributed throughout the region in a hierarchical fashion: In Tombouctou, one regional wholesaler supplies five Circle wholesalers who in turn supply the 36 distribution stores. The Circle level wholesale store is absent from the distribution network of Gao where one regional wholesale store supplies 34 distribution stores directly (Médecins Sans Frontières, 1987). (See Figure 1.)

The Médecin Chef of the Circle controls the records of all the distribution stores in the district. S/he knows the supply status of each facility and decides the appropriation three times a year when s/he gives the Regional Wholesale Store a card describing the Circle drug supply needs. On the basis of district need as well as regional drug supply, the Regional Pharmacist organizes his/her allotment. Regional Magasins have their inventory replenished twice a year, and the Circle and peripheral Magasins are replenished every three months.

It should be noted that the 6th and 7th regions of Mali obtain their drug supply in quite a different way than the rest of Mali. These regions have benefitted from technical assistance; by using competitive international bidding to procure drugs, they save approximately 50% of the cost of drugs (Abel-Smith and Creese, 1989). Other regions in Mali must purchase drugs from PPM, which has a state monopoly on pharmaceutical imports.

3. Training and Supervision

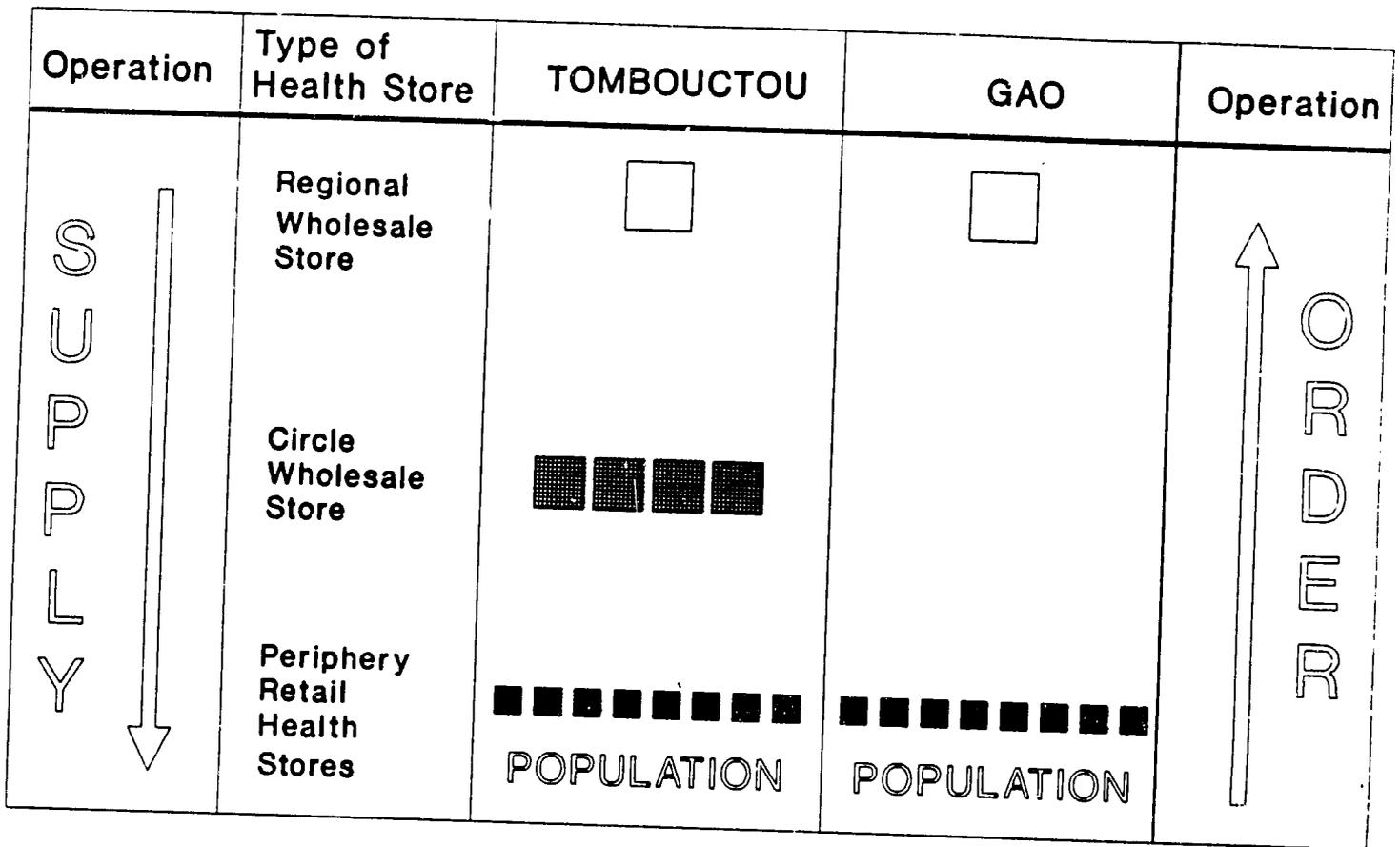
Supervision and feedback is supposed to be given by the Médecin Chefs and the Regional Director to prescribers regarding their individual performances (i.e., prescribing patterns, financial control, management, etc.) four times a year. The regional pharmacist also plays a role in training and supervision as s/he advises prescribers in the area of costs and utilization of drugs (MSPAS, 1986).

4. Sustainability

Though detailed information systems have been established which should in theory facilitate the operation of drug sales, in practice supervision

FIGURE 1

**Diagram of Regional Supply Process in 6th and 7th Regions
Two-Tier and Three-Tier Systems**



SOURCE: Médecins Sans Frontières, *Rapport d'activités*, 1987

and management in some places is rare, drug supplies are not checked regularly, and donations and money flows do not ensure the efficient transfer of drug supplies through the distribution channels (MSPAS, 1986).

Physician training for The National Medical School occurs at a hospital in which fees are collected for services rendered and drugs dispensed. Since the concept of health service and drug fees is quite new to Mali, the introduction of the payment system to medical students will be a good way of getting them accustomed to the cost-recovery system. If such attitudes become established within the medical community, they will filter down throughout the public health care system (Vogel, 1988).

The PPM has recently entered an agreement with the Chinese development agency to co-manage the system of drug procurement of PPM. If this outside influence could depoliticize the PPM and encourage international bidding, then drugs may be purchased less expensively in coming years which would increase their availability. Alternatively, the parallel market can be expected to develop, thus increasing the supply and decreasing the price of drugs. Wider availability of drugs would make more people willing to pay for health care, which would greatly enhance the chances for successful cost-recovery (Vogel, 1988).

A word of caution should be expressed regarding Mali's uncertain potential for economic growth (and the flourishing of its pharmaceutical supply). Mali has one of the highest rates of external debt per capita in Africa, making it increasingly difficult to use its scarce foreign reserves for pharmaceutical imports and not for servicing its debt (Vogel, 1988).

E. IMPLICATIONS

Much money could be saved by procuring drugs by a competitive international bidding process. The PPM is an inefficient but deeply entrenched Malian institution. The liberalization of drug imports (accompanied by the necessary regulatory policy) would improve economic efficiency greatly and result in lower prices.

The establishment of detailed financial and supply management information systems is only the first half of achieving successful procurement and financial accountability. The implementation of such systems must be assured by providing regular supervision and management oversight.

In a country with deep-rooted social and political philosophies regarding the provision of health care, education can be relied upon to change attitudes. In Mali, medical students' introduction to user charges helps establish an acceptance to the notion of paying for health care, a service previously seen as a right of each citizen. By attempting to reshape young doctors' attitudes, it is hoped that the trickle-down effect will succeed when patients are exposed to the system.

Village-level revolving drug fund depots have met with limited success in Kitu, Mali. The village is supplied with an initial supply of drugs which eventually becomes exhausted due to insufficient funds with which to purchase new supplies. While the depot-keeper is chosen from among the

villagers, the initial seed money (drug supply) is provided entirely from outside the community, and thus there is no village incentive to oversee the depot-keeper. More village involvement in village-level projects, particularly dealing with fund management, is necessary.

NEPAL

Pharmaceutical Cost Recovery Experiences in Nepal for Child Survival*1. General Background

Nepal, with a population of 15 million in 1985, is one of the poorest, least urbanized countries in the world with an estimated per capita income of US\$160 and over 90% of the population living in rural areas. Fewer than one in six Nepalese have access to safe water or sanitation facilities. Less than 40% of adult males and 12% of adult females are considered literate.

For the population as a whole, roughly 40% of illness episodes are due to diarrheal disease, followed by febrile and acute respiratory infections, and skin disease.

2. Potential Impact of Child Survival Pharmaceuticals (CSP)

In 1986, an estimated 130,000 infants and children under five years of age died in Nepal -- one in every five children died before their fifth birthday. Leading causes of death included acute respiratory infection (ARI), diarrheal disease, measles, neonatal tetanus, malaria, and other infectious and immunizable diseases. Based on current under-5 deaths and the likely efficacy of each intervention, the data suggest that complete availability and effective use of CSP would save 65-100,000 lives per year. However, overall health service utilization is low, under-5s appear particularly under-represented, and finally, potentially fatal conditions such as diarrheal disease and ARI treatments appear under-represented compared to irritating, but generally nonfatal conditions such as skin disease and intestinal worms.

3. Public and Voluntary Sector Pharmaceutical Supply and Need

Total public and voluntary sector pharmaceutical expenditures for 1986 were US \$ 3.7 million -- barely \$ 0.22 per capita, of which \$0.12 was for essential drugs, \$0.07 for family planning commodities, and only \$0.02 per capita for vaccines and related supplies. For comparison, in a study of pharmaceutical expenditures in 32 low and low middle income developing countries, only Uganda, with expenditure of US\$1.16, spent less per capita than Nepal; Bangladesh spends US\$1.61 per capita. In terms of funding sources, 32% was from HMG (His Majesty's Government of Nepal), 27% from UNFPA, 18% from USAID, 12% from PVOs, and 11% from UNICEF.

Recently efforts have been made to improve selection, procurement and distribution of essential drugs. The 1986 HMG National List of Essential Drugs marked a major step in efforts to improve the drug list for government health facilities. Included are all necessary child survival

*This description is drawn largely from the report Child Survival Pharmaceuticals in Nepal: Opportunities for Expanded Supply and Improved Use of Pharmaceuticals, Management Sciences for Health, July 1988.

pharmaceuticals. While efforts to improve essential drug management are important, a major limiting factor for effective pharmaceutical services remains insufficient funding: by several separate assessments current public and PVO expenditures provide only 30 to 50% of basic requirements at current low utilization rates.

4. Private Sector Pharmaceutical Supply

The total private wholesale pharmaceutical market is estimated to be over US \$ 10 million per year -- more than three times HMG, donor, and PVO expenditures. Preliminary efforts to characterize the market revealed a more complex market than initially estimated: 480 importers versus 175 originally estimated; 450 primary manufacturers versus 200 (over 90% located in India); 13,000 to 21,000 products versus 4,000 to 8,000. Of 5021 retail products coded by therapeutic class, 30% were antibiotics, 12% were vitamins and minerals, and 11% were gastrointestinal. Only 8 were identified as oral rehydration preparations, the price for which ranged from \$0.05 to \$0.52 per packet.

With over 75% of pharmaceutical expenditures in the private sector, it is reasonable to consider whether the private sector could be better mobilized to help achieve child survival objectives. Recent relevant activities include drug retailer training, the Hill Drug Scheme, the Contraceptive Retail Sales project, and the banning of selected non-therapeutic products.

The innovative HMG drug retailer training program has provided training for 2000 of the country's 3600 drug sellers through a popular 50 hour course. Informal follow-up suggests that, while basic drug knowledge has been effectively communicated, the reference Handbook is not regularly used and practices do not reflect knowledge. Perhaps the program's greatest limitation is that, in its focus on pharmaceutical science and administration, it fails to highlight the few issues which could substantively affect morbidity and mortality: diarrheal disease, ARI, immunization, and family planning.

Started in 1969, the Hill Drug Scheme (HDS), operated by the Britain Nepal Medical Trust (BNMT), was intended to make a selected list of inexpensive essential drugs available to communities with no regular supply. HDS retailers were recruited from among local shopkeepers, received basic training and agreed to administrative, prescribing, pricing, and ethical rules. The HDS was successful in making essential drugs available where none had been. But its very success stimulated other shopkeepers who, unfettered by HDS public health principles and fair prices, made it difficult or impossible for HDS outlets to survive. In addition, HDS administrative and supervisory requirements limit its widespread adoption.

5. Distribution

Distribution has long been noted to be one of the weakest links in Nepal's pharmaceutical supply system. Nearly half of all health facilities cannot be reached by motorable road. Such facilities can only be reached by air or by porters traveling footpaths. About 20% of the facilities are accessible for only two or three months of the year. One of the local suppliers has had responsibility to make deliveries to all the facilities, with the entire process consuming a year to complete. Major complaints

are heard concerning late deliveries, high charges, etc. A system of regional medical stores is being built to help overcome some of these problems, but this will add another layer in the system, which will increase inventory costs by 20-30%.

Supply of vaccines has seen substantial progress over the past five years. The cost per fully immunized child has been roughly estimated at US\$9.40. Despite considerable progress, national coverage remains at or below 40% for each of the major immunizable causes of infant and child mortality. Vaccine is delivered through five regional depots to 38 districts. Transport from the regional depots is particularly difficult. The limiting factor for improved coverage is not availability of vaccine, but rather the ability to utilize it.

5. Cost-Recovery Experiences

Although HMG policy officially holds that drugs are free, PVOs providing health care in Nepal have instituted, with tacit government approval, cost-recovery schemes to increase the supply of pharmaceuticals. Eight years of experimentation with revolving drug funds (RDFs) in at least five districts indicates that political feasibility in the form of community acceptance has been established, but only with nominal drug fees; managerial feasibility has been demonstrated, but only under conditions of substantial donor-supported or PVO supervision; and economic feasibility, even with partial self-sufficiency as the cost-recovery objective, has yet to be demonstrated.

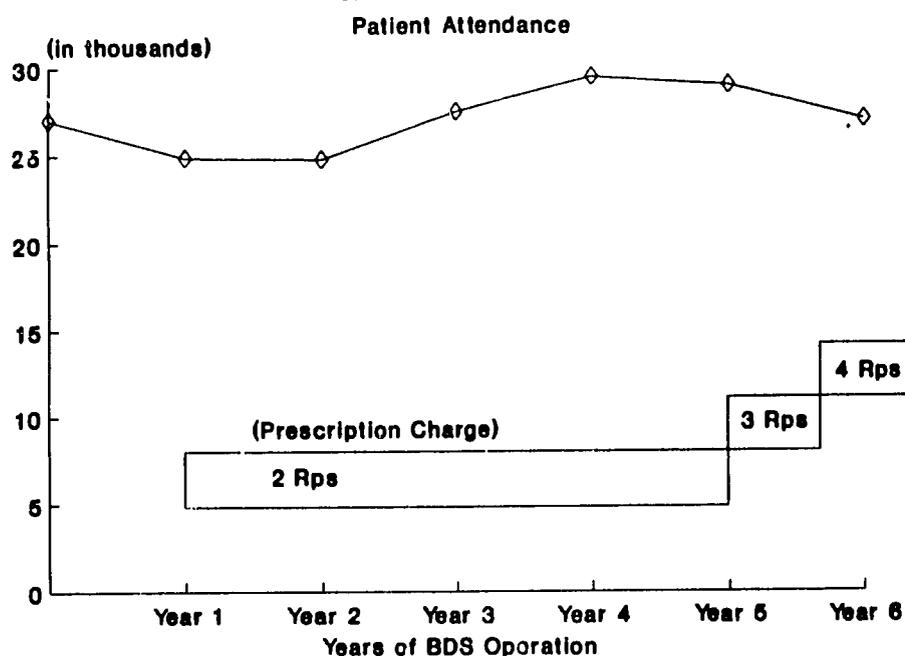
a. International Nepal Fellowship (INF). Only one of the schemes, the International Nepal Fellowship (INF) is attempting to recover acquisition cost (plus a nominal mark-up of 16%), but little data were available when the study this paper is based upon was done.

b. Bhojpur Drug Scheme (BDS). An analysis was conducted of six years' experience with the Bhojpur Drug Scheme (BDS), initiated in 1980 by BNMT to provide year-round supply of essential drugs for the district, to encourage rational prescribing, and to reach financial self-sufficiency. BDS more than doubled drug supplies to nine of the district's health posts and the hospital. Patient attendances initially declined modestly coincident with the introduction of fees, but then increased gradually (see Figure 1).

The BDS charges a single prescription, i.e., patient attendance fee, which has been successively increased from 2 rupees, to 3 and 4 rupees. The impact of the increases is seen also in Figure 1. Revenues have increased each year, but operating expenses have also increased, which are also seen in Figure 1; operating costs in Year 2 were 20% of total costs, but in Year 6 they rose to 40%. Year 2 revenues covered only 1/6 of BDS operating expenses (drugs, transportation, and operations), but by Year 6, revenues had only risen to cover 1/3 of total BDS expenditures.

To better approach self-sufficiency, BDS has increased its efforts to control drug costs and plans to expand to a second district (thus halving Bhojpur's share of the operating costs). BDS also has been gradually, but steadily, increasing previously nominal drug fees -- hopefully without decreasing utilization by those most in need.

FIGURE 1
Bhojour Drug Scheme



Health Post Prescription Study. Since its inception in 1980, BDS has attempted to reduce unnecessary drug use and promote proper use through: (1) supervisory visits to each health post; (2) twice yearly prescribing workshops with "best prescriber" awards; (3) use of numbered prescription pads to monitor and provide feedback on usage of specific, popular drugs; and (4) publication of a Health Post Drug Manual. The numbered prescription pads instituted at BDS's inception provided a unique opportunity to study health post treatment patterns. Nearly 13,000 patient contacts were analyzed for Years 2 and 6 (prescription pads for Years 3-5 were rendered uncodable by a 1986 monsoon). Analysis was done with a computer package, RX, created by MSH for this purpose.

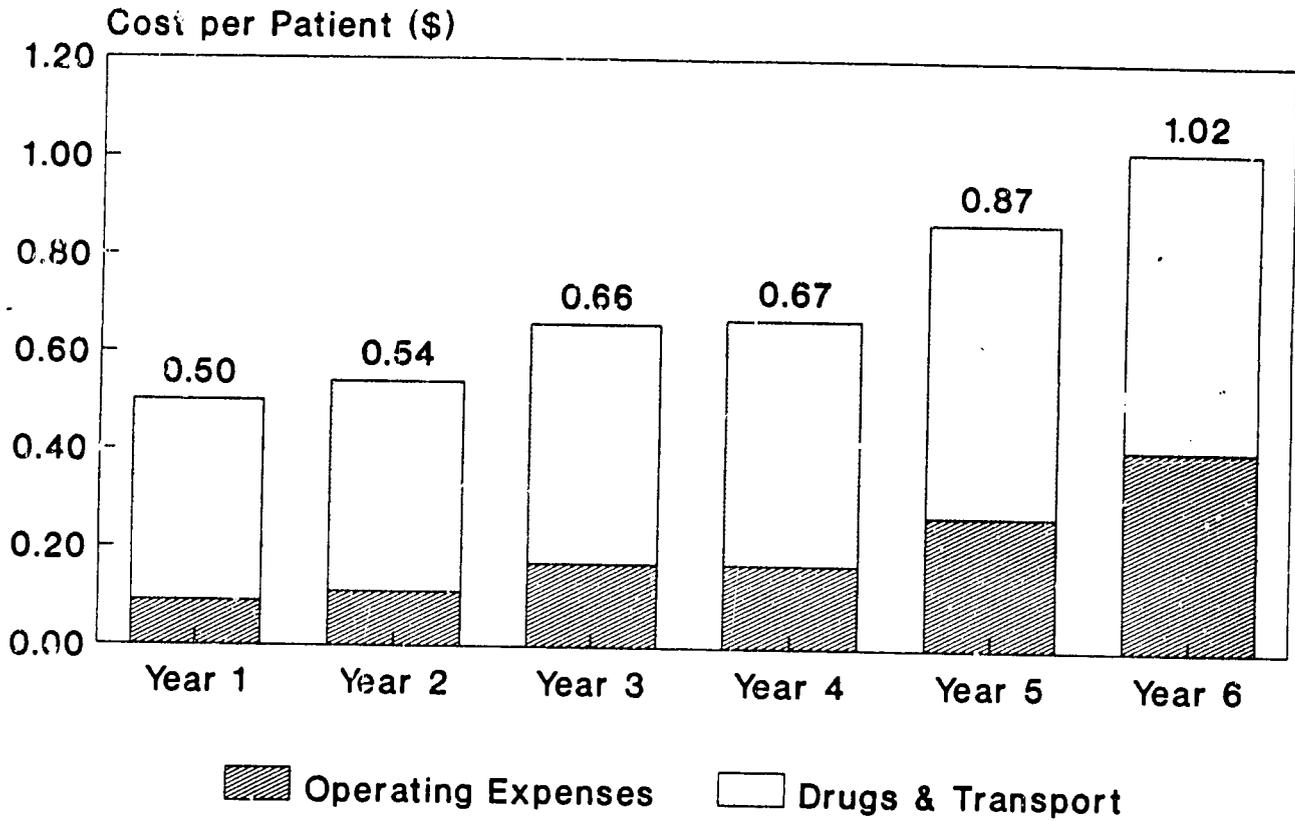
Analysis of diagnoses for Year 6 found that scabies and other skin diseases were most common (19% of all patients), followed by acute respiratory infections (10%), diarrheal disease (10%), various gastrointestinal complaints (9%), and intestinal worms (8%). Under-5s were 16% of health post visits and, in each diagnostic category including diarrheal disease, the number of visits by patients over five far exceeded those by the under-5s.

Analysis of treatment patterns showed a modest decrease between Year 2 and Year 6 in the number of drugs per patient for both age groups. Detailed analyses of treatment patterns for diarrheal disease, ARI, and scabies suggested overuse of antibiotics, use of significant quantities of drugs for mild illness, little distinction among treatments for different types of diarrhea, and little difference in overall treatment patterns for under-5s and adults.

Usage of specific products was also considered. Procaine penicillin injections were the most commonly prescribed drug for both age groups in both years (40% of drug costs). At least 50% of procaine penicillin prescriptions were for scabies and other mild illnesses requiring only an oral

FIGURE 2

Total Cost Per Patient
Bhojpur Drug Scheme, 1980-1986



antibiotic or no antibiotic. In Year 2 over 1/2 of ORS was consumed by the under-5s, but five years later under-5s received only 1/3 of ORS dispensed. ORS usage increased in absolute terms, but as an addition to antibacterials, rather than a substitute. Consumption of some drugs whose use was discouraged (e.g., di-iodohydroxyquinolone) did significantly decrease over the five-year period.

7. Implications

a. Selection. The impact of the 1986 National List of Essential Drugs will be greatest if,

- HMG and PVOs adopt the list as the sole basis for routine procurement;
- the list is periodically updated to maintain its vitality and relevance;
- formal administrative and budgetary procedures are adopted by HMG and PVOs to control and minimize purchase and use of non-listed items.

b. Financing. Inadequate funding remains a major limitation to child survival efforts. The economic and managerial viability of RDFs for most districts has yet to be fully tested. Activities to increase financial resources could be:

- continued efforts to obtain increased HMG, donor, and PVO allocations for essential drugs and vaccines;
- more thorough analysis and consolidation of RDF experience to date;
- testing of drug fees which realistically balance actual costs, cost-recovery objectives, health priorities, and ability to pay;
- development of RDF supply management and accounting practices which can be administered without an excess of donor-supported or PVO supervision;
- development of measures which reasonably control RDF costs.

c. Procurement and Supply Management. While procurement and supply management were not major foci for this study, several observations can be made:

- the creation of a cooperative essential drug service for PVOs could provide significant therapeutic and economic benefits through pooled procurement, quality assurance, training, drug information, and other services;
- regionalized HMG drug distribution addresses proximity and transport issues, but it presents its own personnel, logistic, MIS, transport, and cost challenges which must be systematically addressed;

- continued efforts to strengthen vaccine distribution will be critical to widening the impact of the EPI program on child survival;
- the present "tea box" approach to distribution takes only partial advantage of current "kit system" concepts which could strengthen supply management;
- while some savings are possible through more competitive procurement, current prices are, on average, within 10% of world market prices;

d. Use. Available information suggests economically wasteful and therapeutically unsound practices. Possible actions include:

- completion of standard treatment schedules (STS) developed by ICMG, WHO, and local PVOs, and development of cost-effective means to introduce STS into pre-service training, continuing education and supervision efforts;
- support for supervision activities which focus on those few individual drugs and individual health problems which appear to account for most inefficient, ineffective, or unsafe drug use;
- institution of a basic information system, such as that in Bhojpur, to monitor and provide supervisory guidance on effective drug use.

e. Private Sector Opportunities. With 75% of pharmaceutical expenditures going to the private sector, it is important to find ways to direct spending to achievable health objectives such as child survival. Possible actions include:

- evaluation and revision of the drug retailer program to highlight those few public health messages which can substantively affect child survival;
- evaluating the extent to which districts under-served by the private sector could benefit from "social marketing" schemes such as the HDS;
- initiation of a health care provider and public information program targeting the few messages which could make a difference (e.g., dangers and costs of injections, need for full courses of necessary antibiotics).

NIGERIA: A DIVERSE DRUG REVOLVING FUND EXPERIENCE

A. BACKGROUND AND ORGANIZATION

1. General Background

In 1988 a PRITECH team analyzed the experiences of seven Drug Revolving Funds (DRFs) in Nigeria. These include:

Three state parastatals:

- Bendel Health Management Board
- Niger Health Management Board
- Imo Hospital Management Board

Three university teaching hospitals:

- University of Benin Teaching Hospital (UBTH)
- University College Hospital
- University of Ibadan, (UCH)
- Ahmadu Bello University Teaching Hospital (ABUTH)

One private organization:

- Christian Health Association of Nigeria (CHAN).

Drug revolving funds are a recent phenomenon in Nigeria. All seven of the institutions began their DRFs in 1986 or later. On the other hand, public hospital charges for drugs are not new. University College Hospital (UCH) has always charged for drugs. Niger state, Imo state, and University of Benin Teaching Hospital (UBTH) charged for drugs two to five years before their attempts at a DRF. Bendel charged for drugs until the civilian government took power in 1979. Of all the institutions visited, only Ahmadu Bello University (ABU) did not charge for drugs before starting the DRF. See Table 1 below for a chronological summary.

TABLE 1

History of Drug Revolving Funds and Cost-Recovery Programs

<u>Program</u>	<u>Drug charges introduced</u>	<u>DRF concept introduced</u>
Bendel State	Before 1979	1986
Niger State	1985	1987
Imo State	1982	1986
UBTH	1981	1986
UCH	From start	1987
ABU	1987	1987
CHANPHARM	1982	1987

The fact that six of the seven institutions examined had introduced drug charges well before their DRFs makes an analysis of the impact of DRFs on patient attendance very difficult.

A distinction needs to be made between simply charging for drugs, i.e., Cost Recovery Programs (CRPs), and charging for drugs plus accruing the revenues separately for the sole use of purchasing more drugs, i.e., DRFs.

Of the seven institutions examined, five had more or less "true" DRFs. Niger runs a CRP, not a "true" DRF, and Imo's program is designed as a DRF, but is managed as a CRP. At teaching hospitals, DRFs are little more than in-house pharmacy shops and have relatively simple organizational structures. Authority for the DRF lies with a Drug Committee, with members drawn from the administration, pharmacy, medical specialties, and nursing. Day to day operations are managed by the Chief Pharmacist or medical administrator on a part-time basis. The state DRFs are administered by the Health (or Hospital) Management Boards, quasi-independent parastatals that were seconded from the state Ministries of Health to manage the secondary health care facilities.

The states, in contrast to teaching hospitals, have highly complex DRF organizations. Generally speaking, the DRFs have the following three to four levels of administration:

- Headquarters administration, responsible for policy and planning.
- Central Stores, which act as the main warehouse, and implement the administrative and financial activities of the DRF.
- Zonal Stores (Bendel only), which act as regional depots for distribution to the individual institutions.
- Unit Stores at the hospitals, which actually sell the drugs to the patients. At the hospital level, the DRFs are organized similarly to the teaching hospitals described above. In Niger and Bendel, the unit stores are merely sales agents for the DRF. In Imo, the stores are individual profit centers, actually mini-DRFs.

At Bendel, the HMB chief and the Central Stores project manager share responsibility for the overall management of the DRF down to the Zonal Stores. At Imo, a government task force of outside medical professionals oversees the HMB Chief in operating the DRF. Niger operations are overseen by a Management Committee consisting of HMB health professionals. In all three states, the Unit Stores are run by pharmacists, with input from the hospital Drug Committees.

Disputes and conflicts within the HMB, between the HMB and the MOH, and between the HMB and outside agencies plague the state DRFs:

- The MOHs have retained control of purchasing, hindering the ability of the DRFs to make rational purchasing decisions.
- In one state, the battle between the HMB and the MOH over the control of drug revenues has paralyzed financial control of the DRF.

- In another state, the widespread use of drug revenues by the HMB for other expenses has to a large extent defeated the purpose of the DRF.
- In a third state, the HMB and the Bendel State Treasury have held on to nearly 1 million Naira that belongs to the DRF.

Considerable tension exists between pharmacy staff, who traditionally run pharmacy operations, and the accounting/financial staff, who now play an important role in the revenue-generating DRFs. This tension has prevented basic operations such as inventory taking from occurring.

2. Parallel Providers (Private DRFs)

CHAN-PHARM is different from the teaching hospitals or the state DRFs in several ways:

- First, it is part of a private, nonprofit Christian membership institution (Christian Health Association of Nigeria) that sells only to its private, nonprofit Christian member institutions.
- Second, it is a wholesale organization that does not sell directly to patients.
- Third, it sells drugs in many states, reaching 35 percent of the Nigerian population through its retailing institutions.

CHAN-PHARM has a full time general manager, overseen by the CHAN executive secretary and Drug Committee, made up of representatives from CHAN and its member organizations. Chan-Pharm's headquarters and central stores are in Jos, Plateau state; zonal depots are located or under construction in strategic locations around Nigeria.

CHAN-PHARM is spared most of the bureaucratic difficulties that plague the public sector DRFs. CHAN-PHARM always operated as a business, and does not have accountant-pharmacist conflicts.

3. Legal Barriers

Legal barriers per se seem to impose relatively minor burdens on the DRFs. The bureaucratic and organizational difficulties discussed in Section A: Background and Organization are far more significant.

Three legal barriers can be identified:

1. Ministry of Finance regulations against public sector borrowing limit the ability of DRFs to obtain working capital.
2. Food and Drug Administration regulations against the advertising of prescription drugs limit the ability of the DRFs to promote and advertise.
3. Ministry of Finance regulations governing tender procedures cause long delays that contribute to stock outs and vulnerability to price increases.

B. IMPACT ON PATIENT ATTENDANCE

There was no clear evidence of the effect of DRFs on patient attendance from the information collected from the seven institutions examined. In the year following introduction of the DRFs:

- ABUTH and Imo state had a decline in attendance;
- Niger and UCH had no change in attendance; and
- UBTH and Bendel state had an increase in attendance.

Table 2 summarizes the attendance data.

TABLE 2

<u>Program</u>	<u>Patient Attendance 1984-1987 (in 000's)</u>			
	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Bendel	639*	526*	<u>525*</u>	<u>963*</u>
Imo	579*	453*	<u>355*</u>	<u>331*</u>
UBTH	164*	139*	<u>165*</u>	<u>195*</u>
UCH	NA	376*	300*	<u>298*</u>
ABUTH	NA	560*	496*	<u>426*</u>
CHANPHARM	NA	NA	NA	<u>NA</u>
Niger**	NA	82*	70*	69*

Notes:

* = Drug charges introduced

Underline = DRF concept introduced

** = Minna General Hospital only

Unfortunately, every institution except ABUTH charged for drugs before they began their DRFs, so there are no clear "before" and "after" time frames to analyze change. Even at ABUTH, the data are not clear. The drop in attendance in 1986, the year before the DRF began, was not significantly different than the drop in 1987, the year the DRF began. Attendance everywhere else has been dropping or stagnant since 1985, except at Bendel and UBTH.

Besides the problem of drug charges commencing before the DRF, attempting to isolate the affect of DRFs on patient attendance data is hampered by two more problems: First, there are many factors which affect patient attendance that would tend to obscure the measurable effects of the introduction of DRFs on patient attendance. Second, patient attendance is often unavailable. If it is available, it is often unreliable, inconsistently categorized over time, incomplete, or in insufficient detail.

Key factors that affect attendance are:

- Drug availability at DRF facilities versus private pharmacies
- Public awareness of fake and substandard drugs
- Conditions at DRF facilities, e.g., staff attitudes
- Drug pricing
- Conditions at competitive modern facilities
- Availability of alternatives to modern medicine; i.e., traditional healers, chemists practicing "medicine"
- Costs of travel to DRF institution
- Disposable income
- Non-drug service charges and timing
- Number and type of exemptions
- Seriousness of collection efforts

Nearly all management and staff have an opinion on the effect of the DRF on attendance, although the opinions are rarely backed up by hard evidence. The consensus of these opinions are:

Charges for drugs or services causes an initial dip in attendance. Attendance bounces back when patients discover that private health care prices are even higher, and the drugs are often substandard.

Availability of drugs has a far more positive effect on attendance than drug charges has a negative effect. Indeed, the funds generated by DRFs have increased availability, and have helped boost attendance. This opinion was held even at DRFs like Imo where attendance has fallen since the introduction of DRFs.

Drops in attendance from drug charges are not necessarily "bad". When drugs were free or subsidized, patients sought unnecessary medication, or worse, tried to obtain drugs to resell at a profit. Drug charges weed out those who do not genuinely need the drugs.

C. FINANCE AND FINANCIAL MANAGEMENT

1. Exemptions

A summary of the types and costs of exemptions for the DRFs is shown in Table 3 below. ABUTH and CHAN-PHARM do not have exemption policies. All customers pay cash. In Bendel and Imo states, the cost of exemptions is relatively low, at less than 10 percent of revenues, and does not present a serious threat to the viability of the DRF. At UBTH, UCH, and Niger state, exemptions consume at least 20 percent of revenues and are a major reason why these DRFs are not profitable.

The team was primarily concerned with the impact of the exemption categories on the viability of the DRFs. The larger issue of the costs to society of exempt patients may be of concern. Therefore, Table 3 divides the DRF exemptions into the following two categories; cash drain exemptions, that are paid for out of the DRF account; and noncash drain exemptions, that are paid for elsewhere in the institution, or by outside public agencies. Little data are available on the costs of noncash exemptions, simply because they are a lesser concern to the DRF management, which is primarily concerned about its own bottom line.

TABLE 3

Exemption Policies and Costs for DRFs in Nigeria

Program	Cash drain	Approx. Cost	Noncash drain
UBTH	Staff Ward supplies Paupers TB Emergencies	20% of revenue 15% of revenue ? insignificant insignificant	None
UCH	Staff Children Paupers Cancer TB	15% of revenue 10% of revenue insignificant ? ?	Venereal disease Lepers
Niger	Staff Paupers Prisoners TB and Lepers	all total 20% of revenue	
Imo	Prisoners Paupers NYSC* Prepaid**	all less than 5% of revenue	TB Lepers Civil servants
Bendel	Paupers Prisoners	insignificant insignificant	Lepers and TB Cancer Civil servants
CHAN-PHARM	none		none
ABUTH	none		none

Notes:

* = National Youth Service Corps

** = Large corporations that pay a fixed fee that covers all medical services and drugs

2. Pricing

Retail prices are based on the cost of drugs, tempered to a greater or lesser extent by market conditions. CHAN-PHARM, a wholesaler only, determines price solely by cost.

In general, the DRF's pricing policies do not seem particularly well thought out or executed. Competitive price analysis is spotty and informal, and a basic understanding of the price elasticity of demand seems to be missing. Table 4 summarizes the pricing policies for the various DRFs.

TABLE 4

PRICING POLICIES AT NIGERIAN PROGRAMS

<u>Program</u>	<u>Pricing Policy</u>
Bendel	- 25% over cost generally, higher for cheaper, less for more expensive - Never more than 1% below local retail
Niger	- At cost
Imo	- Central Stores stock purchases: lower than local retail - Local purchases: 20-25% above cost
UBTH	- 10-15% below market
UCH	- Cost plus 10-40%, lower markup for more expensive - Never more than local retail
ABUTH	- Purchased drugs: 20% above cost - FMOH free drugs: below market
CHANPHARM	- Drop shipments: cost + unspecified "fudge factor" - Warehouse sales: cost + 17% + "fudge factor"

The team obtained price lists from the DRFs, and at one private registered pharmacy near a hospital entrance. Prices from patent medicine sellers or market vendors were not taken although they are an important part of the retail drug marketplace. The conclusions below drawn from the data are tentative and impressionistic because of the small and unrepresentative sample size.

Inexpensive drugs, or drugs obtained free or below market cost were often wildly underpriced by the DRFs relative to the private sector. Expensive drugs were overpriced relative to the private pharmacy, which seemed to treat certain expensive drugs as loss leaders. UCH and Bendel are probably the most aware of their competitive environment, and ABU the least.

A substantial portion of the drug supply in Nigeria is fake, expired, or otherwise substandard. Without better education and regulation, the cheaper bad drugs will drive out the more expensive good drugs. Fake,

expired, or substandard drugs are openly and easily available in Onitsha, Aba, Kaduna, and a myriad of other locations.

The effect of prices on patient attendance is controversial. The consensus of DRF management opinion is that as long as prices are not too low (creating artificial demand) or too high (significantly above private pharmacies), drug prices are not a major factor on attendance. Also, patients are reported to have a low level of price awareness and are often not in a position to shop elsewhere, and are more sensitive to the highly visible fixed rate fee changes, such as those for patient cards (see the Patient Attendance section for a more complete discussion).

Imo is the only state DRF where the hospitals retain a share of the profits. Not surprisingly, at the two Imo hospitals surveyed, the prices are usually higher than the local pharmacy. In fact, they are often higher than the prices mandated by the Imo HMB.

At Niger and Bendel, where the hospitals act as sales agents only and receive no share of profits or revenues, prices are usually lower than the local pharmacies, sometimes by significant amounts. From the Niger DRF management's point of view, the social services aspect of low prices outweighs the benefits of increased profits. The Bendel management, on the other hand, is aware of the damage underpricing could wreak on the private pharmacies.

Drug prices at the teaching hospital DRFs are usually well below those of the local pharmacy - ABUTH's to an unusual degree. In general, the teaching hospitals could raise many of their prices and still be comfortably below those of the private pharmacies.

3. Use of Revenues

The official policies that govern use of DRF revenues vary from requiring that all DRF revenues be dedicated to drug purchases, to allowing DRF revenues to be used for general institutional operating expenses. The three state DRFs have had major problems preventing funds from being used for other purposes. The Bendel DRF is owed nearly 1 million naira from the Bendel HMB and the Bendel State Treasury. This debt may be paid back in full, and represents a significant but manageable burden.

In Niger, the struggle between the Niger HMB and MOH over the use and control of DRF revenues has caused a partial paralysis of the DRF. The Imo HMB has diverted over 2 million N from DRF revenues, apparently for paying HMB staff salaries. This diversion threatens the viability of the Imo DRF.

4. Cost Recovery

In general, the paucity of data available makes financial analysis of the DRFs difficult. This is due to a combination of one or more of the following factors: the newness of the DRFs, the inadequate accounting systems, lack of finance skills in many key staff, and reluctance of management to share information.

The level of data supplied by the DRFs can be broken down into three categories:

1. **Audited Financial Statements.** Only Bendel State DRF made available audited financial statements. The quality of the Bendel financial statements is relatively good. The Niger DRF has prepared statements that have gone through the first rounds of an audit, but are not final. These were not supplied to the team.
2. **Partial Financial Data.** The ABUTH, Imo, UBTH, UCH, and Niger DRFs provided some data on sales and expenses from which it was possible to make a cursory financial analysis. Imo was noteworthy in its unwillingness to share information in this area. In many cases, the data supplied were incomplete and not very useful.
3. **No Financial Data.** CHAN-PHARM supplied virtually no financial data for their DRF. The management indicated all available information was with their auditor, who was preparing for the first time financial statements from 1982 to 1987.

With the possible exception of Bendel state, the team places a low degree of confidence in the accuracy of the financial data. Thus, the profitability analysis that follows should be read with a high degree of reservation. Profitability in the first year or two of a DRF's operation does not necessarily mean that it is sustainable over the long term. All DRFs except CHAN-PHARM have benefited from very low cost seed stock provided by the FMOH which created large, onetime inventory profits. Table 5 summarizes the profitability of the seven schemes.

TABLE 5

Drug Revolving Fund Profitability

<u>Scheme</u>	<u>Sales Margin</u>	<u>Costs Recovered</u>
PROFITABLE DRFs:		
CHANPHARM	10+%	Covered all operating expenses and generated surplus
Bendel State	50%	Covered some operating expenses and generated surplus
Imo State	40%	Some surplus only at Owerri General Hospital
ABUTH	15%	Covered few expenses, generated small surplus
UNPROFITABLE DRFs:		
UBTH	95% of drug costs recovered	
UCH	80% of drug costs recovered	
Niger State	50% of drug costs recovered	

Four of the DRFs have generated revenues that cover drug expenditures and some operating costs and have generated a surplus. CHAN-PHARM management claims all operating expenses are covered with the profits from their DRF. Capital costs are covered by donor grants. Bendel revenues generate a large surplus after covering some operating and depreciation expenses. ABUTH DRF revenues cover only a very small part of operating costs (stationery expenses) and generate a small surplus. Imo DRF data were not available; one of the Imo unit DRFs, Owerri General, does not cover any operational costs, but generated a surplus.

Three of the DRFs' (UCH, UBTH, and Niger) sales revenues did not completely cover the cost of drug expenditures.

Sales Volume -- Sales volume of the various DRFs depends on patient load and pricing policies. As one would expect, the more heavily populated states, Imo and Bendel, have greater sales revenue than thinly populated Niger State. Niger State also has lower markups than both Imo and Bendel, and a 50 percent discount for staff. CHAN-PHARM, a nationwide wholesaler, also has higher revenues than the teaching hospitals, despite having far lower prices. Table 6 summarizes 1987 sales by state and average sales per patient.

TABLE 6

Nigeria DRFs 1987 Total Sales and Sales Per Patient

<u>Scheme</u>	<u>Total Sales (million naira)</u>	<u>Sales Per Patient (naira)</u>
Imo State	6.2	9.0
Bendel State	5.6	7.0
CHAN-PHARM	5.0	Not available
Niger State	1.4	Not available
UBTH	1.1	7.6
UCH	0.8	2.6
ABUTH	0.4	1.0

The teaching hospital DRFs have lower turnover, for two main reasons: One, these DRFs consist of two to three shops at most. Two, teaching hospital patients often fill their prescriptions at a local pharmacist at home after receiving diagnosis and treatment from the specialists.

More interesting from an analytic viewpoint are the sales per patient statistics: both UCH and ABUTH have relatively low sales per patient at 2.6 naira and 1.0 naira respectively. The low ABUTH sales per patient were probably due to two factors: 1) the shops were only open 8 hours a day, and 2) the Zaria shop was inadequate relative to the size of the hospital. The low UCH sales per patient was probably a result of the large discounts given children, and the long delays at the store that encourage patients to fill their prescriptions outside.

5. Financial Management

The quality of HMB or hospital medical record-keeping and management capabilities affects the ability to provide quality health care as much as it affects the operation of a DRF. In general, the teaching hospitals have done a relatively better job in maintaining the accounting, pharmacy, and patient attendance records essential to operate a DRF than have the HMBs and their constituent hospitals. The poor state of accounting, pharmacy, and attendance records in many of the DRFs makes the job of evaluating the DRFs difficult, especially in a limited time period.

In general, the successful DRFs have at least one highly motivated, dedicated management staff member that takes responsibility for really getting things done. The quality and motivation of the middle staff is lower; and, especially in the state DRFs, the quality of the lower level staff seems poor. Integrating the LGA/MOH primary health care clinics into the DRFs would mean incorporating more poorly trained, poorly paid staff and placing a great strain on the system.

Of all the DRFs, Bendel has the best records and record-keeping systems; Bendel, the teaching hospitals, and CHAN PHARM seemed to have the most competent and motivated staff.

Recordkeeping -- The quality of the record-keeping and the capability of the staff are obviously interrelated. The ability of the DRFs to keep adequate records and manage their programs is handicapped by one or more of the following factors:

- Civil service practices which make it difficult to promote the competent, weed out the incompetent, provide incentives and rewards for good work; attracting trained and competent pharmacists and accountants is, therefore, difficult.
- Public service managers who are uncomfortable managing a private sector type business.
- Pharmacists who are recalcitrant to give up authority for operating the DRFs, but are not willing to learn or have others perform normal financial and accounting procedures.
- Poor infrastructure: e.g., nonfunctional telephones, muddy roads.
- Geographical difficulties: e.g., riverine areas of Bendel
- Inadequate transport: e.g., few or dilapidated lorries
- Insufficient resources for training and development

Pilferage -- Pilferage of drugs and diversion of funds still plagued DRF systems. It is difficult to gauge the severity of these problems at any particular DRF because we relied on management and staff reports, not our own audits and observations. In fact, the DRFs that admit to pilferage problems may actually be better off than those that insist nothing is wrong.

REVOLVING DRUG FUNDS IN THAILAND***A. BACKGROUND AND ORGANIZATION****1. General Background**

Of the approximately 50,000 villages in Thailand, about 26,000 of them have established revolving drug funds, and in 50% of them 70-100% of the households participate (1986 WHO Mission, 1988). A more recent estimate is that 45% of the villages are covered, but effective coverage is 50-60% of the population as many RDFs sell to persons in other villages (Myers, 1987). The population of Thailand was approximately 50 million persons in 1984. The RDFs are the oldest, most numerous, most consistently profitable PHC funds in the country with other funds being for nutrition, sanitation, and health cards. The Government gives drug funds priority over other PHC funds, focusing on the most needy areas -- more than half of all drug funds are located in the Northeast, the region with the highest poverty rate. The WHO Mission Report further states: "The sustained provision of essential drugs is a major element of PHC, which in turn is the most important component of Thailand's strategy for improving quality of life for the entire population."

Drug funds have often been successfully started in villages where other community funds have been functioning, and the villagers have a prior successful experience. Drug funds are only one of the types of funds sponsored by the Government to finance and provide services locally; there are also community funds for nutrition and sanitation, agriculture, and other development activities. The Government has turned to these funds as a way of coping with the economic burden of an increasing demand for services. The hope is that local funding and management can recover costs.

In the area of health, this will allow the Ministry of Public Health (MOPH) to devote more resources to training Village Health Visitors (VHVs) and Village Health Committees (VHCs) to provide increased health and family planning services. Reports have revealed that the Government of Thailand provides only 31.1% of all health expenditures, while households and other private sources provide 68.9% (PRICOR, 1987). Another source (WHO Mission Report, 1988) indicates that in 1983 4.6% of the GNP was spent on health, and overall in 1985 per capita expenditure on health was US\$38, of which US\$26 (68%) is paid directly by the consumer; 53% of total health expenditure in Thailand is on drugs (61% of the private sector and 34% of the public sector health expenditure).

*This description is drawn largely from the paper Financing Health Services and Health Care in Thailand by Charles N. Myers, Dow Mongkolsmai, Nancyanne Causino, Bangkok, USAID, 1985.

The MOPH has been setting up drug funds since 1978. In 1982 the pace accelerated because of the recognized success of the program, so there were many new funds, with the median age being only slightly more than 12 months (see Table 1). There are numerous older examples, however, which have been in existence long enough to demonstrate clear patterns of operation and management.

TABLE 1
CHARACTERISTICS OF DRUG FUNDS

REGION:	North n = 708	Northeast n = 1,677	Central n = 290	South n = 151
% OF FUNDS WITH VHV'S ON MANAGEMENT COMMITTEE	95.9	92.5	95.2	93.4
% OF FUNDS COMPENSATING MANAGERS	50.6	48.2	45.5	31.0
MEDIAN WORKING CAPITAL IN BAHT*	2,000	2,000	2,550	1,999
MEDIAN AGE IN MONTHS	12	12.1	11.2	12.0
% OF FUNDS PROFITABLE	91.5	92.0	85.2	87.4
% OF FUNDS ACTIVE IN NUTRITION	35.2	43.8	42.0	32.5
% OF FUNDS ACTIVE IN AGRICULTURE	8.8	11.0	11.0	2.0
% OF FUNDS ACTIVE IN WATER AND SANITATION	26.1	29.8	31.0	23.8
% OF FUNDS ACTIVE IN OTHER COMMUNITY DEVELOPMENT	9.3	12.0	7.0	10.6
AVERAGE VILLAGE POPULATION	1,425	1,000	1,310	7,550
AVERAGE NUMBER OF STORES PER VILLAGE	5.6	3.9	6.7	4.5

*25.63 Baht = US \$1.00

2. Community Involvement

Most revolving drug funds in Thailand are established at the initiative of the MOPH, by Hospital Directors and Provincial, District, and Tambon Health Officers. The establishment of a fund ideally involves the cooperation of village leaders and a majority of village households, with District and Tambon Health Officers playing an active part. In about 25% of the existing funds, villagers have themselves perceived the need for a drug fund and set the wheels in motion, particularly if they have had prior successful experience with other community funds in agriculture or public health. In general, however, most villagers have a limited understanding of revolving drug funds and need much encouragement and education to become involved as both consumers and shareholders.

Whoever initiates the fund, the MOPH begins the process by providing capital in the form of an inventory of drugs and medical supplies. Then there is a village meeting, election of fund managers, sale of fund shares, and sometimes a fund-raising event.

3. Political Environment

Among the targets of Thailand's National Drug Policy, promulgated in 1981, are to provide an adequate supply of safe and good quality drugs at reasonable prices at all levels including to the rural areas. To stress the political commitment of making essential drugs available, the Government included the national drug policy component in its Fifth Five-Year Plan (1982-1986); in the Sixth Five-Year Plan (1987-1991) emphasis is placed on ways to rationalize drug use and to strengthen the ongoing operations (WHO Mission, 1988).

The most viable revolving drug funds serve a high proportion of village households, with an average of more than 80%. The proportion of households served is higher when the village is smaller, the fund is older, managers receive compensation, and there is widespread ownership of farmland. The households served tend to decrease when the fund capital is used to make household loans.

The PRICOR study found that over 70% of the villagers are recipients of the fund's services, and that in all cases the RDFs ensured the regular availability of inexpensive supplies (PRICOR, 3/87).

B. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

The initial capital provided by the MOPH in the form of drugs and medical supplies -- worth about 700-800 Baht (US\$32.50 - \$36.00) -- is small in comparison to what is raised in the communities and particularly in comparison to the level of capital attained by the most successful drug funds in just two or three years of operation. Capital is raised from village households by sales of shares in the drug funds; the proportion of households that are shareholders ranges from 30-100 percent. Households may own more than one share, but some committees set an upper limit for each household to prevent a family or group of families from taking over the fund. Poor families are sometimes able to buy shares on credit or are

given shares in exchange for their work in building or maintaining the drug fund's store.

When share ownership is widely distributed, the amount of capital raised is indeed impressive, as seen in Table 2 which shows that the initial capital raised in each of the six sample communities exceeded the amount provided by the MOPH; in the most successful fund, it was ten times as much. It isn't necessary for a household to purchase shares in order to have access to the drugs, as they are entitled to purchase regardless; nor are shares generally purchased because they anticipate profits; households purchase mainly (71.5%) because they want the village to have the advantages of a drug fund, and also out of respect for the individuals setting up the fund. Social obligation is the main reason for purchasing shares initially, a trait which is enhanced by social cohesion.

TABLE 2
SHARE PURCHASE CASE STUDY DRUG FUNDS

FUND	NUMBER OF HOUSEHOLDS	% OF HOUSEHOLDS WITH MOTORCYCLES	% OF HOUSEHOLDS PURCHASING SHARES	SHARE PRICE	NUMBER OF SHARES PURCHASED	INITIAL CAPITAL RAISED
Kuteen, Songkhla	75	84%	75%	10 Baht	90	900 Baht
Ban Bongbualon, Si Sa Ket	46	9%	80%	10 Baht	133	1,330 Baht
Serdnoi, Chonburi	169	47%	30%	20 Baht	51	1,020 Baht
Ban Jomteevee, Chiang Mai	246	37%	90%	10 Baht	214	2,140 Baht
Khlong-wa, Songkhla	?	100%	70%	50 Baht	?	?
Pho Samphao, Chonburi	234	50%	50%	50 Baht	219	10,950 Baht

* Percentage includes later share purchase as well as initial share purchases.

In a study conducted by Mahidol University of 2,955 funds it was found that the capital in a fund ranged from 0 to 50,000 Baht (US\$1976), with the median being 2,000 Baht (US\$79).

Why do households purchase shares and what explains the variations? The great majority interviewed in a study of 22 more successful funds stated that they wanted to help the village obtain the benefits of a drug fund; a small percentage added that they respected the individuals setting up the fund. Both responses are measures of the social contract in Thailand and are strongest in small, cohesive villages.

Along with buying shares, households are sometimes asked to contribute a small amount to the fund, as a donation to the common good -- another example of the strength of social obligation in capitalizing the fund. But once the fund is well underway, the profit motive begins to play a part; successful drug funds with high profit distributions continue to sell far more shares than their less successful counterparts.

2. Cost Recovery

Through the Government Pharmaceutical Organization (GPO) system most drug funds are able to sell drugs competitively at the prescribed mark-up, and more than 85% make a profit. Table 1 shows that in the most successful funds inventory turnover and profits are high, with a high rate of return to shareholders.

In a study carried out from March 1983 through January 1986, it was found that only 9% of the RDFs studied decapitalized (PRICOR, 3/87). Also they found that schemes making larger profits sell a broader range of items rather than drugs alone, and additionally have the services of a full-time manager.

3. Financial Management

Pricing. Most RDFs are able to sell competitively with the full 30% mark-up being charged, and over 85% reported making a profit. Standard prices have been established for the public sector (WHO Mission Report, 1988).

The GPO supplies generics at lower cost than name brands; it absorbs transportation costs so that its mark-up is based on urban prices (30% below the urban retail cost); and travel costs to consumers are lower because the drug fund stores are closer than most alternatives.

MIS and Monitoring. At the health center level, emphasis is placed on recording past drug consumption in order to be able to clearly define future drug requirements. However, no information is available about the quality and appropriateness of prescribing and dispensing. No information on the needs of vulnerable groups, such as whether they have access to essential drugs, is collected at present. Health Center staff carry a heavy load now with 22 forms to be completed each month (WHO Mission, 1988).

Foreign exchange. This was not reported in any of the source materials as being a problem.

Sale of other goods. Some of the more successful drug funds have become stores selling basic goods and some luxury items. The most extensive drug fund stores sell soap, a variety of foods, ORS packets, weaning foods and nutritional supplements, whisky and beer, soft drinks, clothing, animal feed, and cigarettes! The profit margins on these items vary from place to place, but in general the stores carrying them offer two advantages that enable them to compete with other local stores: first, people who come to buy drugs will buy other goods if their quality and price are equal to other local sources; second, shareholders will often buy these goods from the drug fund store because their purchases help to increase the earnings of the fund and their own profits from it.

C. MANAGEMENT

1. Operational management

Drug funds are managed by committees of 10-12 members, generally elected at village meetings. Members of the committee are usually from leading families; have higher than average household incomes; and hold important social positions in the village as monks, teachers, headmen, and members of other community development committees. Some are educated at the secondary level and above; others have worked in jobs outside the village that have given them some managerial experience. There is very little training of fund managers in either management skills or basic pharmacology; the study of more successful drug funds revealed that even in this sample, less than 10% of managers received any training.

VHVs are almost always members of the management committee (see Table 1), with the Tambon Health Officer serving as a consultant to the committee. Committee members serve for unspecified terms. There is little competition for the positions, and there has been very little turnover of committee members -- most have served as long as their funds have existed.

Managerial responsibilities are divided among committee members, with the VHV or village headman serving as chairman. The VHV is usually responsible for drug sales and for giving advice and referrals connected with the use of drugs. Monks are frequently in charge of daily receipts and working capital; other committee members serve as accountants, auditors, record keepers, sales clerks, and general overseers.

For most members, these are part-time responsibilities that do not interfere with their principal occupation -- mainly farming. Sometimes a VHV commits full-time to drug fund management, selling drugs at any hour to people who need them, keeping all accounts and records, and ordering and maintaining inventory. Even when they receive compensation for these tasks, their pay probably does not equal their foregone earnings as farmers; the family members who take over their farm work are, in effect, subsidizing the revolving drug fund -- a pattern that may need to be acknowledged and adjusted in the long term.

Involvement at this level also leaves the VHV, who may be full-time with the RDF, with less time available to treat and refer health conditions that do not require drugs. This is a difficult cost to quantify, but it has important public health implications that cannot be overlooked, for the promotive and preventive activities may then suffer.

2. Compensation of Managers

Between 30 and 50 percent of the drug funds compensate members of the management committee (see Table 1). Compensation takes a variety of forms: salary, a percentage of profits, or free or discounted drugs. Managers have first access to scarce drugs when the order arrives. They may also have the right to borrow from the fund at interest rates below the prevailing market rates. And as shareholders, they receive a proportion of the fund's profits.

Compensation is an important incentive for good management when it is tied to performance and profit. Careful control of inventory increases sales; good records increase performance, profits, capital, growth, and the reputation of the fund.

3. Logistics

The village RDF Manager prepares purchase requests for the HC or District Office; such drugs are delivered or picked up. Village purchases are also made from private stores. At the provincial level, procurement of drugs is decentralized; an annual procurement plan is devised for the province's facilities and RDFs, on which purchases are made on the basis of quality and price competitiveness. However, some preference is given to the Government Pharmaceutical Organization (GPO) (WHO Mission Report, 1988). An advantage of using the GPO system is that the GPO stocks "essential" drugs only, excluding drugs that have been judged worthless or dangerous, or are too complex to administer and monitor at the village level.

Drug purchasing plans are devised for each level in the 71 provinces and are forwarded to the Ministry of Public Health in Bangkok for procurement, production, and distribution. The drugs provided include acetylsalicylic acid, paracetamol, sulfadiazine, chloroquine, oral rehydration salts, tetracycline eye ointment, sulfacetamide eye drops, kaolin mixture, mebendazole, and several household mixtures and syrups (WHO Mission, 5/1988).

4. Training and Supervision

Training in management or basic pharmacy has not been a prominent activity of the Thai RDF scheme, and only 5% of Tambon health officers and 9% of RDF managers interviewed stated they had any training as part of setting up the fund. Similarly there was very limited social preparation of the communities about the scheme.

The PRICOR Study conducted field testing of several models. They found it is important for fund managers to receive training in fund operations and in mobilizing community support and participation. Additionally, they discerned that routine support and supervision is essential, especially when funds become more profitable. A further finding is that only the

common training of managing a retail store is required (PRICOR, 3/87).

The WHO Mission Report states that in the two provinces they visited the Village Health Visitors were generally well supported through visits by health center staff; however, supervision remains a problem in some parts of the country. Close supervision, both by the Tambon (sub-district) and from the community hospitals, is necessary for financial management aspects as well as the rational use of drugs. By way of example, the report cites a practice which the MOPH has strongly discouraged, specifically the sales of "Yachud," a set of 4-8 tablets or capsules containing different potent drugs claiming to have universal effect in alleviating various kinds of diseases and symptoms.

5. Management Problems

The revolving drug funds tend to develop problems when the Tambon health officer is inactive or committee members lack commitment and energy; when income-producing opportunities are overlooked; and when VHVs are not involved in sales, record-keeping, and inventory control. The most common problems are incomplete records and and inaccurate accounts, with few funds maintaining double-entry accounts or complete and current inventory records. The long-term consequences of this for many is gradual decapitalization, stagnation, or failure.

The process is well documented for a drug fund in Ubon province where eight VHVs took turns running the store. Each day a different woman waited on customers and kept track of money and inventory. When the first shipment of drugs arrived, the store was jammed with customers, so that record-keeping and accounting fell behind. Some villagers bought on credit or paid in kind with rice or charcoal, but records were incomplete and no effort was made to sell the goods that had been traded for drugs. Some drugs sold out quickly while others languished on the shelf. Still, every month the fund ordered the same 20 drugs in the same quantities. Despite strenuous efforts by one committee member to make sense of the records and maintain capital, the fund was eventually unable to come up with the 2,000 Baht for the next month's order. Villagers began to travel to other villages for their drugs.

6. Sustainability

The WHO Mission Report (1988) pointed out several possible weaknesses:

- When the RDF drugs were sold from a shop separate from the VHV's house, medical guidance was limited, and the shop assistant sold drugs upon request like any other commodity.
- ORS sachets were not generally available, and people did not know how to mix them using the raw materials. Diarrhea is the most frequent complaint in some provinces for both outpatient visits and inpatient admissions.
- While the poorest villages may be in the greatest need for pharmaceutical treatment, because they are poor they may well be unable to participate in the RDF scheme.

- There may be a need to strengthen the training of the VHV through improving the training of trainers; at present refresher training is scheduled to take place once per year for two days, with two hours being devoted to essential drugs.
- Revolving drug funds in Thailand are considered successful when they provide basic drugs at affordable prices; reduce drug abuse; serve a high proportion of households; and operate equitably while maintaining viability, profitability, capital appreciation, and growth. By these indicators, there have been very few failures among the drug funds established in Thailand. There are, however, different levels of success. The most successful funds are marked by a high -- often full-time -- managerial commitment from a competent, conscientious VHV who is paid for his/her work. Other marks of successful management are the active participation of the Tambon health officer in all aspects of the operation of the fund; managerial help from professionals at nearby MOPH institutions; and diversified income sources (primarily the sales of consumers' and producers' goods).

E. IMPLICATIONS OF PHARMACEUTICALS COST RECOVERY EXPERIENCE

Along with good management, successful revolving drug funds are correlated with certain social characteristics: small, socially cohesive villages relatively isolated from other sources of drugs and supplies, with equitable land holdings, where villagers perceive the need for a drug fund.

It is noteworthy, however, that there are many successful drug funds that do not fit all these criteria. The demand for drugs is strong and consistent across all regions of Thailand; even when conditions are not ideal, the revolving drug fund has proven itself capable of meeting this demand while substantially reducing opportunity costs and retaining a market advantage.

The PRICOR Study states:

"Despite these general findings, experience indicates there is no single model or single set of models which is applicable to all communities. Rather, the essence and merits of setting up community financing mechanisms do not rest in the type of model, but in their potential for assuring that pooled resources are self-generating and can be used for the community's benefit" (PRICOR, 3/87).

ZAIRE

A. BACKGROUND AND ORGANIZATION1. General Background

Zaire's health care system was decentralized into 306 health zones in 1982. Each health zone covers about 80,000 to 100,000 people, covering 60 to 70% of the population. Typically, a health zone has one referral hospital, usually with 100-150 beds, and about 10 health centers which each cover up to 15,000 people. A "Médecin Chef" (Head Doctor), located at the zone's Bureau Central (Central Office), is responsible for the management of the referral hospital and health centers. In addition to providing supervision to the health centers and hospital, the Médecin Chef oversees the procurement and distribution of needed medications to the health centers of his zone. At present, about 150 health zones are functioning, and the rest are planned to be phased into operation by 1991 (Mandl et al. 1988).

Though each zone is part of a greater sub-region and ultimately a greater region, it has the autonomy to design its own health delivery and financing system. Each zone has a different organizational structure which is manifested in various payment schemes, procurement processes, levels of health center autonomy, and overall efficiency.

Drugs play a double role in primary health care: they serve as necessary products for curative care and as a basis for a health care cost recovery system (Miller, 1987). In each zone, the central office obtains drug supplies for its health centers (from the sub-regional depot, a wholesaler if the zone is located near a big city, from a donor like UNICEF, or sometimes from the retail private sector). The drugs are sold to the health centers of the zone at a mark-up to cover the operation of the central office. In theory all health centers within a zone charge uniform rates; however, in practice individual health centers often determine their own health service and drug prices or a flat fee which includes drug prices and health service fee. Health center cost-recovery is supervised by the Médecin Chef de Zone, while zone performance is supervised by the sub-region and ultimately the region (Litvack, 1988).

2. Community Involvement

Health or development committees exist at the regional and subregional levels while corresponding sub-committees function at the zone and health center levels. Community development committees identify the most important needs in health, nutrition, education and related areas and suggest ways of meeting the needs. Committees then make budgetary estimates and determine how much the community should pay and how to raise the necessary funds. Indigent care policy is also determined by the committees ensuring health care access to those who are too poor to pay. The regional and sub-regional development committees are usually composed of representatives from various departments at the regional or sub-regional level, as well as of representatives from the population (Mandl, 1988).

3. Political Environment

In Zaire, decentralized health care is part of a larger development approach emphasizing decentralization and community participation (Mandl, 1988). Since the central government's position regarding cost-recovery emphasizes and relies upon community financing, it provides training, supervision and minimal financial support to encourage such activities. In fact, one reason for the high rate of cost-recovery among Zairean health facilities is the emphasis that the government has placed on the need for them to achieve financial autonomy.

While the government is very supportive of drug sale programs, its liberal national pharmaceutical policies may affect drug cost-recovery programs negatively. The government has promoted the growth of the private sector through various mechanisms including extensive trade liberalization and easing all government controls over the type, quantity and quality of products produced. Zaire is one of the few sub-Saharan countries without a national essential drug policy. Thus government health facilities are forced to compete with the private sector which does not limit its procurements to the most cost-effective drugs but emphasizes the most popular drugs. As a result, all suppliers of pharmaceuticals (governmental and private) provide non-essential drugs.

4. Parallel Providers

There are over 100 private sector pharmaceutical importers in Zaire, providing 80-85% of total pharmaceutical supply. Locally formulated products represent a relatively small share of consumption. Though profit margins supposedly are not to exceed 33%, in fact prices reflect market forces. The wide range of drug suppliers and drugs (non-essential drugs and dosages) combined with the tremendous public demand for pharmaceuticals has led to very high local prices. Since income levels are so low in Zaire and are continually eroded due to inflation, pharmaceutical cost recovery could be affected by insufficient resources to pay for the drugs. Moreover, most pharmacies and vendors of drugs operate without a licensed pharmacist. The misuse of drugs due to expired drugs, unlabeled samples, fake products, and products whose content is different or lower than stated is common.

Unless government facilities provide competitive services and maintain an adequate stock of pharmaceutical supplies, the abundance of private pharmacies, vendors, and traditional practitioners poses a serious threat to their cost recovery. The presence of another major health care provider can greatly affect health center utilization, which must be sufficiently high for the consultation fees collected to cover the center's costs. Health centers that are unable to maintain an adequate drug stock lose patients to pharmacies and other providers from whom medications can be obtained directly. Those health centers existing in zones with no central drug purchasing source, also possibly those located very far from the zone's central office and drug depot, are at a higher risk of not maintaining adequate stock.

B. IMPACT ON HEALTH AND PATIENT ATTENDANCE

Utilization of health services has been affected by the health fee. Generally, people who become sick and who do not seek care justify their attitude on the lack of financial resources. If user fees act as a deterrent for many people who would otherwise seek health care, then user fees are indeed affecting health status, as presumably some of those people would benefit from modern treatment.

Utilization of health services in Zaire has also been studied in regard to the effect of different payment schemes. A direct correlation has been found between payment schemes and visits per episode of illness. Visits per episode were higher in centers using a fixed fee for illness episode than those using a fixed fee for consultation and variable fees for medications.

Empirical evidence seems to indicate that utilization may be more affected by a large percentage change in price, than by the absolute price. Utilization in the Vako zone remained unaffected by an increase of 25% (80 zaires to 100 zaires) as it did in Boma City zone where prices were raised 50% (50 zaires to 75 zaires). Patient attendance was halved, however, in the rural zone of Boma where prices were raised 400% (10 to 40 zaires) (Miller, 1987).

Health center utilization is affected greatly by the availability of pharmaceuticals. Health centers reported that their patient attendance increases dramatically when drug supplies first arrive each month or two, and subsequently decline as people become aware that supplies are low again (Litvack, 1988).

C. FINANCE AND FINANCIAL MANAGEMENT

1. Capitalization

The strategy for financing the health zones involves a sharing of costs. Investment costs were primarily provided by three donor sources: USAID and the Church of Christ's "Basic Rural Health Project" (SANRU); UNICEF; and Belgium's "Santé Pour Tous" project (Bitran et al., 1986). The government of Zaire pays base salaries to many of the zones' personnel, while the zones are responsible for supplemental salaries and operating costs.

2. Cost Recovery

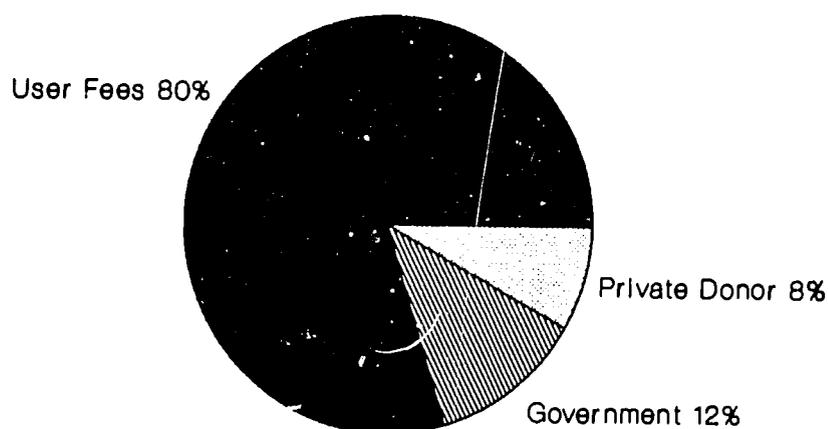
Since many health zones charge one flat fee for an episode of illness, health center cost-recovery is important to examine, rather than focusing exclusively on drugs. A study conducted of 10 sample health zones found that the average health zone recovered 79% of its operating expenses. The government of Zaire paid 12% of the remaining operating costs, while private donors financed 8% (Bitran et al., 1986). Table 1 shows a breakdown of costs by sample health zone, and Figure 1 shows burden share of operating costs. In 1985, operating expenses of the 10 zones varied between 3,034,000 Z (\$60,680) and 5,672,000 Z (\$113,440). The annual per

TABLE 1
STRUCTURE OF HEALTH ZONE COSTS, 1985 (PERCENTAGES)

<u>COST CATEGORY</u>	<u>Bokoro</u>	<u>Bwamanda</u>	<u>Dunga</u>	<u>Kaniama</u>	<u>Kikimi</u>	<u>Kindu</u>	<u>Kirotshe</u>
Salaries	37	40	56	36	26	53	50
Drugs & Medical Supplies	45	33	28	42	30	25	26
Maintenance of Vehicles & Buildings	1	12	1	3	3	1	1
Fuel & Lubricants	5	5	4	0	5	3	7
Office Supplies & Miscellaneous	13	10	10	18	37	19	16
TOTAL OPERATING EXPENSES	100	100	100	100	100	100	100

Source: Bitran et al., 1986.

FIGURE 1
SOURCES OF HEALTH ZONE REVENUE



Source: Data from Bitran et al. (1986).

capita operating expenses of the zones ranged from 35 Z (\$0.70) to 93 Z (\$1.86) (Bitran et al., 1986). Salaries and drugs are the two most significant portions of operating costs. Since salaries are often the target of government subsidy, the full costs of drugs remain.

An examination of health center and pharmaceutical cost recovery experiences in four health zones in different regions of Zaire indicated that there are certain common characteristics for health centers unable to recover costs. These include low population density of health center catchment areas, presence of strong competition, lack of maternity services, poor drug supply, prices that do not reflect cost, and management skills of zone employees (Litvack, 1988).

3. Financial Management

Health fee exemptions are provided to indigents, who are usually the *cid*, the very poor, or the very sick. In some zones, children are also considered indigent. Though government employees were provided with free care in most health zones in the past, recently the management of most zones have begun charging normal fees to civil servants to improve financial performance. In general, 10% of patients are deemed indigent and are given free care. This policy does not seem to threaten financial viability of the zones (Bitran et al., 1986).

Drug prices are established in several ways. The four principle payment schemes are:

- A fixed fee per illness episode;
- A fixed fee for consultation with varying fees for medication in relation to the daily dosage and drug cost;
- A fee for illness episode varying with the severity of the illness and the cost of drugs required;
- A fee for consultation and drugs with a sliding scale for necessary additional visits (Mandl, 1988)

The most common method of payment is the fixed fee per illness episode. Since the major component costs of health services (including overhead expenses) and drugs are not distinguishable under this payment mechanism, it is particularly important to establish the fixed fee scientifically. Some health zones do indeed anticipate total health center costs by using past utilization data and are able to derive a sound fee level. Many others however, do not use cost information as the basis of the decision and consequently, are at greater cost-recovery risk (Litvack, 1988).

Though supply is often inadequate (depending on the particular health zone), the drugs that government health facilities do supply are at a price lower than that of the private sector. Health zones are potentially able to obtain large discounts from bulk purchasing and therefore can offer the drugs at a lower price than the pharmacies.

The analysis of such issues as information systems, performance monitoring, financial accountability, cash management, etc., is difficult to undertake since each zone varies with regard to its policies and performance success.

In general, one of the biggest potential problems facing the drug sale component of the zone cost recovery program is the high inflation level in Zaire which exceeds 100% a year. Some zones, particularly those which charge a separate drug fee, seem able to continually raise prices in line with the increase in costs; yet they risk decline in utilization if the price exceeds the population's purchase power. Other zones, especially those charging a flat fee for consultation and drug treatment, find it more difficult to raise fees. As a result, they jeopardize their cost-recovery performance which ultimately results in a deterioration in quality of care, since drug supplies become scarce, personnel performance declines when salaries are not paid, and health center maintenance deteriorates as necessary supplies cannot be purchased. A study conducted in 1987 examined health zone response to inflating costs and concluded that most zones had been able to increase patient charges in order to maintain approximately the same level of cost recovery (Bitran, 1988).

Financial management information systems have generally been quite weak in most health zones. Recent USAID sponsored studies have explored this issue and designed specific mechanisms to improve accountability. These include a detailed system of record keeping (supervised by the Médecin Chef) for revenues received at the health center level based on accounting procedures (Vian, 1987).

D. MANAGEMENT

1. Planning

Most zones do not have a rational management information system, though such a system has recently been designed (Vian, 1987). Consequently, the nurses and Médecins Chefs are not capable of pinpointing problem areas, and are often forced to do "crisis management" by raising fees without knowing where the cost-recovery problems lie (e.g., logistics, management, etc.) (Miller, 1987).

2. Logistics

Cost-recovery success at the health center level (where drugs are distributed to the public) and at the zone central office (where drugs are purchased for and distributed to health centers) depends greatly on logistics.

Each sub-region, in theory, has a pharmaceutical depot which operates on a revolving fund basis and is supplied with an initial stock of drugs to allow the funds to build. In practice, not all sub-regions are well organized, and in most zones, the Médecin Chef is given the seed money to begin the revolving drug fund, and he must arrange for procurement. In zones where the Médecin Chef purchases supplies from the private sector (rather than from the government, or a NGO), revolving funds often progressively run out due to the 70-80% higher purchase price (Sarr, 1988). Most zones centralize the purchasing of drugs at the central office level. Bulk-purchase discounts and economies of scale in the handling of inventory can permit zones to obtain drugs at low costs relative to the local market prices. Pharmaceutical distribution is handled through three

principal channels, by order of importance: a) the private sector; b) philanthropic organizations, and c) the State (World Bank, 1988). Health zones purchase most of their drugs from large wholesalers in Kinshasa (like Laphaki and Cantas) or from local dealers (Bitran et al., 1986).

The Sub-Region of North Kivu has managed to establish a relatively successful revolving drug fund. UNICEF gave the sub-region an initial supply of drugs, and it now uses revenues from sales to repurchase more drugs from UNICEF at a 30 % discount. The central office sells the drugs to the health centers at approximately a 10% mark-up, and the centers sell to the patients at about 10% mark-up, so patients are still receiving approximately a 15% discount (Litvack, 1988)

Zones which are not operating in an organized sub-region must procure drugs from other sources. Two critical factors for determining drug procurement success are the proximity of the health zone to a city and a good wholesale supplier, and the management ability of the Médecin Chef de Zone. For example, the Kisantu Zone, located two hours by jeep from Kinshasa, has a very successful drug supply system. Supplies are purchased from a Kinshasa wholesaler 2-4 times a year. Health centers order pharmaceuticals from the central office when their stock is at 50%. Each center orders only what it requires and is subject to a quota (to prohibit staff from selling the drugs on the side and to limit the problem of expiration dates).

Expired drugs are rarely a problem in Kisantu Zone since the central office pays careful attention to expiration dates when it purchases in Kinshasa, and does so often enough to avoid old stock. Health center personnel, in turn, are all aware of expired drug protocol: If drugs on their shelves expire, they are to be returned to the central office for replacement. Since health centers purchase drugs on a monthly basis according to their need, expired drugs generally are not a problem. As a result of the steady supply of drugs, and the excellent supervision of this zone by the Médecin Chef, most health centers achieve full cost recovery, as does the central office (Litvack, 1988).

An example of drug procurement in a less successful zone may prove illustrative. UNICEF supplies the health zone Rwashi (located near the city of Lubumbashi) with an initial stock of medications once a year for each health center, after which the central office is supposed to use the revenues from drug sales to purchase more drugs from UNICEF. Approximately 20 drugs are supplied by UNICEF, though health centers often buy other more popular drugs (i.e. injectables) from local pharmacies. Drug supply in this zone is inadequate. Since UNICEF does not seem to be a reliable provider in this zone, the central office purchases drugs from local drug depots. As health centers do not receive a significant discount when purchasing from the central office, they often choose to obtain drugs from local pharmacies. Some health centers experience great difficulty with cost recovery, hence resources are unavailable with which to purchase more drugs. Prescriptions are often given to patients to fill at local pharmacies (Litvack, 1988).

3. Training and Supervision

Supervision is arranged on a hierarchical basis. Health center nurses are supervised by the Médecin Chef de Zone. Some zones also have a specific zone supervisor who travels monthly to each health center and reports to the Médecin Chef. Feedback is provided on an ongoing basis to the nurses. While health centers in exceptional zones experience regular supervision by their Médecin Chef, most zones have irregular, informal supervision (Miller, 1987). In theory, the Médecin Chef de Zone is supervised by the Sub-Regional Director, who in turn is supervised by the Regional Director. In practice, the Directors have many responsibilities and often do not have time to conduct the annual supervision.

Médecins Chef de Zone are recruited nationally and assigned to health zones throughout the country. Prior to beginning their work, they receive a refresher training course at the School of Public Health in Kinshasa. The 45 day course is supported by UNICEF, USAID, and other donors. Three main subjects are taught:

- Concepts of PHC;
- Establishing training modules for their own paramedical personnel;
- Setting up integrated health and development strategy for the zone for which they are responsible (Mandl, 1988).

Among the responsibilities of the parastatal FONAMES (Fonds d'Action Médico Sanitaire) is the research and training for establishing sub-regional pharmaceutical depots (Mandl, 1988). Health Zone Kangu is reported to have a very effective accounting system that is well followed. This system was installed after the Médecin Chef had returned from a management training course with FONAMES (Miller, 1987).

Management and personnel of all 10 zones studied in the 1986 REACH project expressed a need for technical training, especially in the fields of accounting, management, and information systems (Bitran et al., 1986).

4. Sustainability

Zaire has gone much further than most African countries in implementing wide-scale cost recovery in the health sector. Socially and politically, this system is sustainable for several reasons: Zaire has a long history of a market-based economy and people seem willing to accept the notion of paying for health care. Nurses at health centers see that supplies at their health centers improve, and their salaries can be met, when costs are recovered; thus incentives for the continued management of payment schemes are inherent in the system. The country has hundreds of tribal groups and languages and lacks infrastructure to connect the vast country. Therefore, decentralization is natural in this country. Financially, it is also possible to keep drug funds revolving since the necessary condition for financial success is that revenues meet costs. However, given the extremely poor population and the skyrocketing price of pharmaceutical products, there is a real danger of reducing access.

E. IMPLICATIONS

1. Good management/supervision is critical to cost-recovery success.
2. Average cost for a course of therapy should be brought down by discouraging non-essential drugs and injectables. Where public health centers are not providing popular, non-essential drugs and are losing patients by not providing the demanded drugs, they should consider supplying the drugs to patients who request them (at a significant mark-up).
3. Promote a nation-wide essential drug program or increase regulation of private sector.
4. Prices must be adjusted for inflation, particularly in countries experiencing a very high rate of inflation.
5. Training is very important, particularly management training for the Médecins Chefs, since zone cost recovery success is greatly dependent on their management abilities.
6. Cost-recovery efforts are greatly enhanced when the health system is decentralized. Of particular importance is permitting financial resources to be reinvested in the facility from which they were raised.