ZAIRE: Health Zones Financing Study

June - October 1986
USAID/Kinshasa

Resources for Child Health Project

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ZAIRE HEALTH ZONES FINANCING STUDY

June - October 1986

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PREFACE

During the past few years, the United States Agency for International Development (AID) has devoted increased attention to the ways in which the organization of health services delivery in developing countries affects their capacity to finance those health services. In order to explore innovations in health care financing in developing countries, the Office of Health in AID's Bureau of Science and Technology established the Resources for Child Health (REACH) Project. As part of its strategy, REACH has been exploring how efforts to decentralize the administration of government health services serve to facilitate improvements in the financing of those services, and even in the allocation of resources in the health sector.

The Government of Zaire is currently implementing a nation-wide effort to decentralize its health care system and to provide more autonomy to local health authorities for raising revenue and determining how it is spent. The decentralization plan, which began in 1982, seeks to establish a national health care network of 300 "health zones", including 6,000 health centers, by 1991. The financing strategy being implemented involves a sharing of costs among the government, donor agencies, and individual users of the facilities. The government pays base salaries to many of the zones' personnel. Donor agencies provide a major part of the investment costs of setting up the zones, as well as some subsidies for operating costs in their start-up phases. Each health zone is responsible for deciding on a method for raising the funds needed to pay the long-run operating costs. In the approximately 150 zones which have already been established, a variety of revenue-raising methods have been developed--including prepayment, fee-for-service, and fee-per-episode.

This research report documents the experience of 10 of the first 150 health zones in developing cost-recovery systems. The selection of these 10 was deliberately intended to provide the research with adequate data on financial characteristics of the zones. They are therefore not representative of the experience across all zones. The research results do, however, provide valuable empirical evidence on the potential benefits of decentralization and of various cost-recovery methods, and establish a basis for recommendations on how existing methods can be improved. On behalf of the REACH Project, I wish to commend the professional staffs of Abt Associates, of the USAID Mission in Kinshasha, of USAID's Basic Rural Health (SANRU) project, and of FONAMES, as well as the medical and administrative staff of the 10 health zones participating in the study. The results of their collaboration should be helpful to other countries contemplating solutions to health financing problems similar to those faced in Zaire.

Alan Fairbank, PhD
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The REACH Project
March, 1987

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FOREWORD

This project has been financed by the Resources for Child Health (REACH) Project and originally was requested by Zaire's Expanded Program on Immunization (PEV) under the Combatting Childhood Communicable Diseases (CCCD) Project.

On behalf of the study-team members I wish to thank the medical and administrative personnel of the Zairian health zones for their patience in answering our extensive questionnaires and for their hospitality. I am grateful to Cit. Nlaba, Director of SANRU and Frank Baer, SANRU's Project Manager for their support and for generously putting SANRU's personnel and facilities at the disposal of the project. I am also grateful to Dr. Glenn Post, Health Officer of the USAID mission, and Felix Awantang, USAID CCCD Project Officer. Special thanks to the following SANRU personnel: Stephen Brewster for excellent computational, statistical and logistical help; Cit. Masumbuko for general and logistical support; Cit. Mbala for computational help; and Cit. Dianzola for excellent word-processing work. I wish to thank Taryn Vian for helping me with the administrative aspects of the project and for providing comments on an earlier draft of this document. I also thank Sandy Bailey for excellent logistical support.

This document has greatly benefited from comments and ideas by Marty Makinen who also conceived the study and contributed to the original project design.

I personally wish to thank Munkatu Mpese, with whom I co-directed this study. Munkatu provided essential technical input and played a major role implementing the study and organizing the work team.

The opinions and any remaining errors are my own and should not be ascribed to the REACH Project, to the team members, or to any of these individuals.

Ricardo A. Bitran

October 15, 1986

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1. EXECUTIVE SUMMARY

This report presents the findings of the Health Zones Financing Study in Zaire, conducted during the months of June through October of 1986. The study was jointly conceived and directed by the Zaire-based SANRU project and the Washington-based REACH Project, both sponsored by USAID, funding for the study was provided by REACH.

The study team comprised seven members: five Zairians representing SANRU, the Fond National Medico Sanitaire (FONAMES), the Departement du Plan, and the Project Sante Pour Tous; and two expatriates representing the REACH project and USAID.

The study was aimed at analyzing the health zones' cost-recovery systems, and recommending measures to improve the zones' cost-recovery capability while at the same time providing adequate health care services.

Ten health zones were chosen among the best organized in the country and had relatively successful cost recovery systems. In addition, selection of the zones was made based on a set of criteria such as availability of information, management style (centralized vs. decentralized), payment systems (pre-paid, payment per visit, per episode), accessibility, etc. Field data were collected through interviews of the zones' medical and administrative personnel. Financial data for calendar year 1985 were collected in all the zones, although in three of them, the data were insufficient to allow analysis. Within each zone the study-team members visited several health facilities and the central office.

Major recommendations made in this report can be summarized as follows:

To the Government of Zaire:

- -Promote the coordination of activities among health care providers within the zones.
- -Provide the zones with additional training programs, especially in the fields of management and information systems.
- -Grant administrative autonomy to the health zones. Avoid the imposition of fixed administrative schemes.
- -Maintain current levels of investment and operating subsidies to the zones.

To the health zones' management:

- -Seek participation and coordination of activities of all health care providers within the zones.
- -Improve the accounting and information systems at all levels.
- -Promote the ideas of pre-paid health plans among the population and providers where management support systems are adequate for this type of scheme. Seek external advice for this matter.
- -Seek external training for the zones' personnel.
- -Hire formally trained professionals in the fields of management and information systems.

To the donors:

-Maintain current levels of investment and operating subsidies to the zones.
-Provide management training programs to the zones employees. Assistance may include gift of microcomputers along with specific training in management information systems.
-Provide financing for further follow-up studies along the following lines:

Further follow-up studies:

-Analyze PRICOR's (Lusamba et al., 1986) data in further detail to obtain additional information on the demand side of the health system in the zones.
-Conduct additional studies, similar in nature to PRICOR's, to determine households' pattern of demand for both curative and preventive services.
-Investigate in further detail the zones' drug policies.
-Study the role played by parallel health care providers within the zones.

The main findings of the study are outlined below. Technical terms employed throughout the report are defined in a glossary at the end of the document.

Summary of Findings

(i) **Health zones' financing of operating expenses:** The health zones which were studied were able to finance a substantial proportion of their operating expenses (depreciation excluded) through user fees, i.e., the sale of health care services to the population. The zone with the highest self-financing capability was able to recover 90% of its operating expenses, the one with the lowest 67%, the arithmetic average for seven of the ten zones being 79%. These results suggest that Zairian health zones may eventually become financially autonomous in so far as their operating costs are concerned.

(ii) **External assistance for financing the zones' operating expenses:** The Government of Zaire (GOZ) and non-governmental organizations (NGO's) played an important role in financing (subsidizing) the proportion of the operating expenses not recovered by the zones. The total contribution of these two categories of donors to the operation of seven of the ten zones totaled 6,800,000 Z ($135,900) in 1985 and represented 21% of the average zone's operating expenses. In addition to these subsidies, most health zones benefited from the work of expatriate personnel whose salaries are paid by donors. Information gathered in two zones reveals that if expatriate personnel were replaced by Zairian professionals paid by the zones, the zones' total operating costs would increase by as much as 22%.

(iii) **Health zones capital investment level:** Health zones invested heavily in 1985, mainly using subsidy funds. In one zone total investments represented 42% of its total uses of funds. Capital investment subsidies totaled 6,400,000 Z in 1985 and paid for roughly all of the zones' 1985 investments. Donors accounted for 80% of these

subsidies, the remaining being provided by the GOZ. The proportion of the investments financed with the zones' own funds was negligible.

(iv) **Financial performance of health centers:** In most zones about half of the health centers had an operating deficit in 1985. Such deficit was financed either with subsidies from the above-mentioned sources or by cross-subsidization with the profits of other centers in the zone that had a surplus.

(v) **Financial performance of reference hospitals:** Information on nine of the ten zones revealed that all nine reference hospitals had an operating deficit in 1985. The one with the best performance recovered 99% of its costs while the one with the worst recovered only 49%. Deficits were also financed by subsidies from NGO's and by the GOZ, which in most zones paid the salaries of a large proportion of the hospital's employees.

(vi) **Financial situation of the central office:** The central office of most zones had to depend on subsidies to finance its operations. This results from the fact that the supervision fees paid by the health centers to the central office were set too low. The central office's deficit is also the consequence of the fact that some facilities which benefit from the office's supervision have not agreed to pay supervision fees. The constrained financial situation of health centers made it difficult for the central office to charge higher supervision fees.

(vii) **Capital-cost recovery:** If individual health centers were to finance their own investments - or equivalently, make periodical depreciation allowances to replace their capital stock- they would need additional funds equivalent to over 65% of their 1985 average operating revenue. The similar figure for the average reference hospital is around 14%.

(viii) **Magnitude of the zones' operating expenses and population's expenditure in health care:** The 1985 operating expenses of the zones varied between 3,034,000 Z ($60,680) and 5,672,000 Z ($113,440). The annual per-capita operating expenses of the zones ranged from 35 Z ($0.70) to 93 Z ($1.86). The 1985 expected expenditure on health care of an average person in the facilities of a zone network varied between 35 Z and 85 Z ($1.70), of which 67% corresponded to expenditures for inpatient procedures. People's expenditure in health care in parallel health systems was not assessed.

(ix) **Health zones' cost structure:** In four of the seven zones that had complete financial data, salaries were the most important cost component, and accounted for approximately 50% of the zones' 1985 operating expenses. In the remaining three zones drugs represented the greatest share of operating expenses. The maintenance of vehicles and buildings represented less than 3% of total operating expenses in six of the seven zones.

(x) **Payment systems at the health center level:** All zones but one used a fee per episode of illness payment system at the health center level. Such a system implies that patients do not have to pay for repeat visits to the health center until the episode is resolved. Only three of the zones also included the price of drugs and other

ambulatory procedures in the per-episode fee; in the other zones these items were paid for separately. In most zones, enterprises' employees and their families receive free care at the zones' facilities. A third-party payment system has been established between the health zones and local enterprises. Fees charged to third-party payers double on average those charged to private patients.

(xi) **Payment systems at the hospital level:** Eight of the ten zones used a payment system at the hospital level where patients pay fees which vary according to the quantity and types of medical services consumed. Two zones have just started pre-paid health plans for inpatient care. One of them had already recruited one third of its total population in the plan as of June for an annual per capita fee of 20 Z ($0.33) and an 80% coinsurance (the plan covers 80% of the total price of the services provided to the beneficiary; the remaining 20% is paid for by the beneficiary). Third-party payment systems also exist for hospital care.

(xii) **Price cross-subsidization between preventive and curative services:** All zones subsidize preventive primary health care (PHC) services. Estimates made in one zone suggest that the prices charged to the beneficiaries for pre-natal and pre-school preventive programs were on average less than one third their real cost in 1985. Preventive programs are subsidized at the expense of curative services.

(xiii) **Drug policy:** Most zones centralize the purchasing of drugs at the central office level. Bulk-purchase discounts and economies of scale in the handling of inventories permit the zones to obtain drugs at low costs relative to local market prices. This allows many zones to charge high mark-ups on the drugs to the public. Mark-ups exceed 100% for some products and in some zones the average mark-up is as high as 80%.

(xiv) **Competition:** Competition to the zones' networks exists in most of the areas studied. In one of them, competitors are estimated to capture as much as 70% of the zone's total demand for health care services. The study team did not have the chance to collect much information on competitors and their effect in the zones' financing.

(xv) **Indigents:** The provision of care to indigents at no charge does not seem to threaten the financial viability of the zones. In all of them, the percentage of clients given care free of charge was estimated to be below 10%.

(xvi) **Need for personnel training:** The management and personnel of all ten zones expressed a need for technical training, especially in the fields of accounting, management and information systems. In most zones, medical or para-medical personnel perform a large share of the administrative tasks. Therefore, time must be taken away from purely medical activities.

(xvii) **Lack of planning among providers of the zones' networks:** The health networks of most zones are composed of a multitude of different providers (missionaries, private providers, etc.). The management of most zones expressed their concern because their technical

supervision was often not accepted by the providers. They also stressed the lack of planning when building new facilities or offering new services.

We believe that the financial performance of the health zones can be improved. The following series of recommendations are aimed at improving the zones' financial performance.

Summary of Recommendations

(i) **Demand studies:** Further theoretical and empirical analysis needs to be done with regard to the population attitude vis-a-vis different payment schemes. The work by Lusamba et al. (PRICOR, 1985) is a good beginning. Understanding population's behavior with respect to prices of health care services will help to find the optimal payment schemes from the viewpoints of both accessibility and cost-recovery.

(ii) **Health centers' financing of operating expenses:** Many health centers are unable to achieve financial autonomy in their operations due to socio-economic reasons which are beyond their control (low population density or low incomes). Cross subsidization among centers within a zone is a solution to this problem if accepted by the centers' health committees. However, if the GOZ wants to promote the concept of individual health units' financial autonomy, it ought to provide financial support to the units that cannot be self-financed in the medium term. Otherwise, many facilities would have to close and a significant part of the population would lose access to health care.

(iii) **Reference hospitals' financing of operating expenses:** Health zones should investigate the reasons reference hospitals cannot achieve financial autonomy in their operating costs. Low occupancy levels in some zones suggest that unnecessary overhead may be responsible for this situation. Overhead reduction and cost control should be stressed at the hospital level. Prices of services should be reviewed to check whether prices cover variable costs, and which services can contribute to finance fixed costs.

(iv) **Central office's financing of operating expenses:** As long as health centers and the reference hospital are incapable of recovering their operating costs through user fees, the zones' central office will not be able to finance all its operating costs through supervision fees. Supervision fees should be proportional to the health centers' level of activity. The reference hospital should also contribute resources to financing the central office's costs since the office allocates resources to the hospital. Thus, we believe that continued subsidies will have to be provided to the zones in the medium term to finance the operations of the central offices.

(v) **Health zones' dependence on investment subsidies:** We think that in the medium term health zones will have to depend on external support to build or replace their fixed assets. However, we believe the the zones' management and that of individual health units should be aware of the fact that fixed assets need to be replaced and that depreciation allowances are necessary if the zones ever want to achieve full financial autonomy. Each health unit should estimate and account for depreciation. If possible, the operating surplus of

individual units should be saved in a capital replacement fund. Health units should have access to interest bearing savings accounts for this purpose.

(vi) **Pre-paid health plans:** Health zones with mature management information systems may develop pre-paid health plans for both inpatient and outpatient services. Such zones should seek external advice to adequately define their plans, their management control systems and their premium policies. At a first stage, ambulatory pre-paid plans should be managed individually by the health centers and the inpatient plan by the reference hospital. At a second stage, the zones should offer a unique pre-paid health plan to its population. Pre-paid plans allow risk-sharing among beneficiaries and may help to achieve a higher degree of financial performance.

(vii) **Drugs pricing policies:** Health zones should review the policy of charging abnormally high mark-ups on some drugs sold to the population. Preliminary data suggest that demand for health care services may be influenced by the price and availability of drugs. High prices of drugs may discourage individuals from seeking curative and preventive care. Research should be conducted to assess the effects of drugs prices on demand for health care. Such a research should help determining the appropriate magnitude of mark-ups for each category of drug.

(viii) **Price cross-subsidization between curative and preventive health services:** Health zones should keep the price of preventive PHC subsidized until further research reveals the effect of price of preventive programs on demand. Although preventive programs are currently subsidized, coverage of pre-school programs is still low. Reduction in subsidies could reduce coverage even further.

(ix) **Prices to enterprises:** Health zones should negotiate reasonable prices with third-party payers in order to prevent them from seeking other sources of health care for their beneficiaries. Prices to enterprises should be determined by marginal cost plus a mark-up to be negotiated between the zone and the enterprises. Health zones should also consider offering comprehensive pre-paid health packages to third-party payers as a possible measure for increasing utilization of resources and improving financial performance.

(x) **Indigents:** Health zones should try to minimize the number of services provided free of charge to the population. In most cases, children should pay for health care. The zones should consider offering pre-paid plans for children.

(xi) **Accounting systems:** Health facilities should devote time and resources to understanding their cost structure and developing accurate accounting systems. Understanding a facility's costs is essential to formulate financially sound pricing policies.

(xii) **Management information systems:** Individual health units as well as the central management of the zones should also invest resources to developing financial and technical information systems as a necessary step to achieve financial and technical autonomy. The purchase and use of microcomputers together with formal training in data

processing and information systems for the zones' personnel should be among the zones' first priorities.

(xiii) **Subsidies for personnel training:** The GOZ and NGO's should allocate a greater proportion of their aid to training programs, especially in management, accounting, and information systems.

(xiv) **Training and hiring policies:** Health zones should train their existing administrative personnel but, at the same time, they should consider hiring young professionals, particularly in the fields mentioned in (xiii) above.

(xv) **Zones' attitude toward competitors:** The managers of the zones should be granted more power to enforce the zones' statutes toward parallel providers. However, the role of competitors must not be underestimated. Parallel providers (i.e., those that have not been granted a permit to operate within the zones) may play an important role at filling the gap left by the zones' facilities in some geographic areas. In addition, parallel providers may be important to provide competition to the zones' health units. This competition requires health units to remain efficient and to keep prices low. Research should be conducted on the role of parallel providers and the population's perception of them.

(xvi) **Health zones' administrative autonomy:** We believe that demographic and socio-economic differences among the zones require different zones to adopt different administrative schemes, pricing policies, and health care plans. We think that the zones should be technically autonomous since the zones' management is better equipped to solve their own problems. We encourage the GOZ to provide training and guidance to the zones' personnel, but we discourage it from imposing uniform and rigid administrative schemes to the health zones.

(xvii) **Coordination of activities among providers:** The zones' management should promote the participation of all health care providers and the population in a unique central committee as a way of promoting planning and preventing inefficient use of resources.

Structure of the Report

This report is organized as follows. Chapter 2 provides an introduction to the report and describes the events leading up to this study. This chapter also reviews briefly the findings of related studies recently conducted in Zaire. The study methodology is described in chapter 3. The findings of the study are presented in chapter 4. In addition to looking at the financing of the zones the study analyzes other non-financial aspects which also affect the zones' cost recovery capability. Non-financial findings are summarized in sections 4.1 through 4.5. Technical appendices B through G present these findings in further detail. The financial results of the report are discussed in section 4.6 of chapter 4. Technical appendices J through M supplement the discussion of section 4.6. An analysis of the findings of the study along with recommendations are provided in chapter 5.

2 INTRODUCTION

2.1 Background

The question of how to assure long-term financial support for basic health services has come to the fore in recent years in Zaire, as in many African countries. This has been so for four reasons: (1) the Government of Zaire (GOZ) and donors have set ambitious goals for improvements in the quality and coverage of basic health services; (2) the amount of GOZ resources available for health is constrained by the recent poor performance of the Zairian economy; (3) the strategy used during the 1960s and 1970s where the GOZ tried to finance operating and maintenance costs failed to assure sustainable long-term basic health programs; and (4) the "distance" that the Zairian health service system must travel from its current status to reach the ambitious goals of (1) is great.

The World Health Organization (WHO) at the Alma Ata Conference of 1978 declared a goal of "Health for All by the Year 2000". Zaire has accepted this goal. The United Nations Children's Fund (UNICEF) has adopted a goal of universal child immunization by 1990. USAID is urging African countries to take up the "twin engines" (oral rehydration therapy (ORT) and immunizations) of its "Child Survival" strategy. The agreement for USAID's Combatting Childhood Communicable Diseases (CCCD) project in Zaire set an objective of reducing infant and child morbidity and mortality by 50 percent by the end of 1986.

Following independence the GOZ attempted to provide health care to the population at no charge. The health infrastructure that existed in Zaire in the 1960s was among the better in Sub-Saharan Africa. However, the GOZ was unable to allocate sufficient funds to operate the system at full capacity, nor even to maintain it. Entering the 1980s much of the population was without physical access to basic health services.

The state of the Zairian economy further weakens the GOZ's ability to carry out a fully state-subsidized health care strategy. Since the mid 1970s Zaire's economy has performed badly; real per capita income has fallen since 1975. This poor performance was aggravated by the world recession of the early 1980s and the subsequent decline in the price of copper, Zaire's most important export. Zaire has been under an International Monetary Fund (IMF) program since late 1983 and under that program has begun to make structural changes in the way the economy is managed. However, the process of economic reform will take time; hence public resources will be scarce for some time to come.

To meet its "Health for All" goal Zaire has set out to establish a nationwide health zone network of 300 zones and 6,000 health centers by 1991. Following some pilot studies in the late 1970s and early 1980s, Zaire embarked on the development of the health zone system in 1982. The 1982-1986 Five Year Health Plan called for the establishment of the first 85 zones.

The financing strategy for the health zones involves a sharing of costs. Donor assistance for the investment costs to establish health zones has been arranged, primarily from USAID's Basic Rural Health (SANRU) project, UNICEF, and Belgium's Sante pour Tous project. The GOZ pays base salaries to many of the zones' personnel. The zones themselves are

responsible for paying for operating and maintenance costs (SANRU subsidizes zone operating costs, on a diminishing basis, during the "start-up" phase of zone activities). This often includes paying substantial salary supplements to personnel paid by the GOZ. The necessity of paying operating costs has meant that the zones have had to begin charging fees for health care services, or use other means of recovering costs. Assignment to the zones the responsibility for operating costs was the means to overcome the difficulty of relying on GOZ recurrent resources to keep the system operating, especially during the expected continuation of the period of economic difficulty.

The health zones are given considerable autonomy in decision making by the GOZ in both health and non-health matters affecting zone operations. Hence, zones were allowed to develop cost-recovery schemes to fit local conditions. The autonomy of the zones permitted them to develop their own systems but also meant that they received little guidance from the GOZ how to make cost-recovery systems work.

In the first few years of implementation of the health zone strategy there was relatively little concern over whether the zones were successful in financing operating costs. The first areas chosen to be organized into zones were those where many health activities were already functioning well. Moreover, start-up subsidies were frequently given for operating costs. The initial lack of concern changed for several reasons. As the establishment of zones progressed, the new areas organized under the strategy were progressively less well-functioning before the establishment of the zone system, hence their abilities to organize cost-recovery systems became more and more doubtful. The start-up subsidies of operating costs of the first zones established began to diminish and some of the zones began to report difficulty in paying for operating costs. Elsewhere the GOZ was not meeting its obligations to pay an increasing share of the operating costs of the CCCD project, so it began to look toward cost-recovery as a means to support some of those costs as an alternative to GOZ budgetary allocations.

This situation led to recommendations in the first evaluation (1984) of the CCCD project that chloroquine for the treatment of malaria and oral rehydration salts (ORS) for treatment of diarrhea be sold by the implementing GOZ agency, the Expanded Program of Immunization (PEV). This policy would lead to assured financing of resupply of these pharmaceuticals, but could not assure that the associated costs of fuel and maintenance of cold-chain equipment and vehicles for supervision would be paid for. Such costs more logically would be paid for by zones out of general cost-recovery receipts. The second CCCD evaluation (1985) found that zones were using a variety of systems with varying success to try to recover costs sufficient to pay for the needed supervision of activities and cost of maintaining the cold chain. The evaluation recommended that a study be made of the systems in use where the zones seemed to be relatively successful at recovering such costs. The objective of the study would be to recommend to zones facing difficulties how to organize more successful cost recovery efforts.

The basic document (project paper) of the 1986-1992 Basic Rural Health II project (USAID's follow on to SANRU, known as SANRU II) stated that the experience of SANRU had shown that it is rare that zones' user-fee receipts cover all recurrent costs. Thus, the SANRU II project planned to assist

the GOZ to research improvements in the zones' financing systems in general and specifically in improving user-fee systems, training of zonal chief medical officers in cost-recovery methods, and in researching how to minimize the costs of service delivery.

Finally, in 1985 USAID's Science and Technology Bureau created the Resources for Child Health (REACH) project to provide technical assistance to USAID country missions and host governments in the area of health-care financing. Under a request from the CCCD project in Zaire, Reach planned the present study of health zones financing. SANRU took an active role in assisting with the study in the form of personnel and logistical support. CCCD and PEV provided technical guidance. It is hoped that the results of the present study will be used in the development of the materials for improved training of zone personnel in cost-recovery methods. It is also hoped that the necessary resources to pay for basic health services for the people of Zaire will be raised, in part, as a result of the conclusions of this study.

2.2 Overview of Previous Health Zones' Financing Studies in Zaire

Several studies have been conducted in recent years to assess the magnitude of the Zairian health zones' investment and operating costs and the zones' cost-recovery capability. Some of the findings of these studies are summarized below.

The 1985 SANRU II Project Paper estimated the investment and recurrent costs associated with the project of creating 50 rural health zones in the country with a total of 520 new health centers. The paper anticipated that external donors would play a major role in financing the construction and replacement of capital goods, vaccines and contraceptives. The authors estimated that the GOZ and the beneficiaries would split the bulk of the operating costs which were estimated at $0.39 per beneficiary by 1993. In addition, beneficiaries would have to pay $1.00 per episode of disease for medicines. The burden on the GOZ budget after the end of the project in 1993 was estimated to be $750,000 per year.

A 1983 PRICOR study by Marty Pipp looked at investment and operating costs of ten health centers in six rural health zones. Without including the investment costs of the buildings, Pipp estimated the remaining annual investment costs to be 506,000Z in the central office of a zone and 6,500-14,000 Z in a health center (25 Z = $1 in 1983). With regard to operating costs, the author estimated that the central office would cost 25,000 Z per year and each health center 10,700-53,800 Z. Health centers' operating costs were found to vary significantly depending on their geographic location, reflecting variations in local prices of inputs. On a per-capita basis (population within service area used as denominator), health centers' operating costs were found to vary between 14Z ($0.56) and 37 Z ($1.48) in the zone with the highest input costs.

A 1985 report by M.G. Kishmir, consultant for the Departement du Plan, discussed the role that the GOZ could play at financing health zones' operating deficits. The author proposed the use of cost-effectiveness analysis to determine whether the GOZ should invest its funds in health zones or allocate them toward other projects with higher social profitability. Kishmir recommended that if the GOZ were to allocate funds to financing health zones' investments, priority should be given to

personnel training activities. Finally, the author commented on the fact that some previous health zones financing studies had revealed that the zones were not providing for the replacement of fixed capital; health zones' prices reflected only a portion of their full operating costs.

The 1984 Financial and Economic Evaluation of the CCCD Project by Marty Makinen concluded, among other things, that the direct costs of oral rehydration therapy and distribution of chloroquine could be self-financed through user fees. The direct costs of immunizations, however, could not be totally financed by users and external subsidies were needed. The study also concluded that there was little possibility of recovering capital costs through user fees.

A paper published in 1984 (Kasongo Project Team, "Primary Health Care for Less Than a Dollar a Year", World Health Forum, vol. 5, 1984) looked at the recurrent costs of a primary health care project started in 1972 by a team of Belgian and Zairian medical personnel in the Kasongo zone. The paper concluded that annual recurrent costs of providing preventive and curative health services to the zone's population varied between $0.55 in more rural areas and $0.67 in the main town, per inhabitant covered. The population was able to cover between 34 and 57% of the operating costs through user fees. The annual operating costs of a health center ranged from $5,500 to $6,700.

Another PRICOR study conducted between 1983 and 1986 (Lusamba, Baer, Munkatu, Lokangu, Greenberger and Pipp, "Community Financing of Primary Health Care in the Republic of Zaire") assessed the operating costs of health centers and investigated people's response to two payment mechanisms: a fixed payment per episode of disease and a fixed payment per visit plus variable fees for drugs. The study was conducted in five rural health zones and in two health centers within each zone. The study concluded that the average recurrent cost associated with an episode of illness was $1.41. Of the ten centers analyzed, five were required to change their payment schemes (experimental centers) while the rest kept their existing schemes (control centers). Four of the five experimental centers switched from a payment per visit to the per-episode payment scheme; the fifth did the reverse. The results failed to demonstrate increased utilization of curative services under the per-episode scheme, as originally hypothesized by the authors; utilization of preventive services, however, showed an increase. The authors justified the failure of health centers to show greater utilization of curative services under the fee per-episode system on the negative attitude that health personnel had toward that system. The authors also concluded that the average number of visits per episode of disease was greater under the payment per episode system than under the payment per visit one.

Finally, a paper by Franklin Baer ("Planning Primary Health Care Resources for Zaire, paper presented at the National Council of International Health Conference, June 2-5, 1985) estimated the magnitude of the financial resources required to develop and operate a health zone in Zaire. Baer estimated the annual total operating costs of a health zone to be $185,500, of which $110,000 would be health centers' costs (20 centers), $48,500 would be the reference hospital costs and $27,500 the costs of the zone's central office. Total initial investments were estimated at $470,000 per zone, of which $260,000 corresponded to health centers, $123,400 to the reference hospital and $86,600 to the central office.

The results of this study confirm what the SANRU II Project Paper had anticipated, namely that donors would finance most of the zones' investments costs. The results show that most of the zones' recurrent costs (70%) are financed with the zones' own revenue. The GOZ and donors contribute each about 15% of the zones' recurrent costs. This contrasts with the SANRU II Paper's predictions which assumed that the GOZ and the beneficiaries would split the bulk of the recurrent costs. The 1985 average annual operating costs of the central office and of a health center were 480,000 Z and 66,000 Z, respectively. The PRICOR study (Pipp, 1983) estimated these figures to be 25,000 Z and 10,700-53,800 Z, respectively. While the study yields operating costs of health centers comparable to PRICOR's, the costs of the central office estimated by PRICOR are substantially smaller than those obtained in this study. Differences may be explained to a large extent by the price inflation between 1983 and 1986 and also by the size of the zones chosen in both studies. Health centers' operating expenses on a per-capita basis (using population covered as denomitor) were found to vary between $0.26 and $0.74. PRICOR's estimates were $0.56-$1.48. The total recurrent costs of a zone were, on average, $80,000, less than half the amount projected by Baer in the paper referred to above.

3. METHODOLOGY

3.1 Study Team

The study team was made up of seven members whose names are listed on the front page of this document. In addition to those listed, Dr. Mputu Yamba from the Departement du Plan also participated in the preliminary group meetings in Kinshasa and visited the health zone of Sona-Bata.

The institutions participating in the study were the following: the Project de Soins de Sante Primaires en Milieu Rural (SANRU), which is a Zaire-based project sponsored by the United States Agency for International Development (USAID); the Washington-based Resources for Child Health (REACH), also a USAID-sponsored project; the Fond National Medico Sanitaire (FONAMES); the Departement du Plan; the project for the development of urban health zones, Sante pour Tous, co-sponsored by the governments of Zaire and Belgium; and the United States Agency for International Development, Kinshasa.

3.2 Duration and Phases of the Study

The study lasted 14 weeks, from June through October of 1986, and was structured as follows:

In Zaire:	2 weeks:	**Group meetings in Kinshasa:** preparation of survey questionnaires; discussion of methodology; selection of health zones;
	4 weeks:	**Visit to 10 health zones:** field data collection.
	4 weeks:	**Write-up of field reports:** preliminary analysis of field data; write-up of field reports; write-up of preliminary final report.
In the U.S.:	4 weeks:	**Write-up of final report**

The team split into two groups of 3-4 members each, and each group visited 4-5 different health zones. Field visits lasted from 3 to 5 days plus 1 day of travel.

Within each health zone, the team members visited the following units: the reference hospital, two or three health centers and the central office. In several zones, they also visited a reference health center and health posts.

3.3 Health Zones Selection Criteria

As of June, there were approximately 150 operational health zones in Zaire. Resource and time constraints permitted the study to be conducted on a sample of ten of them. These zones were chosen by a panel of Zairian experts from SANRU, Sante Pour Tous, Fonames, and other institutions. The ten zones selected were among the best organized in the country, and with relatively successful cost-recovery systems. In addition, the zones were selected to observe variety in terms of the following characteristics:

- -Type of organization (e.g. centralized vs. decentralized)
- -System of payment for health care services (pre-paid, payment per visit, per episode)
- -Availability of information
- -Accessibility
- -Geographic diversity
- -Relative importance of different sources of financing (internal vs. external)
- -Rural vs. urban setting

A list of the zones chosen follows:

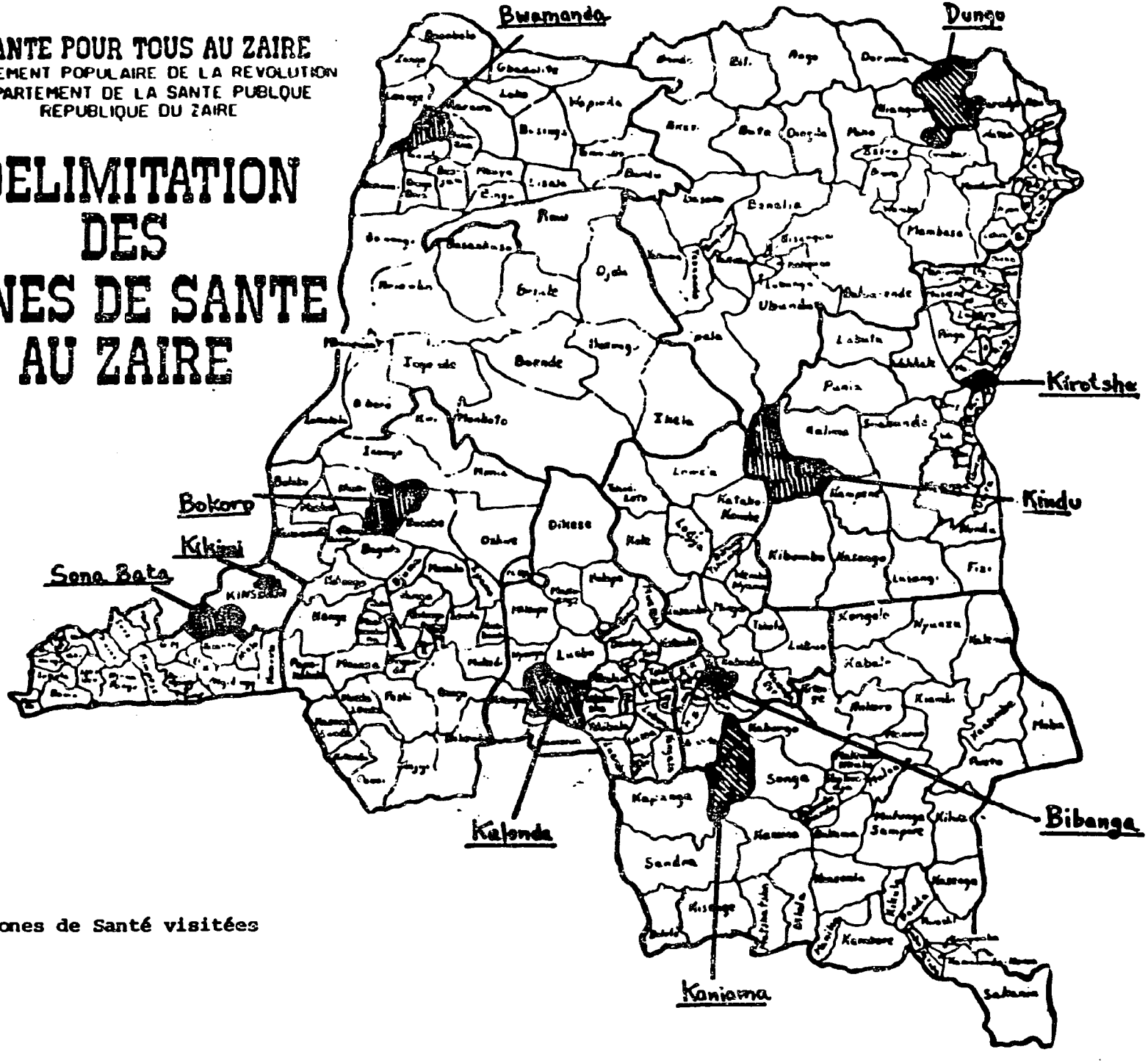
- -Bibanga, Kasai Oriental
- -Bokoro, Bandundu
- -Bwamanda, Equateur
- -Dungu, Haut Zaire
- -Kalonda, Kasai Occidental
- -Kaniama, Shaba
- -Kikimi, Kinshasa
- -Kindu, Kivu
- -Kirotshe, Kivu
- -Sona-Bata, Bas Zaire

Of the ten zones above, 8 are considered to be rural while Kikimi and Kindu are classified as urban and semi-urban, respectively. All nine regions of the country were represented in the sample.

A map of Zaire showing the boundaries of the 300 health zones and highlighting the ten zones visited is shown on the following page.

SANTE POUR TOUS AU ZAIRE
MOUVEMENT POPULAIRE DE LA REVOLUTION
DEPARTEMENT DE LA SANTE PUBLQUE
REPUBLIQUE DU ZAIRE

DELIMITATION DES ZONES DE SANTE AU ZAIRE



= Zones de Santé visitées

3.4 Data Collection and Analysis

As described earlier, the study focused mainly on the cost-recovery systems employed by the zones. Thus, data collection was concentrated on financial and utilization information, described below:

-prices and payment mechanisms used
-sources and uses of funds
-operating and capital expenditures
-utilization of services

Cost recovery can also be influenced by a variety of other factors on which data were also gathered:

-demographic and socio-economic conditions
-types of services offered by the zones and competitors
-physical facilities and equipment of the zones and competitors
-administration and management

The information was collected through personal interviews between group members and the zones' technical staffs. The interviews were conducted based on a set of questionnaires (see questionnaires in appendix A).

3.5 Field Reports

During the month of August, a case-study report was prepared on each of the ten zones visited. The reports describe in detail the information gathered in each zone, as indicated previously. The reader interested in detailed data is referred to the case-study reports, which are contained in a separate volume.

3.6 Criteria for Collection and Analysis of Financial Data

Financial data were gathered to determine the following:

-absolute and relative magnitude of the operating expenses and investments made by the zones during 1985 (overall and by type of functional unit)
-absolute and relative magnitude of the financing sources of operating expenses and investments for the zones and their units
-cost structure of the zones and their units
-mechanisms employed by the zones to establish their pricing systems and relationship with actual production costs
-average per capita cost of health care broken down by service category (drugs, inpatient and outpatient, preventive and curative procedures)

Financial data were collected for calendar year 1985.

Some methodological details follow:

(i) **Investments made before 1985:** Because of the limited time and the lack of accurate information, the cost of investments made before 1985 were neither estimated nor recorded during the study. The replacement value of previous investments is important, however, because it permits the addition of a depreciation

component to a zone's operating expenses. The findings of the Table Ronde sur les Soins de Sante Primaires (Departement du Plan, December 1984) have been used to estimate the cost of building fully furnished hospitals and health centers in Zaire. Investment costs were used to assess the zones' ability to finance their investments and to make depreciation allowances to replace their capital stock.

(ii) **Investments made during 1985:** All investments made during 1985 were recorded and costed by the interviewers. Such information was collected to assess the current volume of investment taking place in the zones visited, and how this investment is distributed among the functional units of the zones.

(iii) **Direct subsidies received by the zones in 1985:** Health zones receive subsidies from two main sources: the Government of Zaire and donors, such as foreign governments, domestic and foreign agencies, and private institutions and individuals (non-governmental organizations (NGO's)). In addition, subsidies are made in at least three forms: in cash, in kind, or in services provided at no cost. In this study, subsidies in cash made in foreign currencies were converted into local currency at the official exchange rate. The value of subsidies in kind was estimated using local prices of the same or comparable goods.

Subsidies were classified according to the way they were used by the zones. The subsidies that were employed to finance the operations were called **operating subsidies.** Those used to finance the investments were classified as **investment subsidies.** This last distinction is important, as will be shown in chapter 4.

The value of subsidies in the form of services was estimated in the study. The salaries of the personnel working in the zones but being paid by external entities fall into this category. Two types of subsidies made in the form of salary payments were considered:

(a) salaries of government employees. This category included all salary payments made by the GOZ for zone personnel.

(b) salaries of foreign institutions' employees working in the zones. A number of foreigners work in the health zones visited by the study group, their salaries being paid by different sponsoring foreign institutions. These professionals are paid salaries which are substantially greater than those of their Zairian counterparts. In the absence of foreign employees, health zones would have to hire Zairian professionals and pay them normal domestic salaries. Thus, the value of this subsidy was considered to be that of the salaries that would be paid to Zairian professionals if they were to perform the work of the expatriates.

Some zones benefit from the work of voluntary personnel, such as Peace Corps volunteers. The value of the services provided by such volunteers was not counted as part of subsidies to zone operating costs since those services usually involve special projects or activities which will end with the volunteers' departure. The value of work performed by missionaries was not counted as an operating subsidy either.

Finally, the lower import duties granted by the GOZ to drugs or other types of foreign goods imported by the zones may also be considered as a subsidy. However, the study group was unable to estimate the value of this type of subsidy due to lack of information.

(iv) **Quality of the field data:** The availability and reliability of the field data varied greatly among the ten zones. Data availability and quality were better in more mature zones and less adequate in newer ones. Information was also incomplete in the zones where the central office controls only a portion of the facilities of the health network. Thus, the study group was unable to reconstruct combined 1985 financial reports for the zones of Bibanga, Kalonda and Sona-Bata. In addition, the financial reports of the complete set of health centers and of the zones were estimated based on sample data for the zones of Dungu and Kirotshe.

(v) **Health centers financial data:** Health zones employ different criteria to classify their facilities into reference health centers, health centers, and health stations. In order to avoid confusion and to simplify the analysis, the study group decided to combine the financial data of these three categories of health units into one single category, referred to as health centers.

(vi) **Health zones' functional units:** In order to facilitate the exposition and interpretation of the financial data, the study group decided to consider each health zones as a set of three functional units: (1) the central office; (2) the reference hospital; and (3) the set of health centers.

(vii) **Exchange rates:** Most of the zones' financial data are presented in both zaires and U.S. dollars. Throughout the report, financial information is presented specifying (a) the year and (b) the currency (zaires or dollars). The average exchange rates used in the report were 50 zaires per dollar in 1985 and 60 zaires per dollar in 1986.

4. FINDINGS

This chapter presents all the major findings made by the study team during the field visits to the ten health zones. The chapter is divided into six sections. Sections 4.1 through 4.5 briefly review the salient facts pertaining to the non-financial findings of the study. Additional information regarding these aspects is provided in appendices B-G. Financial findings are presented in section 4.6.

4.1 Health Zones' Demographics

Basic demographic data for the ten zones are presented in Table B.1 of appendix B.

Average population density per Km2 varies from 5.8 to 125 among the studied rural zones. Densities within zones also vary greatly. Higher density allows the provision of coverage with fewer health units. However, accessibility must also be taken into account, as found in the Mitumba Mountains region of the Kirotshe health zone. The scattered rural populations in villages of 250 to 1500 people necessitates that a single health center cover several villages to be able to spread fixed costs sufficiently to hold down user fees. Low density areas make complete self-financing of individual health centers impossible.

4.2 Socio-economic Information

In most of the rural health zones visited, subsistence farming is the main economic activity. Commercial farming (coffee, manioc, corn) generally constitutes the most important source of cash revenue. In the zones of Kalonda and Bibanga, the diamond trade is important. Additional important sources of revenue of some zones are the breeding of cattle (Bibanga, Kirotshe) and fishing (Bokoro).

Health zones' personnel estimated that, in addition to the goods produced and consumed by the families (food), average monetary revenue in rural health zones is about 1,500 Z per month ($25) for a family of 6-8 people.

The urban zone of Kikimi has the greatest percentage of its labor force in wage employment, the main employers being government and private transportation companies, textile industries, the army and breweries. Despite the presence of these firms, surveys conducted in the health zone of Kikimi in 1985 revealed that 35.5% of the heads of household in Kikimi were unemployed.

The cyclical nature of agricultural activities translates into an irregular cash flow. In all ten zones, payments for health services must be made in cash. The shortage and uneven availability of cash presumably limits the ability of households to pay for health care services although the extent to which this is true was not investigated by this study.

Some available local information, however, provides clues that may help understand the way in which the availability of money affects individuals' demand for health care. A recent survey conducted in the health zone of Kikimi (Gerniers and Zola Ngindu, 1985) indicates that 87% of the people who become sick and who do not seek care justify their attitude on the lack of financial resources. Some preliminary tests on the data from the PRICOR I survey (1986) reveal that a significant difference exists in socio-economic status between the people who decide to be treated when sick and those who do not, the socio-economic index being lower in the latter category.

The demand for care is lowest during planting and harvest times, when adults are far from more populated areas where health centers and posts are usually located. Further, in the health zone of Dungu, heads of households live away from their main home during planting and harvest times. Children, especially those of school age, are left alone, unattended, without monetary resources and more vulnerable to illness. Health authorities in Dungu have decided to provide free of charge to all children aged 0-4 preventive, ambulatory and inpatient services. This decision has severely affected the zone's cost recovery capacity, especially since children aged 0-4 represent around 20% of the total population of the zones and probably account for a higher share of the total demand for health care.

Industries exist in several of the health zones. Although in general they employ a small proportion of the total work force of the zones, they contribute substantially to the revenue of the health units. This aspect is discussed in more detail later in sections 4.3.1, 4.6.5, and 5.1.7.

4.3 Administrative Structure of the Zones and Management Systems

A description of the zones' administrative structure and management systems can be found in appendix C. All of the zones studied conform roughly to the system described in the appendix. Major differences found were the way supervision fees are set, pricing of drug supplies, and whether referral fees are charged within the zones.

4.4 Infrastructure, Providers, Ownership and Services Offered in the Zones' Health Facilities

A description of the types of health units of the zones, their personnel and the health care services provided in each can be found in appendix D. Basic information and analysis on the health zones' medical infrastructure and the ownership of health facilities is presented in appendix E. This section summarizes the salient facts of appendix F which describes the types of providers within the health zones.

Providers within a zone can be classified into two categories: those that have been approved and are supervised by the central office, and those that do not meet these conditions. The first category of providers are referred to as providers of the zone's network. Facilities that belong to the second category are called parallel providers.

Parallel providers capture a significant share of the demand for health care in most zones. In many cases, this competition hinders the ability of the facilities within the zone's network to become completely self-financed.

Zairian enterprises are obliged by law to provide free health care to their employees and their families. Many firms operate their own health units to meet this requirement. Others have contracted with the zone's central office to have the facilities of the network provide health care to the firms' beneficiaries. Fees charged to enterprises by the facilities of the zone network usually exceed those charged to private patients.

4.5 Utilization Statistics

Basic indicators of health care utilization and coverage can be found in table G.1 in appendix G. Analysis is also provided in the text of that appendix. A summary follows:

Average annual utilization of curative services in the zones' networks range from 0.29 to 1.36 new episodes per person. This understates the total number of episodes treated at all facilities, since use of parallel providers is not accounted for. The average number of visits made to zone health facilities per episode of illness ranges from 3.4 to 4.3, based on data from Bwamanda and Bokoro.

High rates of participation (greater than 90 percent) in pre-natal clinics were reported in Bwamanda, Kaniama, and Kindu. In most of the zones where data were available, participation rates in pre-natal clinics exceeded those in pre-school clinics.

Poor data quality on inpatient service use makes systematic comparisons impossible.

4.6 Health Zones Financing

This section presents the study's financial findings. A summary of the main results follows.

The studied health zones were able to pay for a significant proportion (over 70 percent) of their 1985 operating expenses through cost-recovery receipts. The GOZ and donors contributed with equal shares to pay for the remaining operating costs. Virtually all investments made by the zones were subsidized, primarily by donors and to a lesser extent by the GOZ. The central office of most zones had to depend on operating subsidies in 1985. Also, many reference hospitals were underfinanced in their operations. In some zones cross-subsidization took place among health centers, those having an operating surplus subsidizing the ones with a deficit. The central office played a major role in allocating those subsidies. In most zones charges for inpatient care are set depending on the types and amounts of services provided. Two zones have started pre-paid inpatient plans. The majority of the health centers have a fee per episode of illness payment system. In only two zones, drugs are also included in such a fee. Many zones have established ad-hoc price categories based on patients' socio-economic status. Finally, many private and GOZ-owned enterprises that operate within the zones have arranged with the central office to obtain health care for their beneficiaries. Fees charged to enterprises are generally higher than those of private patients. Fees charged to enterprises represent in some cases an important source of revenue for the zones.

The remainder of this section is organized as follows. The magnitude of the zones' 1985 operating expenses is presented in section 4.6.1. The zones' cost structure is discussed in section 4.6.2. In section 4.6.3 an analysis is made of the zones' financing sources of operating expenses. Section 4.6.4 presents the magnitude of the zones' investments. Finally, section 4.6.5 describes the pricing systems employed by the zones. Appendices H and I present the zones' sources and uses of funds statements. Appendices J and K provide information on sample prices of health services

charged by the zones and on population's expenditure in health care, respectively.

4.6.1 Magnitude of the Zones' 1985 Operating Expenses

Part of the analysis that follows is based on the zones' statements of sources and uses of funds for calendar year 1985 (see detailed sources and uses of funds statements in appendix H and condensed statements in appendix I). Such statements were constructed by the study group to allow the comparison of financial information among zones.

Table 4.1 shows the 1985 per capita operating expenses of the zones adjusted by population coverage (percentage of the population of a zone living within health areas). Per capita operating expenses, as computed in table 4.1, cannot be compared among zones from the viewpoint of efficiency; adjustments need to be made for factors such as regional price indices, utilization and quality of the services provided.

The zones' operating expenses varied from 3,034,143 Z ($61,000) in Kikimi to 5,672,612 Z ($113,000) in Dungu (see appendix H). On a per capita basis expenses ranged from $0.70 in Bokoro to $1.86 in Dungu, as shown in table 4.1. These expenses include all the salaries of the zones' employees, drug consumption, payment of services, transportation, fuel, office supplies, maintenance of buildings and equipment and miscellaneous expenses. Two categories of expense are excluded from the above: 1) the depreciation of the health zones' existing assets and 2) the salaries of the expatriate personnel. The magnitude of these two cost categories is estimated in chapter 5. Total per capita uses of funds varied from $0.84 in Bwamanda to $2.17 in Kaniama as shown in table 4.2.

Table 4.1

Unadjusted Per Capita Operating Expenses Seven Health Zones(*) 1985

	Bokoro	Bwamanda	Dungu	Kaniama	Kikimi	Kindu	Kirotshe
Total Oper. Expenses (th.1985 zaires)	3,743	3,273	5,672	5,308	3,034	4,314	4,657
Total population (thous)	108	114	121	79	84	105	20
Population coverage (% of pop. in hth.areas)	99%	75%	50%	74%	74%	74%	60
Popul. covered (thous.)	107	86	61	58	62	78	120
Unadjusted per capita operating expenses (denominator=pop.covered)							
1985 zaires	35.0	38.1	93.0	91.5	48.9	55.3	38.8
1985 dollars	0.70	0.76	1.86	1.83	0.98	1.10	0.78

(*) Data not available for the zones of Bibanga, Kalonda and Sona-Bata

Table 4.2

HEALTH ZONES
UNADJUSTED PER CAPITA
STATEMENT OF SOURCES
AND USES OF FUNDS
(1985 dollars)

SOURCES OF FUNDS	Biban ga	Boko ro	Bwa- manda	Dungu	Kalon da	Kania ma	Kiki mi	Kindu	Kirot she	Sona Bata
TOT.OPER. REVENUE										
Central Office	na	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Health Centers	na	0.42	0.31	0.71	na	0.56	0.30	0.36	0.40	na
Reference Hosp.	na	0.22	0.20	0.79	0.81	1.02	0.45	0.39	0.22	na
Total	na	0.63	0.51	1.50	na	1.57	0.74	0.79	0.62	na
SUBSIDIES										
GOZ	na	0.02	0.03	0.16	na	0.14	0.70	0.16	0.20	na
Private Donors	na	0.24	0.30	0.50	na	0.46	0.28	0.20	0.08	na
Total	na	0.26	0.33	0.66	na	0.60	0.98	0.35	0.28	na
TOT.SOURCES FUNDS	na	0.89	0.84	2.16	na	2.17	1.72	1.15	0.90	na
USES OF FUNDS										
TOT.OPER.EXPENSES										
Central Office	na	0.08	0.08	0.17	0.17	0.00	0.17	0.20	0.05	0.05
Health Centers	na	0.33	0.26	0.74	na	0.68	0.37	0.35	0.34	na
Reference Hosp.	na	0.29	0.42	0.95	0.96	1.13	0.46	0.55	0.39	na
Total	na	0.70	0.76	1.86	na	1.83	0.99	1.11	0.78	na
TOTAL INVESTMENTS										
Central Office	na	0.01	0.00	0.00	0.19	0.00	0.15	0.00	0.00	0.04
Health Centers	na	0.07	0.08	0.26	na	0.34	0.57	0.04	0.14	na
Reference Hosp.	na	0.09	0.00	0.03	0.00	0.00	0.00	0.00	0.00	na
Total	na	0.17	0.08	0.30	na	0.34	0.72	0.04	0.14	na
TOTAL USES FUNDS	na	0.87	0.84	2.16	na	2.17	1.72	1.15	0.91	na

4.6.2 Health Zones' Cost Structure

The 1985 cost structure of the health zones was as follows (see appendices H and I for details):

Table 4.3

Health Zones' Cost Structure
1985
(percentages)

COST CATEGORY	Bokoro	Bwamanda	Dungu	Kaniama	Kikimi	Kindu	Kirotshe
Salaries	37%	40%	56%	36%	26%	53%	50%
Drugs and medical supplies	45%	33%	28%	42%	30%	25%	26%
Maintenance of vehicles and bldgs.	1%	12%	1%	3%	3%	1%	1%
Fuel and lubricants	5%	5%	4%	0%	5%	3%	7%
Office supplies and miscellaneous	13%	10%	10%	18%	37%	19%	16%
Ttl. oper. expenses	100%	100%	100%	100%	100%	100%	100%

(*) Data not available for the zones of Bibanga, Kalonda and Sona-Bata

In 1985 salaries represented between 26 and 56% of the zones' total operating expenses. The low figure of 26% in Kikimi may be explained by the presence of an above average number of expatriates, working directly or indirectly for the zone, whose salaries are not accounted for in the above exercise (see section 5.1.8 for discussion of expatriates' salaries). If Kikimi is excluded from the sample, salaries range from 36 to 56% of operating expenses.

Differences in relative magnitude between drugs and salaries among the zones may be explained by different levels of drug availability and also by differences in the output-personnel ratio.

The zones' overall average cost structure is depicted in figure 4.3. The zones' average cost structure for the reference hospital, central office and health centers are shown in figures 4.2, 4.4 and 4.5, respectively.

The central office seems to be the most labor intensive of the three functional units of the zones (i.e., reference hospital, health centers and central office), as shown in figure 4.4. The importance of the fuel and lubricant expenses at the central office level reveals the nature of its supervisory role, which requires frequent trips to the health facilities.

Figure 4.2

Operating Expenses Structure

Reference Hospital

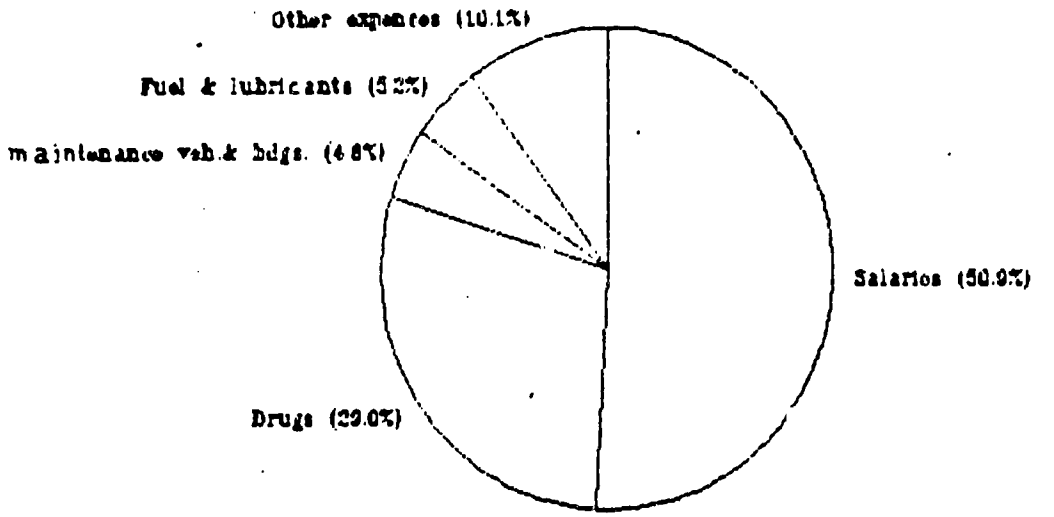


Figure 4.3

Operating Expenses Structure

Health Zone

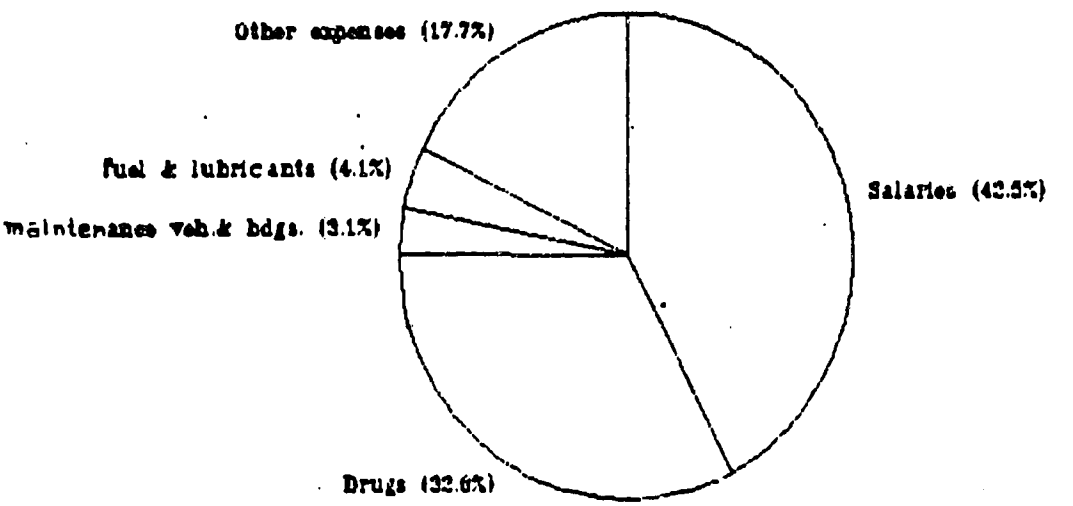


Figure 4.4

Operating Expenses Structure

Central Office

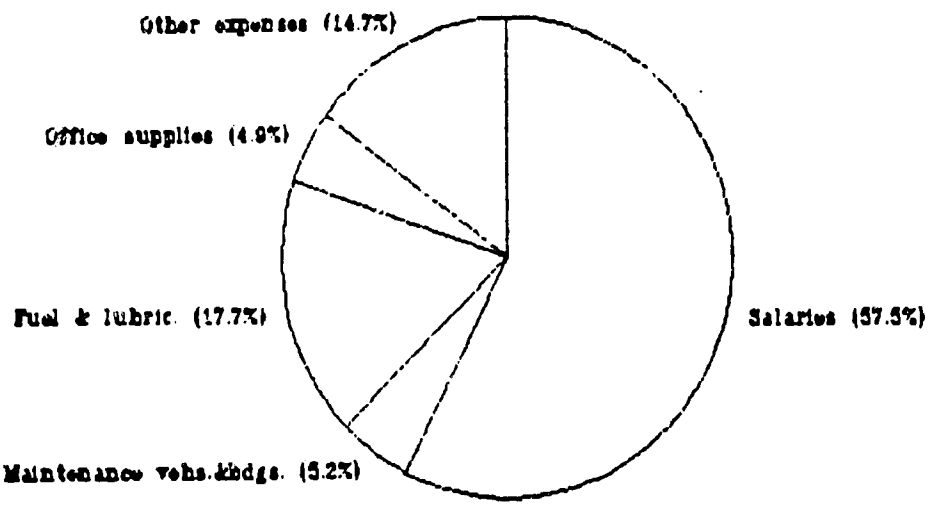
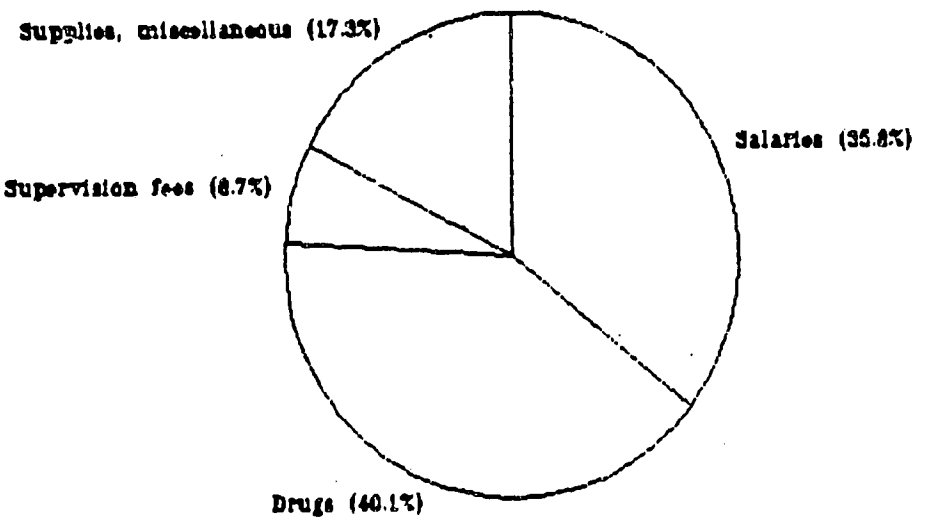


Figure 4.5

Operating Expenses Structure

Health Centers



At the health center level, drugs are the largest cost component whereas in the reference hospital, salaries are the most important one, followed by drugs and medical supplies.

4.6.3 Health Zones' Financing of 1985 Operating Expenses

Data on seven of the ten health zones visited by the study team indicate that on average the zones were able to finance 79% of their operating expenses with their operating revenue (i.e., sale of health care services to the population). Table 4.4 presents the financing sources of operating costs for the seven zones in terms of percentage of the costs. The sources have been broken down into three categories: operating revenue, GOZ subsidies and private subsidies.

Table 4.4

Operating Costs
Financing Sources
Seven Health Zones(*)
1985
(percentages(**))

	Bokoro	Bwamanda	Dungu	Kaniama	Kikimi	Kindu	Kirotshe
SOURCES OF FUNDS							
Operating revenue	90%	67%	80%	86%	75%	72%	79%
GOZ operating subsidies	3%	4%	8%	8%	17%	14%	26%
Private operating subsidies	9%	32%	11%	6%	9%	14%	3%
Total Oper. Costs	103%	102%	100%	100%	100%	100%	108%

(*) Data not available for the zones of Bibanga, Kalonda and Sona-Bata

(**) The sum of the percentages exceeds 100% in some zones because the operating subsidies exceeded the zones' 1985 need for operating funds. In those cases, the zones used the excess funds to finance 1985 investments or 1986 operations.

Table 4.4 shows that the zones of Bokoro and Kaniama were the ones with the greatest operating financial autonomy in 1985. In Bokoro, the population financed 90% of the zone's operating expenses through payments for health care services. In Kaniama, the comparable figure was 86%. Of the seven zones, Bwamanda and Kindu were the ones with the highest dependency on operating subsidies.

The zones of Kirotshe and Kikimi received a relatively high operating subsidy from the GOZ in 1985. In Kirotshe, the bulk of the GOZ subsidy went to the CEMUBAC Hospital (*), to pay the salaries of most employees as well as some in the central office. Kikimi is a zone which receives a high governmental subsidy for both its operations and investments through the project Sante Pour Tous, a bilateral project between the GOZ and Belgium. Bwamanda's operations are highly subsidized by the CDI (**), a Belgian project started in 1966 by Catholic missionaries to promote the economic development of the region.

Operating subsidies by the GOZ are mostly in the form of salaries to government employees who work in the health zones. The total operating subsidies from the GOZ to the seven zones above was of 3,450,000 Z in 1985 ($68,967), one third of which was received by the zone of Kirotshe.

Operating subsidies by donors consisted of cash, drugs, and medical supplies consumed during 1985. Among the major private donors of the seven zones were the Cooperation Belge, the Belgian project FOMETRO (***), the CDI (in Bwamanda), the USAID-supported project SANRU, and the bilateral project Sante Pour Tous. The total private subsidies for the operations of the seven zones were 3,345,000 Z ($66,900), of which approximately one third was received by Bwamanda from the CDI.

In sum, in 1985 the GOZ and donors contributed equal shares to the financing of the health zones' operations.

Financial Performance of Functional Units

The data gathered during the study indicate that the operating revenues of all reference hospitals and of most central offices were lower than their operating expenses. Thus, those units depended on external support. The situation of health centers is more encouraging. Financial information for 1985 shows that in some zones the sets of health centers were not only able to cover all their operating expenses with their operating revenue but were also able to finance a part of their investments.

(*) Centre Medical et Scientifique de l'Universite Libre de Bruxelles Pour ses Activites de Cooperation

(**) Centre de Developement Integre

(***) Fond Medical Tropical

Table 4.5 shows the percentage of the 1985 operating expenses which were financed with operating revenue for each zone and type of unit.

Table 4.5

Percentage of Operating Expenses Financed With Operating Revenue by Type of Functional Unit Ten Health Zones 1985

	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda	Kaniama	Kikimi	Kindu	Kirotshe	Sona Bata
Reference hospital	99%	76%	49%	83%	84%	88%	96%	71%	57%	na
Health centers	na	101%	107%	90%	na	82%	81%	100%	110%	na
Central office	30%	98%	31%	29%	146%	na	0%	22%	73%	51%

Figure 4.6 combines the information of tables 4.4 and 4.5, showing for the average health zones the sources of financing of operating expenses for the zone as a whole, and for its functional units.

Financial Performance of Reference Hospitals

As shown in the above table, reference hospitals were, without exception, unable to completely finance their operating costs through the sale of medical services. The operating deficit was subsidized by external sources, especially by the GOZ through the payment of salaries of government employees.

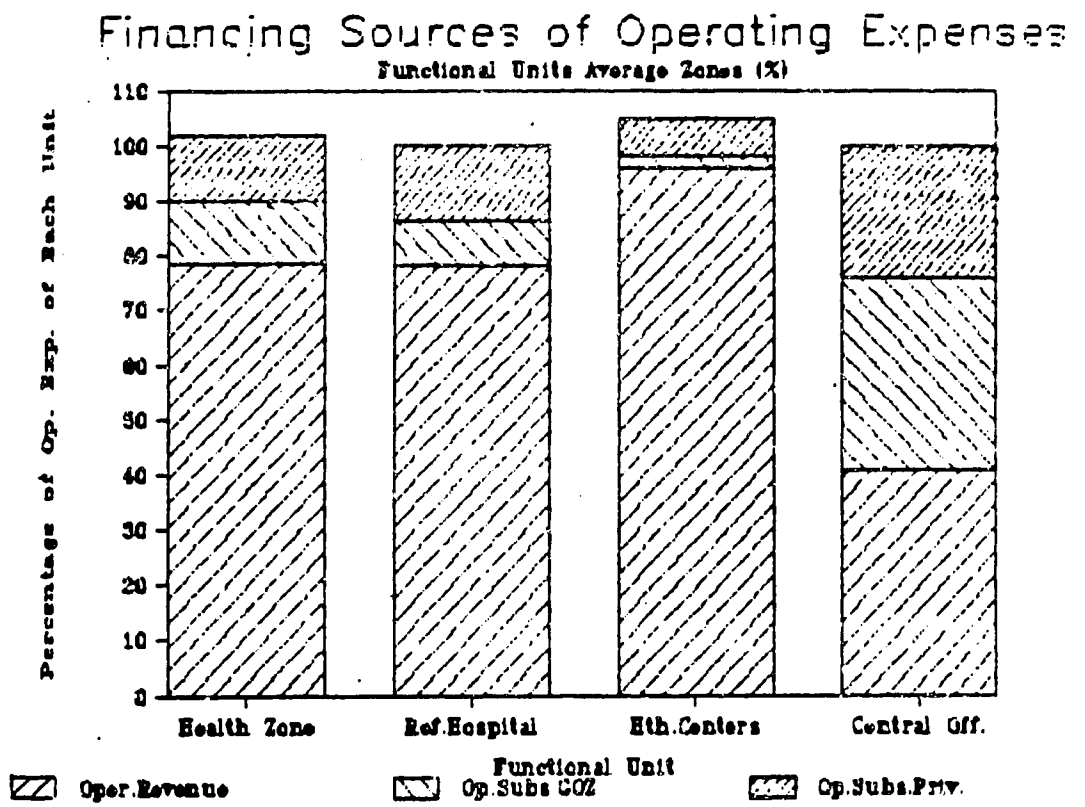
Financial Performance of Health Centers

Health centers as a whole, had a better performance, although those in Dungu, Kaniama and Kikimi had to depend on external support. Those in Bwamanda and Kirotshe were able to save money from their operations.

To interpret the total figures for the health centers as meaning that most health centers are nearly completely self-financed would be misleading, however. As explained in chapter 3, the financial information for health centers, reference health centers and health posts is aggregated within each health zone. Although the figures indicate that in some zones the set of health centers generated an operating surplus, the situation of the individual units was quite different.

In fact, in 1985 many health centers were underfinanced even in the zones of Bokoro, Bwamanda and Kirotshe. In Bokoro, over half of the health centers had an operating deficit and were subsidized by those that had a surplus. The central office of Bokoro played a major role in redistributing health centers' surplus to balance those in deficit. In

Figure 4.6


Financing Sources of Operating Expenses
Functional Units Average Zones (%)
Percentage of Op. Exp. of Each Unit
110
100
90
80
70
60
50
40
30
20
10
0
Health Zone
Ref.Hospital
Hth.Centers
Central Off.
Functional Unit
Oper.Revenue
Op.Subs COZ
Op.Subs.Priv.

Bwamanda, one third of the health centers had an operating deficit and were also subsidized by those having a surplus. Starting in 1986, the management of the Bwamanda zone has decided that each health center be required to be financially independent, meaning that those which generate a surplus will be allowed to keep it; the others will have to find a way of balancing their finances. The issue of the financing of individual health centers is addressed in section 5.3.

Financial Performance of Central Offices

The central offices also received large subsidies relative to their operating expenses. The main source of operating revenue of the central office are the supervision fees paid by the health centers. Supervision fees are set by the central office based on its operating expenses and the health centers' ability to pay.

Apart from its supervisory role, the central office performs a series of other activities which permit the functioning of the zones' health network (see section 4.4). In the health zone of Bokoro, the 1985 supervision expenses (rental of vehicles, per diem of the personnel, vehicle repairing, fuel, etc.) represented 61% of the central office's total operating expenses. Other expenses (transportation of merchandise and medical supplies, training of personnel, transportation of personnel, salaries of central office's clerks, etc.) accounted for the remaining 39%.

In the majority of the zones, the fees charged by the central office to the health centers are insufficient to cover the supervision expenses. Since the supervision performed by the central office benefits the health centers and these in turn are unable to completely finance supervision costs, supervision is subsidized by the central office. This unit, in turn, is obliged to seek external support to balance its finances. Therefore, health centers are indirectly subsidized by external donors, in addition to the other operating subsidies mentioned above. Further analysis of this issue and its consequences can be found in section 5.1.9.

4.6.4 Health Zones' 1985 Investment Levels

The level of investment in buildings, equipment and initial stocks of drugs and other components of working capital varies greatly between zones. This is shown graphically in figure 4.7 (a).

As shown in appendices G and H, the total investment made in seven zones during 1985 was 6,400,000 Z ($128,000). Health centers accounted for 5,300,000 Z, or 83%, of the total. Figure 4.7 (b) compares the average investment and operating expenditures for the seven zones which had available data. The information is given in 1985 zaires for an average zone and its functional units. This is also shown in 1985 dollars in figure 4.7 (c).

4.6.5 Summary of Sources and Uses of Funds Analysis

To graphically summarize the information of the above sections, figure 4.8 presents, for the average of the seven zones, the total sources of funds (operating revenue and subsidies and investment subsidies) and their uses in 1985 zaires and dollars.

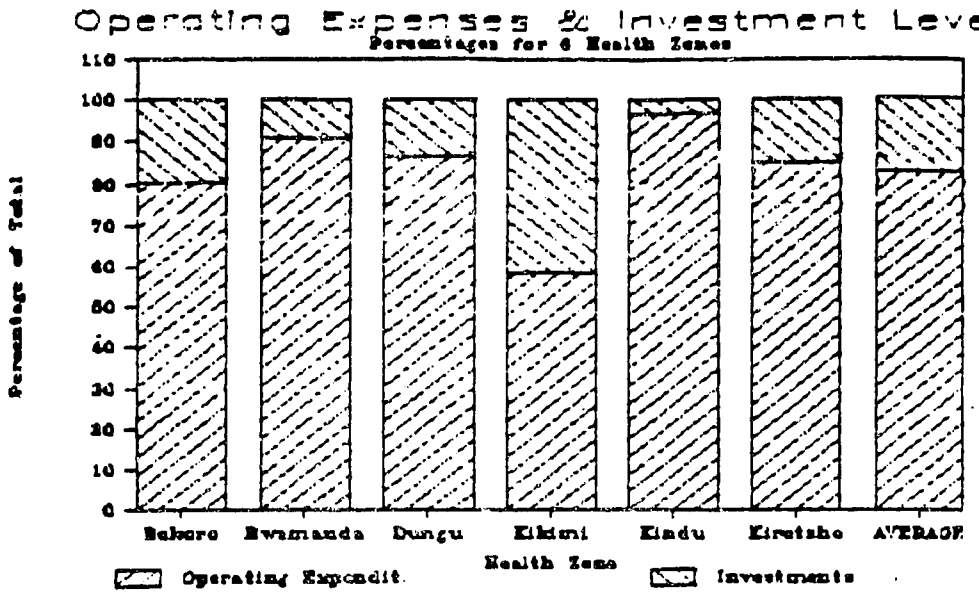


Figure 4.T

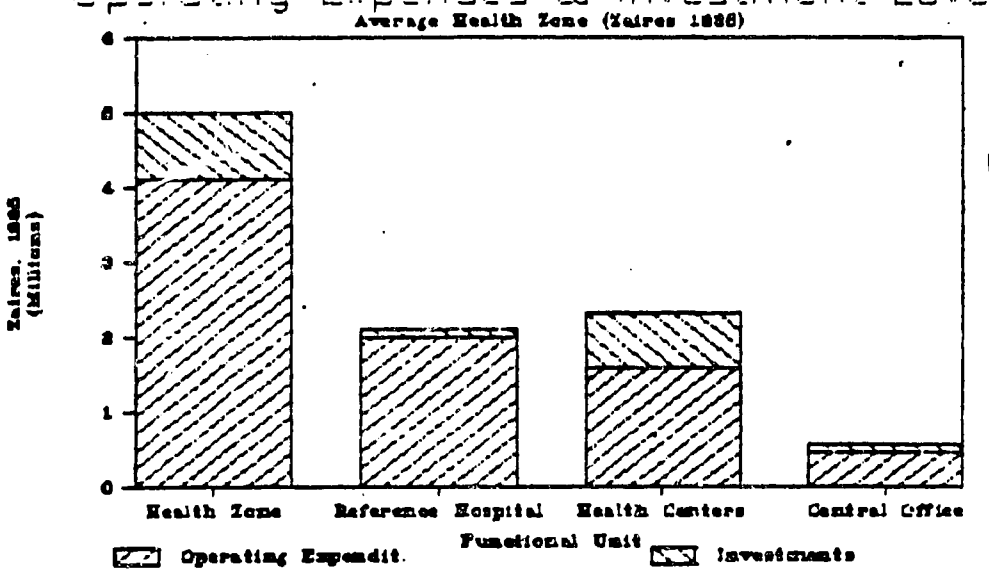


Figure 4.T

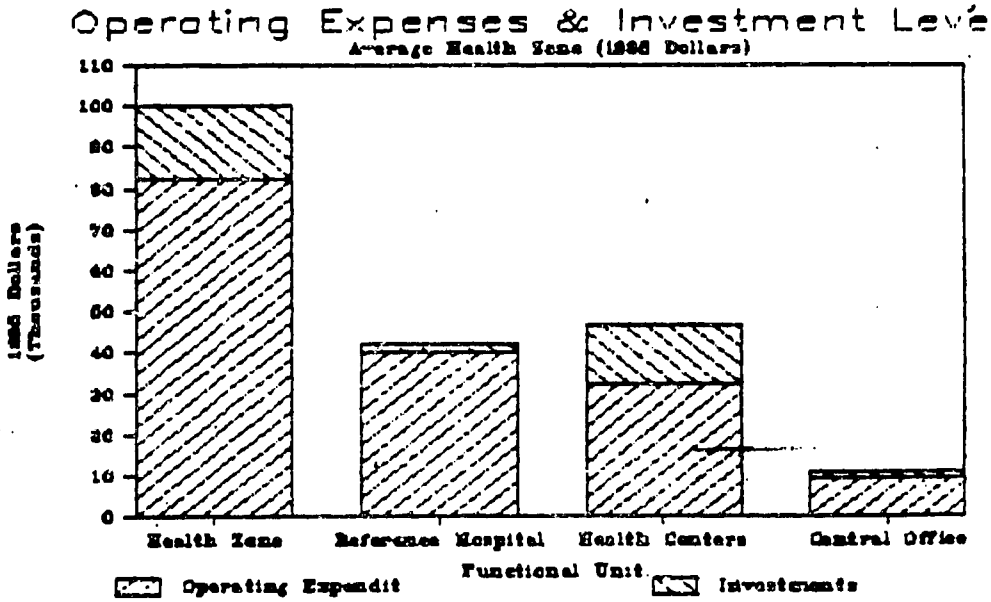


Figure 4.T

Figure 4.8 (a)

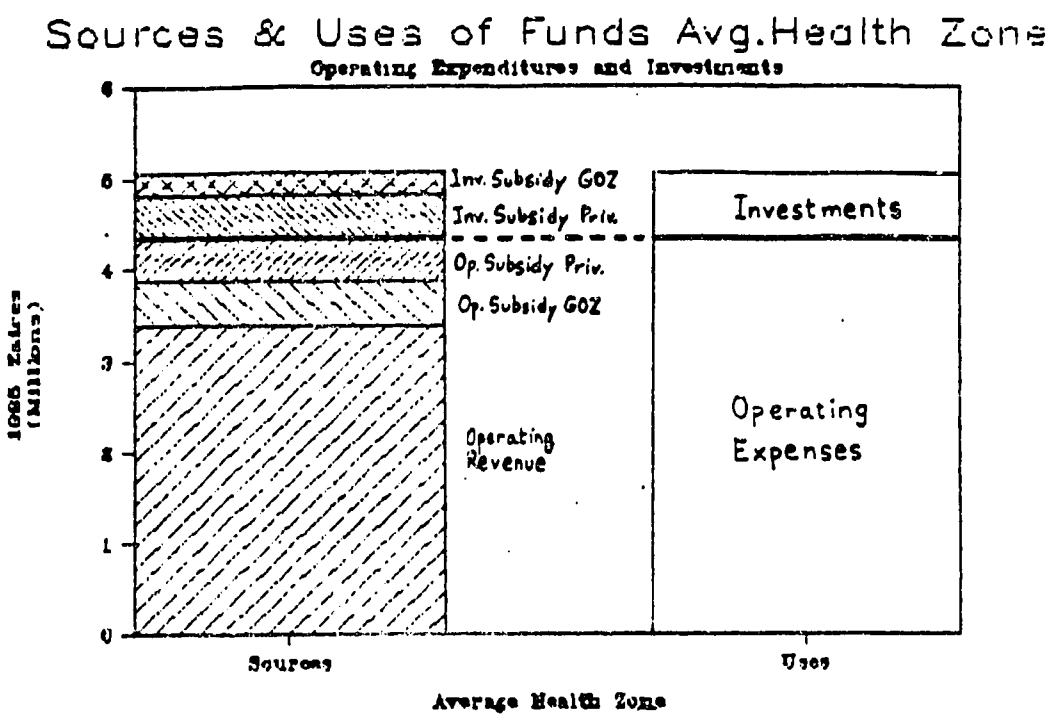
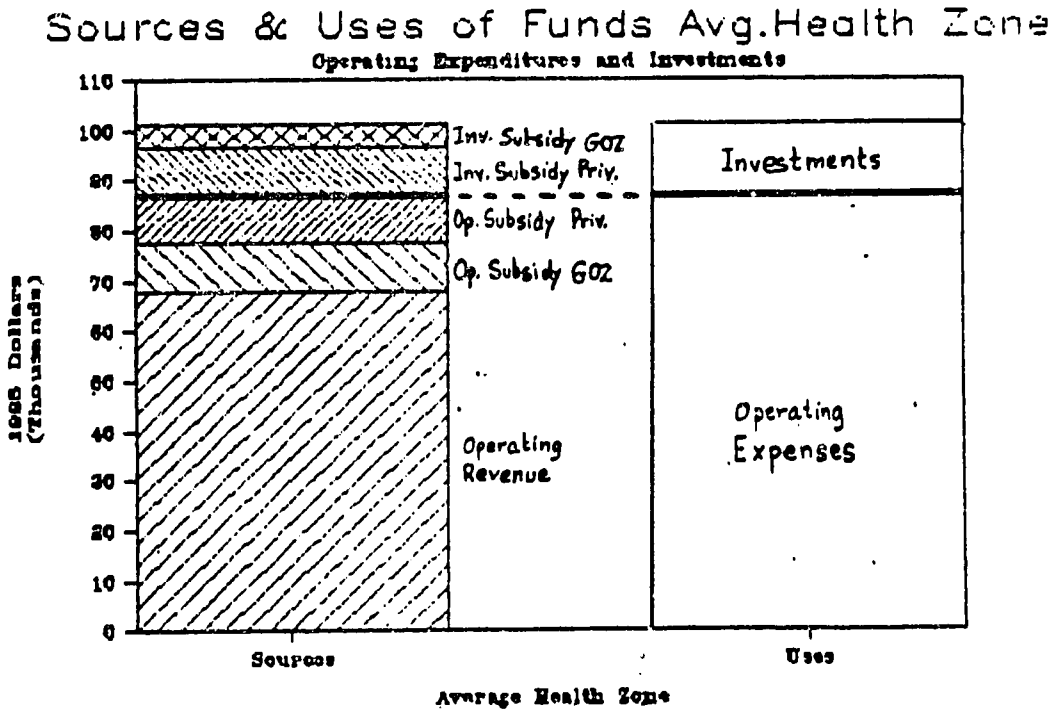


Figure 4.8 (b)



For an average health zone, annual uses of funds were slightly over 5,000,000 Z ($100,000) of which 4,400,000 Z, or 88%, were operating expenses and the rest, 600,000 Z, investments (figures 4.8 (a),(b)).

The operating revenue of the average zone was 3,400,000 Z ($68,000), the operating subsidies being 1,000,000 Z ($20,000). The GOZ and donors contributed equal shares to finance the operating subsidies, providing 500,000 Z each. Donors contributed a larger share of the investment subsidies, with 478,000 Z, or 80% of the investments, the GOZ contributing the remaining 20%

Finally, figure 4.9 shows the relative magnitude of the operating expenses of an average zone's three functional units. Figure 4.9 (a) shows that the central office of the average zone accounted for 12% of the zone's total operating costs. The set of health centers represented 39% of the total while the reference hospital accounted for 49%, almost half of a zone's total operating expenses. Figures 4.9 (b) and (c) show the amount of these expenses in 1985 zaires and dollars, respectively.

4.6.6 Health Zones' Pricing Systems

Price schedules are not uniform within the health zones. They usually vary depending on the ownership of the health facilities. In the last few years the central offices of the zones have been trying to promote the adoption of a unique price schedule by all the health units that are in the zones' networks. The study group only investigated in detail the pricing policies of the health units that conform to the rules of the central offices. The findings are presented in this section.

Pricing Systems at the Health Center Level

Kirotshe, Bokoro, Bwamanda, and Kikimi are zones that have succeeded at establishing a unique price schedule in the majority of the network's facilities. In Sona-Bata, on the other hand, there are four major networks, each with a different pricing policy: the Protestant Communaute Baptiste de Zaire Ouest (CBZO), the Armee du Salut, the Catholics, and the GOZ-owned facilities. Sona-Bata's central office controls only the facilities owned by the GOZ.

Nine of the ten zones have established of system whereby ambulatory patients pay a fixed fee for episode of illness at the health centers. A payment per episode policy implies that patients pay a fixed fee regardless of the number of visits they make to the nurse or auxiliary at the health center. The only zone that does not have a fee per episode policy is Sona-Bata.

In three of the nine zones which have a payment per episode policy, such payment also includes the drugs consumed and laboratory exams performed to the patient. The three zones are Bwamanda, Kikimi and Kindu (in Kikimi patients have to pay for antibiotics separately). In the other six zones the payment per episode gives the right to the patient to make as many visits as he or she wishes, but drugs and exams have to be paid for separately.

In Sona-Bata, patients pay an initial fee of 20 Z at the time of the first visit and an additional fee of 5 Z for each additional visit (this holds for the health units controlled by the central office, i.e., those that belong to the GOZ. In the units that belong to the Armee du Salut, the payment per episode is 60 Z, including all visits, drugs and exams).

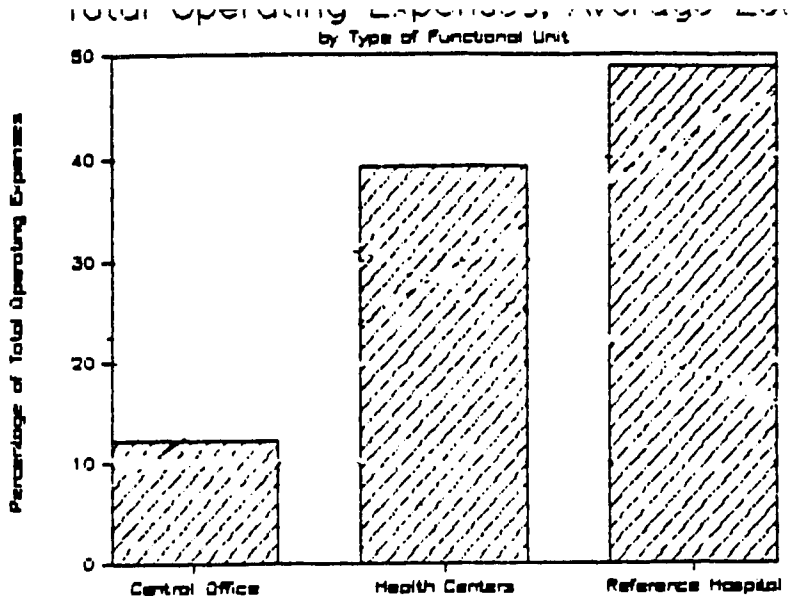


Figure 4.9 (a)

Total Operating Expenses, Average Zone

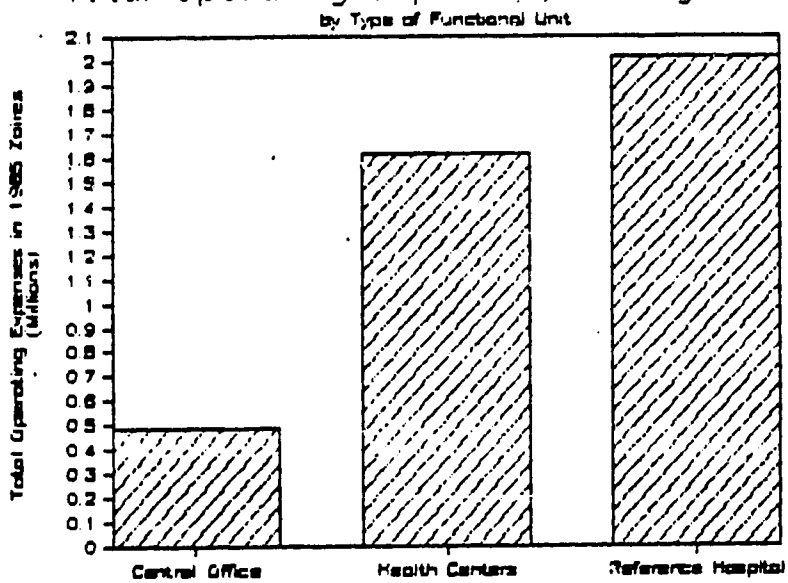


Figure 4.9 (b)

Total Operating Expenses, Average Zone

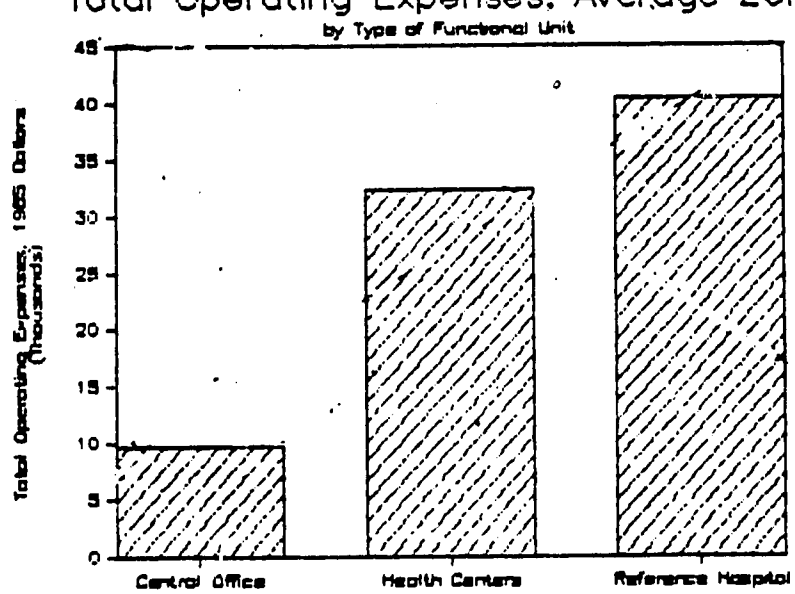


Figure 4.9 (c)

Pricing Systems at the Reference Hospital Level

In eight of the ten zones, the price policy at the hospital level is that of a payment which varies according to the amounts and types of services consumed. The two exceptions are Bwamanda and Sona-Bata. In the eight zones there is a schedule of all the categories of medical interventions and their prices. Hospital managers try to have the patients pay in advance based on the estimate total price of the treatment.

Pre-paid Plans for Inpatient Care

The zone of Bwamanda has just started a pre-paid program for inpatient care. The Medecin Chef de Zone informed the surveyors that such a system was conceived to allow the population to pay for inpatient care in advance. The payment is timed to coincide with the the harvest, when cash is available. At the end of 1985 the hospital initiated a campaign to recruit clients for the pre-paid program. Twenty eight percent of the zone's population registered for the plan in a one-month period. The 1986 annual cost of the plan is 20 Z ($0.33) per enrollee and allows the client to pay only 1/5 of the hospital's normal fee for all inpatient procedures (i.e., a coinsurance of 80%). This coinsurance holds only if the patient is referred from the health center to the hospital. Otherwise, if the patient seeks inpatient care without being transferred, he or she must pay the hospital's normal prices.

Every month the reference hospital determines how many beneficiaries of the pre-paid plan were hospitalized and computes the full price of the services consumed by these individuals. It then withdraws from the pre-paid plan fund the equivalent of 80% of the total price of the services rendered to each patient.

Preliminary information suggests that Bwamanda's pre-paid inpatient plan may be financially feasible in the long term. The hospital's total proceeds from the 20 Z annual fee of the beneficiaries was 650,900 Z (approximately $12,000) in 1986. The cost of the plan to the hospital during the month of June (i.e., the 80% copayment) was 19,720 Z. On an annual basis, this cost corresponds to 236,640 Z (12 x 19,720), or 36% of the total proceeds from the beneficiaries annual fees.

It is interesting to note that in Bwamanda, the average annual per-capita expenditure in inpatient services was 21 Z ($0.4) in 1985, very close to the per capita annual premium of that zone's pre-paid plan (per capita expenditures in health care for 1985 are shown in appendix K). This confirms the preliminary financial performance of the plan discussed above. However, it suggests that the cost of the plan to the hospital during the month of June may be too low, and not representative of an average month.

The health zone of Sona-Bata is also promoting a pre-paid plan for hospital care. Such program was started in February of 1985, and its target clients are school students, school employees, and clergymen of the Protestant church. The annual fee varies between 200-300 Z for the children and 400-500 Z for the adults. Beneficiaries are entitled to free consultations, drugs, laboratory exams and hospitalization in common room, all at the reference hospital. For all other inpatient services, beneficiaries have to pay between 10 and 100% of the normal price, depending on the nature of the intervention.

The annual fee at Sona-Bata is about 10 to 20 times that of Bwamanda. Unfortunately, insufficient information is available to compare the exact benefits offered by the two plans.

Although the annual per capita inpatient expenditure is not available for Sona-Bata, it seems unlikely that it will be 10 or 20 times greater than in Bwamanda. In fact, the zone with the highest per capita inpatient expenditure is Kaniama, with 57 Z per year in 1985. This suggests that the 200-500 Z fee established in Sona-Bata may be too high and a high enrollment rate is unlikely unless the premium is lowered.

Pre-paid health plans, their pros and cons, and their impact on the population and the health zones are further discussed in section 5.1.3.

Price Categories

Many zones have a system of differentiated prices for both inpatient and outpatient care according to the socio-economic status or category of the patients. For example, the zone of Kalonda has four price categories: the lowest prices are charged to students, children, retirees and the handicapped, and the highest prices are charged to beneficiaries affiliated with private and government-owned firms.

The health zone of Dungu also has four price categories. The lowest prices are charged to independent farmers and their families and the unemployed. The fourth category is applied to relatively wealthy individuals, especially the managers of private firms.

In addition to having several price categories based on the client's socio-economic status, many zones have extensive price lists, some having as many prices as types of health interventions. The zone of Kalonda keeps a price list with more than 120 categories of health services, each with a different price. Within each category of service the list has four prices according to the status of the patient.

Other zones keep a price list with a limited number of service categories. Such is the case of Kirotshe, which keeps a price list with only twenty categories of services (and four categories of clients).

Appendix J contains the 1986 prices of some health care services for the zones, expressed in 1986 zaires and dollars, respectively.

As can be seen from the appendix, the fee per episode at the health center level varies from 20 Z in Kaniama to 50 Z in Kalonda and Kindu (row A). It is not surprising to find that Kindu has the highest fee since drugs and exams are included in the price. Bwamanda's fees, however, seem low given that drugs and exams are also included in the price.

The per episode fees to enterprises' beneficiaries (row B) are two or three times those charged to private clients. The higher price helps health centers to boost their revenue.

Additional analysis and recommendations concerning the zones' pricing systems are presented in section 5.1.

5. DISCUSSION AND CONCLUSIONS

The financial data of a sample of ten Zairian health zones for calendar year 1985 presented in chapter 4 indicate that the zones are not completely self-financed, i.e., the zones operating revenue is insufficient to cover their operating expenses. The zones' operating deficits are subsidized by the GOZ and NGO's. In addition, the zones are also dependent on external donors to finance the majority of their investments.

This chapter identifies and analyzes some aspects which influence the zones cost recovery capability, and recommends a set of actions which may improve their degree of financial autonomy. **Recommendations are shown in boldface.** Those aspects that cannot be controlled by the zones' management, such as population's socio-economic status or zones' demographics, are viewed as constraints in the medium term and are not discussed here.

Recommendations made in this chapter are summarized at the beginning of the Executive Summary. The remaining of this chapter is devoted to the analysis of eight aspects which have been identified as key determinants of the zones' ability to become financially independent. They are the following:

1. The zones' pricing policies
2. The presence of parallel competition
3. The presence of competition within the zones' networks
4. Health centers' degree of financial autonomy
5. The presence of indigents
6. The technical competency of the health zones employees
7. The zones' information systems
8. The administrative autonomy of the health zones

5.1 The Zones' Pricing Policies

The prices of health care services directly influence individuals' demand for care, i.e., the quantity and types of services that people are willing to purchase when sick, or when seeking preventive programs. At the same time, prices determine the capacity of health units to raise revenue.

Raising prices is sometimes a naive approach to boost revenue because a higher price will most likely result in a lower quantity of services demanded. The final effect of a price increase on revenue will depend on the magnitude of the reduction in demand. Our field visits revealed that some zones raised their overall prices of health care by more than 50% between 1984 and 1985 in an attempt to increase their revenue. A recent REACH study in Rwanda (Shepard, 1986), revealed a price-elasticity of demand for curative health services of -0.25. If that applied in Zaire, the 50% increase in fees would mean a 13% reduction in utilization and a 30% increase in revenue.

This section analyzes the zones' pricing policies in detail. Specifically, it looks at the zones' payment systems, price levels, and discusses the possibility of setting up pre-paid health plans, partially based on the experience of two zones. The section also comments on the zones' drug policies, their prices to enterprises, and comments on the possibility of paying for supervision costs and capital expenditures through user fees.

5.1.1 Pricing Policies at the Health Centers Level

a) Payment Systems

Four main categories of payment systems were observed at the health center level, as explained in section 4.6.6.

-Payment per episode of disease including drugs and procedures
-Payment per episode of disease excluding drugs and procedures
-Payment per visit (fee for service), drugs and procedures excluded
-Third party payment

The authors of the PRICOR study referred to earlier in the report, found that in some cases the demand for health care seemed to be greater under the fee per episode system than under the fee per visit one. However, the authors acknowledged that they were unable to isolate the effects of a multitude of other factors which influence demand, in addition to the payment system.

Although the researchers did collect data on population's expenditure on health care, the PRICOR document did not look into the financial performance of the health centers under the two payment systems, nor did it compare people's expenditure in health care in the control and experimental groups of health centers.

Unfortunately, neither theoretical nor empirical findings are available to conclude which payment system (payment per episode or payment per visit) is more desirable from a social standpoint (i.e., cost-effectiveness or cost-benefit). Nor is a set of data available which would permit comparison of the financial performance of health centers under the two payment schemes.

Further analysis of the excellent data collected by the researchers of the PRICOR study will permit the examination of the effect of payment systems on demand. However, additional research is necessary to look at the issue of the financial performance of the health facilities under either payment mechanism.

b) Price Levels

The approach followed by most zones consists of fixing prices of services by trial and error over time, the objective being to equate total revenue with total cost excluding drugs and depreciation. The impacts of including drugs and depreciation in the computation of total cost are discussed separately in points 5.1.4 and 5.1.6, respectively. Many health centers have been successful at recovering their full operating costs through user fees; others have been unable to balance their operating budget. Their case is treated separately in Section 5.3.

Management at the zone and the health-center level is aware that the provision of different health services consumes varying amounts of inputs (nurse time, needles, alcohol, etc.). They have established a system of prices that vary according to the costs of the inputs.

Most uncomplicated, curative health problems (episodes of malaria or diarrhea, for example), are priced equally because they use similar amounts of production inputs. Although some small differences in marginal cost may exist in the production of these services, differentiating prices at this level would make accounting procedures cumbersome and it would confuse the public.

Other health services are more complex and involve greater amounts of resources. Such is the case with surgical interventions and deliveries. Health zones have set higher prices for these services, reflecting the proportionally greater input use.

Some other types of health problems are even more complicated and therefore require a high consumption of medical inputs, especially nurse time. Severe cases of malnutrition fall in this category. If the patient was charged based on the value of the resources employed when providing such service, he or she would probably be unable to pay. The zones do not have differentiated fees for those cases and normally charge the same price as for simple cases, as described above.

As will be explained in section 5.1.3, we believe that an even better pricing system is that of pre-paid plans. However, these may not be viable in the short term, especially due to the lack of population's acceptance and the absence of well-developed management support systems.

Thus if pre-paid plans are not possible at the health centers level, the current pricing system employed by most health zones is reasonable and should not be modified. Such system consists of the sale of a card at a unique price for most simple curative cases and catastrophic health problems and a of a few categories of differentiated prices for problems of medium complexity. Such prices are established such that, overall, the total revenue of the individual health center covers its total cost.

5.1.2 Pricing Policies at the Reference Hospital Level

The problem of setting prices at the hospital level is much more difficult due to the diversity of the services provided and the complexity of the hospital's cost structure. Some zones do take into account costs of inputs used when pricing hospital services, but most fail to recover a major portion of their fixed costs.

Apart from the zones of Bwamanda and Sona-Bata which have started pre-paid plans for inpatient services (see section 5.1.3), most zones have a pricing system whereby patients pay fees that vary according to the types and quantities of services and drugs consumed.

Financial data gathered in most zones suggest that overall hospital prices are set below total cost. The reference hospital of Bwamanda had an occupancy rate of virtually 100% in 1985. Its operating revenue, however, financed only 49% of its total costs (see Figure 4.7).

With a few exceptions (Bokoro), hospitals have not developed adequate information systems for costing purposes. Detailed cost data are essential to allow the development of a financially sound pricing policy. We recommend that health zones invest time and resources to establishing complete costing information systems at the hospital level. Zones can seek

technical advice from those zones that do have experience with cost accounting or from Zairian institutions such as PONAMES. Hospital prices should reflect at least the cost of direct inputs, including labor. An allowance for depreciation should also be considered (see Section 5.1.4). Cross-subsidization of prices among services may be alloved but overall, prices should permit full cost recovery.

At the same time, the zones should investigate in detail why overall utilization is so low (especially in some services such as pediatrics), and whether some services may be closed or their capacity reduced. Such measure would allow the reduction of personnel and consequently cost savings.

5.1.3 Pre-paid Health Plans for Inpatient and Ambulatory Care

Two zones have started a pre-paid plan for inpatient services as explained in Section 4.6.6. However, as of the end of 1985, none of the ten zones had developed pre-paid plans for ambulatory care.

Consumers often prefer to to make certain small payments rather than risk the uncertain possibility of a large payment. Many health problems treated at the reference hospitals and some at the health center constitute a major cost to the patient and his or her family, especially relative to low cash incomes among rural populations.

The success of health institutions' pre-paid plans depends on many factors, among others, their ability to estimate their costs and utilization statistics with accuracy. By providing information on each individual's consumption of services, utilization statistics permit the institution to control excess or unnecessary use of services by beneficiaries. Such control becomes particularly important when the clients are insured and therefore know they can demand more care at a low price (or no price). Cost data allow financially sound pricing, i.e., a pricing system that permits cost recovery, including an allowance for the replacement of fixed capital.

We believe that those zones which have mature accounting systems and the managerial expertise to keep information systems of some complexity (e.g., patients records) could promote pre-paid plans for both inpatient and outpatient health care services. At a first stage, ambulatory and inpatient pre-paid health plans should be managed separately by the individual health centers on the one hand, and the hospital on the other. At a second stage, health zones could offer a unique pre-paid health plan, for both inpatient and outpatient services.

The zones willing to develop such plans should seek external advice to adequately define their plans, their management control systems and their premium policies. A cautious strategy would be to have a mature zone develop such plans in full for a year or two, and later replicate its systems to other zones.

One possible scheme integrating ambulatory and inpatient care would be to have people enroll at their local health center. Periodically, the hospital would bill the health centers for the inpatient care provided to the center's beneficiaries. One of the features of the pre-paid plans should be the presence of a coinsurance, a deductible, or some type of

mechanism which would prevent over-utilization or abuse on the part of the beneficiaries.

Bvamanda's and Sona-Bata's initiatives are moving in the right direction. Whether they are successful will depend to a large extent on their ability to maintain accurate information systems so as to prevent financial failure.

5.1.4 Drug Policy

Health zones are major purchasers of drugs in Zaire. They purchase most of their drugs from wholesale providers such as Caritas or producers like Laphaki in Kinshasa, or from local dealers. They also import directly or receive drugs as gifts from external donors. Health zones are able to obtain large discounts with their bulk purchases. Therefore, prices paid by health zones for drugs are much lower than those paid by local providers (pharmacies).

Health zones, however, sell drugs with large mark-ups, sometimes above 100%. They can do so because of their low purchase prices and economies of scale in the management of the inventories compared to small providers. Mark-ups of 100% on drugs by health zones may still result in a lower sales price than found in the market.

On the other hand, the majority of the zones do not compute the cost of certain medical materials when setting prices for services. Thus, prices of services understate actual cost. Accounting for the costs of those inputs in setting prices would help the zones to recover their full cost and keep adequate inventories.

Charging high mark-ups for drugs may have a disadvantage. The experience in the health zone of Kirotshe suggests that demand for inpatient services depends on drug availability. Utilization of the CEMUBAC Hospital in Kirotshe increased significantly after the stock of drugs was restored. This suggests that drugs' prices may also affect demand for health care services, lower prices being associated with higher demand.

Drugs prices should be set based on the purchase cost plus a mark-up that would permit recovery of transportation, and inventory handling costs. The mark-up should also include an inflation allowance. Such a policy would permit the zones to recover their costs and to replace their stocks.

Health zones may decide to charge an additional mark-up on drugs to cover part of their general fixed costs. Research needs to be conducted to determine (1) what should the magnitude of this mark-up be; (2) whether mark-ups should vary according to the type of drug (e.g., low-cost, highly demanded drugs versus high-cost, unfrequently demand drugs); and (3) what would be the impact of varying mark-ups on demand for health care services and on health facilities' finances.

If the zones or individual health facilities decided to lower their current mark-ups on drugs, they should simultaneously consider raising the prices of other services such as visits and procedures to compensate for the lower revenue from drugs sales.

Finally, all drugs and medical materials should be included when determining the prices of health care services (needles, oxygen, syringes, alcohol, etc.) be it under a direct cost pricing scheme or a pre-paid plan regime.

5.1.5 Price Cross-subsidization Between Curative and Preventive Services

Analysis of cost data from the zone of Bokoro indicates that the prices of preventive services are highly subsidized by curative ones in that zone. In fact, Bokoro's Medecin Chef de Zone estimated that in 1985 the cost to the zone of a fully immunized child through the P.E.V. program was 104 Z ($2.0) (that is the cost that must be financed by the zone. It does not include the costs of the vaccines nor an allocation for P.E.V.'s central costs). However, the price charged for registering a child in the pre-school program was in the vicinity of 30 Z ($.60) that year. The pre-school program included not only the many visits that children make to the health centers during the program, but also all of the P.E.V. immunization measures. Clearly, the price charged for the pre-school preventive program was significantly less than one-third (30/104) of its actual cost.

The prices charged for preventive programs were quite similar among the 10 zones that were surveyed (see table J.1). This suggests that in all of them the prices for preventive programs are subsidized. The subsidy comes from the payments made by consumers of curative services who are charged a higher price than the direct costs of the services performed.

We believe that prices of preventive programs directly affect demand, as for mosts goods and services. Unfortunately, we do not know the magnitude of this effect, i.e., consumers' price elasticity of demand for preventive care in Zaire. Although coverage rates are quite high for pre-natal programs in some zones (table G.1), they are much lower for pre-school programs. Higher prices could lower coverage even further. Research should be conducted to assess people's response to different levels of prices for preventive health care programs. In the meantime, prices should remain subsidized since it is desirable and there is a net social benefit to prevention of diseases as opposed to curing them.

5.1.6 Prices to Enterprises

As described in sections 4.6.6 the fees that health zones charge to enterprises for the care given to their beneficiaries are substantially higher than those charged to private patients. The higher fees help the zones improve their financial performance.

Health zones, however, should be aware that high prices may encourage enterprises to build and operate their own health facilities. Enterprises may also decide to send their beneficiaries to health units outside the zones' networks if they can negotiate lower prices elsewhere.

We recommend that health zones negotiate reasonable prices with the enterprises such as to prevent them from seeking other sources of health care for their beneficiaries. We think that such prices must by calculated based on marginal cost plus a mark-up which may be commonly determined between the zone and the enterprises. Health zones should also consider offering to the enterprises comprehensive health care packages for their

beneficiaries. Such packages could include both preventive and curative programs and could be provided for by an annual capitation payment. These contracts would allow the zones to increase utilization of their existing resources thereby obtaining additional revenue to cover their fixed costs.

5.1.7 Capital Cost Recovery Through User Fees

To this point our discussion has examined whether operating costs of zones and health centers could be financed by cost-recovery receipts. Now we turn to the question of whether the zones or their individual health units are able to finance their capital costs.

Section 4.6 showed that some health centers are able to finance some portion of their investments. Their funds come from operating surpluses which some are allowed to keep. They also benefit from labor provided by the beneficiary population at no cost. The proportion of the zones' total investments that are financed by their own revenue is negligible, however, and health centers that finance investments themselves are the exception rather than the rule.

Available data on the investment cost of health centers and hospitals permit some rudimentary calculations to determine whether individual units of the zones are able to pay for their capital costs through user fees. These calculations are made in appendix M.

Results suggest that health zones are currently unable to finance all their investments or to save enough money to replace them in the future. Simple estimates show that health centers and reference hospitals should have to set aside as much as 65 and 14% of their current revenue in year one, respectively, to finance their assets through interest-free loans.

Our study has revealed that some health centers are already able to finance all or part of their investments. Furthermore, we think that the individual units of the zones should quantify and be aware of their investments even if they cannot finance them in the short term. Improvements in financial performance could eventually permit the units to fund all or a portion of their capital investments. Such a measure is crucial to allow the health zones to become financially independent from external donors, not only for their operations but also for their investments.

5.1.8 Expatriates' Salaries

As pointed out in section 4.6.1, the salaries of the expatriates that work in the health zones were considered when computing the zones' operating costs or when calculating the subsidies received by the zones.

Most of the zones visited benefit from expatriate personnel whose salaries are paid by external donors. If the zones' intend to become financially and technically autonomous in the long term, they must replace expatriate personnel by Zairian professionals. In order to accomplish this, the zones would have to pay the salaries of these Zairian employees.

Information from Bwamanda reveals that if the expatriate personnel was replaced by Zairian employees, the salary expenses of that zone would increase by 40%; total operating costs would increase by 15%. Similar

calculations for Bokoro show that if the two Belgian doctors that work in Bokoro were replaced by Zairian doctors whose salaries were being paid by the zone, total salary costs would increase by 52% (assuming that each Zairian physician would earn 30,000 Z per month); the zones' total operating costs would increase by 22%.

5.1.9 Supervision Fees

Different health zones employ different schemes to charge the health facilities for the central office's supervision costs, as explained in appendix C. In all zones except Kikimi and Kalonda, supervision fees are proportional to the health centers' revenue. In Kikimi health centers do not pay supervision fees at all, and in Kalonda the fee is the same for all centers, regardless of their revenue.

In most zones, revenue from supervision fees does not fully cover the central office's supervision costs. This is due, according to the zones' management, to the health centers' inability to pay higher supervision fees.

As explained in appendix C, the central office performs other activities in addition to supervision. Since all the central office's activities benefit the zones' facilities, including the reference hospital, the office should charge its full costs to the facilities, not only those associated with supervision. In addition, the time and resources allocated by the central office to each health center is generally related to the center's volume of activity. In the case of the reference hospital, the resources allocated by the central office are usually the time that the Medecin Chef de Zone spends in inpatient medical activities and the resources devoted to purchasing drugs and materials. Thus, we think that it is appropriate for the central office to bill the health centers in proportion to their revenue. In the case of the hospital, the fees should reflect the cost of the resources devoted to it.

In the short term most health facilities are unable to reimburse the central office for its full costs due to their financial constraints. In the long term, however, it is likely that health facilities will generate enough revenue to be self-financed and to cover the central office's costs. Therefore, it is important that the accounting of each facility reflects its share of the central office's costs.

5.2 The Presence of Parallel Competition

Parallel competition exists in most zones. Though highly criticized by the zones' personnel, the effects of competitors on health zones and the health status of the population must be analyzed carefully.

As explained in chapter 4, the available information on parallel competitors to the zones networks is limited. Research needs to be undertaken to better understand the forces that drive parallel competition and its effect on the Zairian health zones. Some questions that may be studied are the following:

- How many parallel dispensaries exist in the health zones?
- Who operates these dispensaries?
- What types of services do they provide?

-What quality of care do they provide?
-What is the population's perception of the services provided by these units?
-What pricing systems do these facilities use?
-Do these dispensaries play an important role as providers of health care?
-Can these dispensaries be incorporated into the networks of the zones

The management of some health zones acknowledges that external providers do fill the gap left by the networks in some geographic areas of the zones. At least they provide some form of health care where otherwise none would be available.

Parallel competitors may also play an important role by preventing the zones from raising their prices significantly above costs. In fact, in the absence of competitors, the dispensaries of the networks would enjoy a monopoly situation. Even if they did not charge prices above costs, they could become inefficient and produce at high costs. Parallel competition may limit this.

The existence of parallel competition, however, may also have a negative impact on population's health status. The lack of education of rural populations makes them vulnerable to unscrupulous individuals. Some evidence suggests that this may be the case for several parallel providers in the zones visited.

In sum, we believe that parallel competition may have both positive and negative effects on population's welfare. On the one hand they may provide some form or health care services where the zones' networks do not provide any, and they may also prevent the providers of the networks from becoming inefficient or from charging monopoly prices. On the other hand, they may sell low quality services, taking advantage of the population lack of understanding of health and health care. We suggest that no immediate measures be taken before further study of parallel competitors' role as pointed out above. In addition, we believe that the zones' management should be given more power to enforce the law or the health zones' statutes when competitors clearly threaten people's well-being.

We believe that one of the best ways to regulate parallel competition is through education of the population. Health zones' networks should reinforce their current health education programs, with the help of health centers' committees. An educated population should be able to freely choose which provider best responds to its health needs. Extensive health education can help to achieve this.

Finally, the management of the zones should try to promote cooperation between some parallel providers and the networks, especially in the case of those that operate in areas where the zones have no access. The role of community health committees would again be important at controlling quality and price of the services of these providers.

5.3 The Presence of Competition Within the Zones' Networks

In addition to the competition represented by parallel providers, the management of many health zones complained about the competition among providers within the networks. They specifically criticized the policies of Catholic and Protestant groups which, without the agreement of the zones' management, open new facilities where others already exist.

An excessive number of facilities in some areas may threaten the ability of each of them to be financially viable. As more units compete for the same population, the share of people captured by each becomes smaller and their payments for services insufficient to recover the units' total costs.

We believe that a solution to this problem would be to create a general health committee in each zone with full representation of all the providers and the population. Parallel providers should also be invited to participate in such a committee. Actions that affect providers as well as the population should be discussed by the members and decisions should be made by public consent. The statutes of the committee should provide for penalties to those members that violate the commonly agreed on decisions. The Department of Public Health could play an important role at providing guidance for establishing such committees, although each zone should be granted autonomy to establish its own internal regulations.

We think that the lack of planning in the health zones can lead to duplication of services, inefficient use of resources and ultimately poor financial performance and inadequate quality of care. The creation of a general entity with full representation of providers and consumers is possibly a way of permitting more coordination of activities within the health zones. We recommend that the Department of Public Health promote this idea.

5.4. Financial Autonomy of Health Centers

As mentioned in Section 4.6, many health centers are unable to recover their costs with their operating revenue. In some cases, this may be the result of inadequate management, and the zones' authorities should be able to identify these situations. The presence of parallel competition may also be responsible for individual health centers' poor financial performance.

However, in many cases, the reasons some health centers are unable to become self-financed are: (1) the population base is too low; (2) geographic conditions make the access to the facility difficult; (3) a low income population; and (4) some combination of (1)-(3).

Many zones have acknowledged this, and have dealt with the problem by having health centers with a surplus subsidize those with a deficit. Such was the case of Bokoro and Bwamanda in 1985. The management of these two health zones indicated to the study team that it was becoming increasingly difficult for them to keep this cross-subsidization system working. Health centers' committees were becoming aware that their resources were being employed to subsidize other communities', and therefore, opposed it.

In addition, the zones' management was also concerned that future regulations emanating from the Department of Public Health would forbid the cross-subsidization among individuals units. They feared a regulation that would oblige individual health units to be financially autonomous. If that were the case, they claimed, as many as half of the health centers of the zones would have to shut their doors and stop operating. Consequently, half the population of the zones would be left without access to health care.

We think that health centers that generate a surplus should be able to spend the accumulated funds however they deem it adequate, including the possibility of cross-subsidizing other centers. Health centers that operate at a loss should be carefully monitored by the zones management to identify the causes of their inability to recover full costs. If demographic or socio-economic reasons are at the base of the poor financial performance, the zones should study ways of reducing costs and providing care at the minimum possible cost. If cross-subsidization was not possible or insufficient to support centers with poor financial performance, the zones should seek external support from either the GOZ or NGO's.

Providing health care to poor rural populations is a difficult and expensive task. We think that the Zairian health zones and the population within have already achieved a major success by improving people's health, and self-financing as much as 79% of their operating expenses after only three years of formal operations. However, income and living conditions are not evenly distributed in the zones for reasons that are beyond the control of the population. If the GOZ believes that cross-subsidization between health facilities should not exist, it should at the same time acknowledge the inability of some units to be financially autonomous in the medium term. Consequently, the GOZ should allocate funds to subsidize the health facilities incapable of self-financing in the medium term to allow the continuity of health care services to the less fortunate populations. The continuity in the provision of health care to these poor segments of the Zairian population is an important condition in reaching higher levels of economic development.

5.5 The Presence of Indigents

Indigents exist in all health zones. They are individuals who cannot pay the full price of the health care services. Indigents are usually the old, the very poor, or the very sick. In addition, in many zones most children are considered indigents. As explained in section 4.2 in the zone of Dungu, all children below four years of age are given free care because their parents are away from their main residence most of the time.

In the past, all GOZ employees were given free care in most health zones. Health zones were not given a subsidy by the GOZ to compensate for the cost of providing free care to the GOZ employees and their families. Recently, the management of health zones have begun charging normal fees to civil servants to improve financial performance.

Health zones in general have been successful at having people pay for the health services consumed, while at the same time providing free care or discounts to the very poor or the elderly. However, we think that some zones need to stress even further the concept of paying for health services among consumers. If some groups of individuals cannot pay the full price,

differentiated tariffs could be set, as is done in many zones. If children cannot pay because their parents are away from home most of the time due to their farming activities, the payment of a fixed annual premium by the parents could be a viable policy.

5.6 The Technical Competency of the Health Zones' Employees

In most health zones, medical or paramedical personnel spend a large share of their time doing administrative tasks such as accounting, inventory control, purchasing, and finance, in addition to their medical duties.

This is undesirable for two reasons. First, by allocating part of their time to perform administrative work, medical and paramedical personnel are precluded from concentrating exclusively in health-related activities for which they have been formally trained. Second, medical personnel are usually inefficient at performing administrative tasks due to their lack of formal training in the field of management.

The most dramatic case is that of most Medecins Chefs de Zone. They have to allocate their time between the practice of medicine at the reference hospital, the technical supervision of health centers, the managerial work at the central office and, toward the end of the year, the preparation of a substantial number of performance reports to be submitted to the various donor and government agencies. Some Medecins Chefs de Zones have all these responsibilities because they fail to delegate tasks to their subordinates.

We recommend that health zones: (1) hire young professionals trained in the fields of management, accounting and information systems; (2) train their existing administrative personnel; and (3) request technical assistance in the above-mentioned fields from other zones, governmental institutions, or NGO's. In addition, we strongly urge the Medecins Chefs de Zone to delegate the administrative tasks to management personnel, and to share with them all the management-related decisions. These measures will allow the medical personnel to allocate a greater share of their time to medical activities and will delegate management-related activities to technically qualified personnel.

5.7 Health Zones' Financial and Information Systems

As stressed throughout this report, adequate information systems are essential to the financial and medical success of the zones. We think that the self-financing capability of the zones can be boosted by improving the quality of their information systems.

We recommend that the zones develop the following information systems, among others, at the central office level:

- **accounting of all the health facilities of the network, with detailed revenue and costs data**
- **medical activities performed in each facility indicating types and quantities of services provided**
- **inventory system, reflecting stocks levels, prices, providers and amounts ordered and delivered to each health facility**
- **central accounting of the health zone**

The systems should be updated monthly, and performance reports should be generated periodically. Individual health facilities should also develop similar systems in coordination with the central office to allow for compatibility. Health zones should seek external advice and should consider acquiring micro-computers to implement the above systems.

5.8 Health Zones' Administrative Autonomy

We believe that demographic and socio-economic differences among the zones require different zones to adopt different administrative schemes, pricing policies, and health care plans. We think that the zones should be technically autonomous since the zones' management is better equipped to solve their own problems. We encourage the GOZ to provide training and guidance to the zones' personnel, but we discourage it from imposing uniform and rigid administrative schemes to the health zones.

Appendix 6

Survey Questionnaires

1. Monthly and Annual Expenses
2. Payment Systems
    A. Payment Systems
    B. Free Care Recipients
    C. Percentage of Free Care
    D. Pros and Cons of Payment Systems Used
3. Annual Revenue and Prices of Services
4. Management Systems
5. Prices, Consumption, and Inventory of Selected Drugs

ENQUETTE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
DEPARTEMENT DE LA SANTE PUBLIQUE DU ZAIRE-SANRU-REACH

D E T A I L D E S D E P E N S E S

LIBELLE	NOMBRE	COUT UNITAIRE MOYEN/MOIS	COUT TOTAL/AN	OBSERVATIONS
1.- REMUNERATIONS				
- Medecin Chef de Zone				
- Medecin Directeur				
- Medecin Specialiste				
- Medecins				
- Superviseurs				
- Infirmiers				
- A1				
- A2				
- A3				
- Accoucheuses				
- Kinesitherapeutes				
- Laborantins				
- Anesthesistes				
- Pharmaciens				
- Nutritionistes				
- Administrateurs Gestionnaires				
- Comptables				
- Secretaires				
- Planton/Sentinelle/Lavandiers				
- Chauffeurs/Cuisiniers/Commis				
- Autres				
- Frais de Mission				
- Soins Medicaux				
- Charges Sociales **				
SOUS TOTAL 1				

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ENQUETTE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
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D E T A I L D E S D E P E N S E S

LIBELLE	NOMBRE	COUT UNITAIRE MOYEN/MOIS	COUT TOTAL/AN	OBSERVATIONS
2.- FOURNITURES				
- Papiers/Rics/Crayons/Fiches/				
Encres/Stencils/Rubans/				
Cahiers/Registres/Classeurs/				
Chemises/Divers				
3.- CARBURANT ET LUBRIFIANTS				
- Essence *				
- Gazoil *				
- Huile				
4.- TRANSPORT COMMERCIAL				
- Voyages				
- Fretes				
5.- ASSURANCES				
6.- MAINTENANCE				
- Vehicules				
- Batiments				
- Equipement et Materiel				
7.- VIVRES				
8.- LINGERIE				
9.- ACHATS SERVICES				
Plomberie + electricite +				
menuiserie + autres				
10.-EAU, ELECTRICITE				
11.-SUPERVISION				
12.-AUTRES				
13.-ACHATS DE MEDICAMENTS				
T O T A L (1+2+...+12)				

* Demander nombre de kilometres par mois

ENQUETTE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
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R E C E T T E S: G E N E R A L I T E S

A. METHODES DE PAYMENT

	PRIX 1986	%Z DES GENS QUI PAIENT	SERVICES INCLUS DANS LE PAIEMENT	SERVICES EXCLUS DANS LE PAIEMENT	QUAND ET COMMENT SE FAIT LE PAIEMENT
CONSULTATION NOUVEAU CAS					
CONSULTATION ANCIEN CAS					
CONSULTATION MALADIE CHRONIQUE					
ACCOUCHEMENTS					
EXAMENS DE LABORATOIRE SIMPLES					
EXAMENS DE LABORATOIRE COMPLEXES					
EXAMENS DE RAYON X					
JOURNEE D'HOSPITALIZATION					
INTERVENTIONS CHIRURGICALES					
-					
-					
-					
-					
-					
-					
-					

A. METHODES DE PAYMENT (CONT.)

	PRIX 1986	% DES GENS QUI PAIENT	SERVICES INCLUS DANS LE PAIEMENT	SERVICES EXCLUS DANS LE PAIEMENT	QUAND ET COMMENT SE FAIT LE PAIEMENT
INTERVENTIONS CHIRURGICALES (CONT.)					
-					
-					
-					
-					
CONSULTATION PRE-SCOLAIRE					
CONSULTATION PRE-NATALE					
CONSULTATION NAISSANCE DESIRABLE					
MEDICAMENTS					
VACCINATIONS					
-					
-					
-					
-					
-					
-					

B. QUELLES CATEGORIES DE PERSONNES RECOIVENT UN TRAITEMENT GRATUIT OU TARIF REDUIT?

	GRATUIT	REDUIT
(a) Le personnel du B.C.Z.S., H.G.R., C.S.R., C.S., P.S		
(b) La famille du personnel		
(c) Les membres du Comite de Sante du Village ou d'autres comites		
(d) Les ayant droit (fonctionnaires)		
(e) Le personnel de la mission		
(f) Les indigents		
(g) Autres (a preciser)		

C. QUEL POURCENTAGE DES PRESTATIONS SE FONT GRATUITEMENT OU A PRIX REDUITS
(VERIFIER QUE POUR CHAQUE CATEGORIE: PAYES + GRATUIT + REDUIT = 100%)

	PAYES	GRATUIT	PRIX REDUIT	TOTAL
Medicaments				100%
Accouchements				100%
Interventions Chirurgicales				100%
Consultations				100%
Hospitalisations				100%

D. QUELS SONT LES PROBLEMES OU AVANTAGES ASSOCIES A VOTRE SYSTEME DE PAIEMENTS EN CE QUI CONCERNE:

(a) L'equilibre de vos finances_____

(b) Le controle des recettes _____

(c) L'accessibilite economique de la population aux soins de sante (indigents)__

(d) La frequentation des services_____

(e) Autre _____

ENQUETTE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
DEPARTMENT DE LA SANTE PUBLIQUE DU ZAIRE-SAHRU-REACH

NOM DE L'UNITE:
ZONE DE SANTE DE:
DATE: / /

D E T A I L D E S R E C E T T E S A N N U E L L E S

ENQUETEUR:
REPONDANT:
PAGE 1

LIBELLES	NOMBRE	PRIX UNITAIRE MOYEN	PRIX TOTAL	OBSERVATIONS
A. RECETTES PROPRES				
1.- CONSULTATIONS CURATIVES				
- 1ER NIVEAU (INFIRMIER)				
o Nouveau Cas				
o Ancien Cas				
- 2EME NIVEAU (MEDECIN)				
o Nouveau Cas				
o Ancien Cas				
- CONSULTATION PRIVEE				
o Nouveau Cas				
o Ancien Cas				
SOUS-TOTAL 1		////////////		
2.- ACTIVITES PREVENTIVES ET PROMOTIONNELLES				
- CONSULTATIONS PRE-NATALES				
- CONSULTATIONS PRE-SCOLAIRES				
- MALADIES CHRONIQUES				
- MAL NOURRIS				
- NAISSANCES DESIRABLES				
- VACCINATIONS				
- AUTRES				
SOUS-TOTAL 2	////////////	////////////		
3.- VENTE DE MEDICAMENTS				
4.- ACCOUCHEMENTS				
5.- INTERVENTIONS CHIRURGICALES				
- MAJEURES				
- MINEURES				
6.- EXAMENS DE LABORATOIRE				
- EXAMENS SIMPLES				
- EXAMENS COMPLEXES				

ENQUETTE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
DEPARTMENT DE LA SANTE PUBLIQUE DU ZAIRE-SANRU-REACH

NOM DE L'UNITE:
ZONE DE SANTE DE:

D E T A I L D E S R E C E T T E S A N N U E L L E S

ENQUETEUR:
DATE: / /

LIBELLES	NOMBRE	PRIX UNITAIRE	PRIX TOTAL	OBSERVATI
7.- EXAMENS R.X.				
8.- HOSPITALISATIONS (JOURNEES)				
9.- HONORAIRES SUPERVISION				
10.- AUTRES				
SOUS-TOTAL A	///////	///////		
B. RECETTES HORS ACTIVITES	///////	///////		
1.- CANTINE	///////	///////		
2.- VENTES DIVERSES	///////	///////		
3.- COTISATIONS DE LA POPULATION	///////	///////		
SOUS-TOTAL B	///////	///////		
C. SUBVENTIONS	///////	///////		
1.- ETAT	///////	///////		
2.- ORGANISMES NON GOUVERNAMENTAUX	///////	///////		
3.- COOPERATION BILATERALE	///////	///////		
4.- COOPERATION MULTILATERALE	///////	///////		
5.- BUREAU CENTRALE DE LA ZONE DE SANTE	///////	///////		
6.- HOPITAL GENERALE DE REFERENCE	///////	///////		
7.- CENTRE DE SANTE DE REFERENCE	///////	///////		
8.- CENTRE DE SANTE	///////	///////		
9.- AUTRES DONS (*)	///////	///////		
SOUS-TOTAL C	///////	///////		
TOTAL GENERAL (A+B+C)	///////	///////		

(*) Note methodologique pour l'enqueteur:
1) Demander la valeur de dons en nature.
2) Si la valeur est inconnue, note descriptive en vue de sa valorisation en se referant au prix de marche.

ENQUETE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
DEPARTEMENT DE LA SANTE PUBLIQUE DU ZAIRE-SANRU-REACH

INFORMATION SUR L'ORGANISATION DE LA GESTION

(1) QUI UTILISE LES DOCUMENTS COMPTABLES SUIVANTS:

DOCUMENTS	MEDECIN CHEF DE ZONE	MEDECIN DIRECTEUR	ADMINIST. GESTION-NAIRE	SUPERVI-SEUR	INFIRMIER TITULAIRE	COMPTABLE	SECRETAIRE	AUTRE
LIVRE DE CAISSE								
LIVRE DE BANQUE								
FICHE BUDGETAIRE								
BON DE DEPENSE								
BON DE CAISSE								
RECUS OU QUITTANCE								
CHIEQUIER								
ORDRES DE PAIEMENT								

(2) ELABOREZ VOUS UN PLAN DE DEPENSES? OUI NON
SI OUI, AVEC QUELLE PERIODICITE?

(a) Chaque mois
(b) Chaque trimestre
(c) Chaque semestre
(d) Chaque annee
(e) Autre (a preciser)_____

(3) ELABOREZ VOUS UN RAPPORT FINANCIER? OUI NON
SI OUI, AVEC QUELLE PERIODICITE?

(a) Chaque mois
(b) Chaque trimestre
(c) Chaque semestre
(d) Chaque annee
(e) Autre (a preciser)_____

(4) EST-CE-QUE VOTRE INSTITUTION A UN COMPTE PROPRE EN BANQUE OU AILLEURS? OUI NON
SI OUI, QUI LE GERE:

(a) Medecin Chef de Zone
(b) Medecin Directeur
(c) Administrateur Gestionnaire
(d) Superviseur
(e) Infirmier Chef
(f) Comptable
(g) Secretaire
(h) Autre (a preciser)_____

INFORMATION SUR L'ORGANISATION DE LA GESTION

(5) QUELLE EST LA PERSONNE QUI PREND LA DECISION D'ENGAGER LES DEPENSES?

MONTANT EN ZAIRES	MEDECIN CHEF DE ZONE	MEDECIN DIRECTEUR	ADMINIST. GESTIONN.	SUPERVI-SEUR	INFIRMIER TITULAIRE	COMPTABLE	COMITE DE GESTION	AUTRE
Moins de Z 100								
Entre Z 101 - 500								
Entre Z 501 - 1.000								
Entre Z 1.001 - 5.000								
Plus de Z 5.000								

(6) COMMENT SE FAIT L'APPROVISIONNEMENT DE VOTRE INSTITUTION EN MEDICAMENTS ET FOURNITURES:

MEDICAMENTS _____

_____

_____

AUTRES FOURNITURES _____

_____

_____

(7) COMMENT RECEVEZ VOUS VOS MEDICAMENTS ET AUTRES FOURNITURES?

MEDICAMENTS _____

_____

_____

AUTRES FOURNITURES _____

_____

_____

(8) COMMENT FIXEZ VOUS LES PRIX DES:

LIBELLE	COUT	CONCURRENCE	POUVOIR D'ACHAT	OBSERVATIONS
(a) Medicaments				
(b) Accouchements				
(c) Interventions chirurgicales				
(d) Consultations				
(e) Examens de laboratoire				
(g) Examens de R.X				
(h) Hospitalisations				
(i) Honoraires de supervision				
(j) Autres				

ENQUETE SUR LE FINANCEMENT DES ZONES DE SANTE AU ZAIRE
DEPARTEMENT DE LA SANTE PUBLIQUE DU ZAIRE-SANRU-REACH

DEPENSES, RECETTES ET INVENTAIRE DES MEDICAMENTS

LIBELLE	QUANTITE PAR AN	COUT UNITAIRE AU MARCHE	COUT TOTAL	PRIX DE VENTE UNITAIRE	PRIX DE VENTE TOTAL	INVENTAIRE MOYEN QUANTITE
1.- Peni. Procaine						
2.- Chloroquine a 100 mg.						
3.- Aspirine a 500 mg.						
4.- SRO						
5.- Chloramphenicol caps. 250 mg.						
6.- Fer a 300 mg.						
7.- Levamisole a 50 mg.						
8.- Paracetamol a 500 mg.						
9.- Levamisole a 150 mg.						
10.- Chloramphenicol ogt.						
11.- Didyrone amp. 1 mg.						
12.- Tetracycline caps. 250 mg.						
13.- Ampicilline						
14.- Papaverine amp.						
15.- Mebendazole						
16.-						
17.-						
18.-						
19.-						
20.-						
T O T A L		///////////		///////////		///////////

Appendix B

Table B.1 :
Basic Demographic Data
Ten Health Zones
1985

	Ebam-ge	Edro-ro	Bwaman-da	Dungu	Kalon-da	Kenie-me	Kikwi-mi	Kindu	Kirot-she	Sore-Bete
Population (thousands)	164.3	103.0	114.4	121.0	135.0	78.8	63.5	105.0	200.0	78.0
Birth rate (%.)	na	46	46	41	na	50	56	47	72	na
Mor.rate %.)	na	20	16	na	na	na	16	30	24	na
Population net growth rate (%)	na	2.5	2.4	na	na	na	6.6	1.7	3.8	na
Area (km2)	4,590	8,850	2,400	9,050	6,500	13,500	80	14,48	1,800	880
Average pop. density (pop./km2)	35.8	12.5	47.7	6.3	20.8	5.8	1,390	7.3	111	7.8
Pop. concentration by areas	na	43% in 4 towns	100 towns 1,300 inhab. each	38% in 4 towns	na	2 zones one 78% pop. d=25.5 other 22% p. d=1.8	major ity in 15km2 dens=. 15,434	54% popul. lives in 4 km2 dens= 18,925	na	na

*: Kikimi's high population net growth rate is explained by the net immigration rate from rural zones to the capital city of Zaire.
#: Bwamanda's mortality rate is underestimated according to its Medecin Chef de Zone.
na: not available

Appendix C

Administrative Structure of the Zones and Management Systems

This appendix describes the organization of the facilities that belong to the zones' networks.

The Zairian health zones are organized according to the classical pyramidal model. At the top of the set of providers is the reference hospital which provides mostly inpatient care and deals with more complicated health problems. At the bottom of the system are the health posts which treat more simple, ambulatory cases, and promote preventive programs. Health centers and reference health centers are in intermediate levels and provide a mix of ambulatory and inpatient services.

Linking these four levels of health care units is a system of referrals. Patients who cannot be treated at a given level due to the complexity of their problem are sent to the level above to seek treatment.

The medical and administrative activities of these four categories of health care units are supervised and coordinated to varying extents by the zone's central office.

The nature of the relationships between the above-mentioned units varies among the zones. Figure 4.1 represents the technical, administrative, decision-making units and their relationships as seen in a typical health zone.

Decisions at the health zone level are usually made by the health zone management committee, usually presided over by the Medecin Chef de Zone. Providers, health centers, the reference hospital and the population are usually represented in this committee.

Decisions concerning the set of health centers are usually made at the health centers' management committee, where the population, providers and health centers' technical personnel are represented. The Medecin Chef de Zone normally chairs this committee.

Technical and administrative activities of the reference hospital are usually decided and coordinated by the hospital management committee, co-chaired by the hospital director and the Medecin Chef de Zone.

The population plays an active role at the health center level through the health centers health committees. Usually, each health center has its own committee made of community volunteers. They play a major role at controlling the health center's accounting, the quality of care, and are essential at promoting activities such as health education and sanitation.

The central office supervises the medical and administrative activities that take place in the health centers. Supervision involves periodical trips to the facilities by the Medecin Chef de Zone and other doctors and nurses of the central office. In exchange for its supervisory services, the central office charges a fee to the health centers.

The supervision fee may be the same for all health centers or may vary depending on the volume of activities of each individual facility. For example, in Kelongo, each health center paid a monthly supervision fee of 4000 in 1985. In Kirtachi they paid 10% of their monthly revenue, excluding that from the sale of drugs. In Dungu in 1986, health centers pay to the central office 5% of their monthly revenue, drugs excluded. Finally, in Bolero, the supervision fee paid by each center is proportionel to the population of the center's health area and to the number of new curative cases treated in the facility.

In addition to its supervisory role, the central office performs a series of other activities which permit the functionning of the zone's health network. The other activities are accounting, financial and technical planning, drugs and material purchasing and management, training of the zone's employees, coordination of P.E.V. activities, etc. The supervision fees are generally insufficient to finance the expenses attributable to that activity and are only a small fraction of the central office's total expenses.

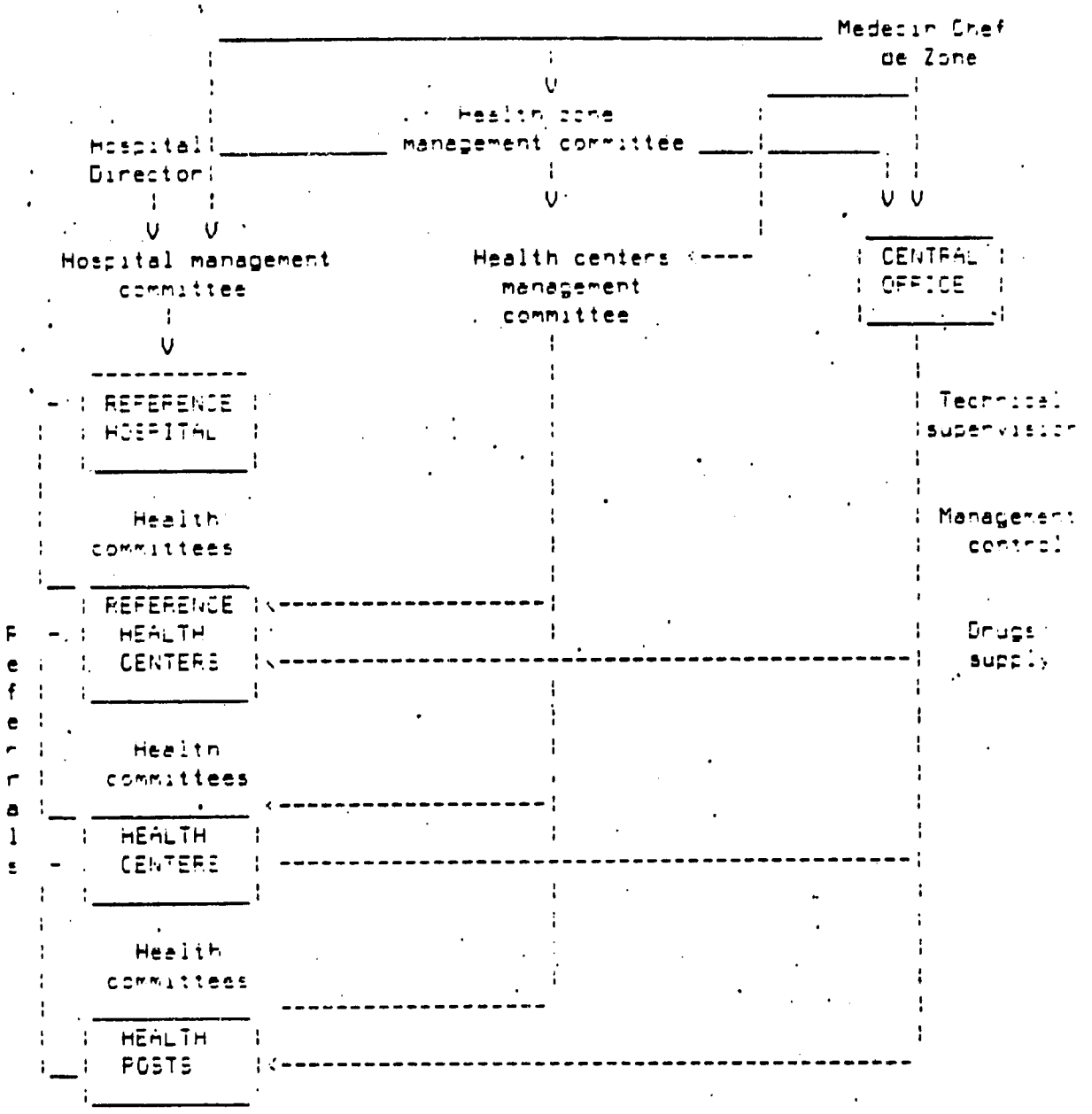
With regard to the supply of materials, health centers purchase the majority of their drugs and medical supplies from a central pharmacy which is usually managed by the central office. In some zones the central office charges the health centers a mark-up above purchase price which helps finance its operating costs. In other zones, the office acts only as an intermediary and does not charge any fee for its role of supplier. The proportion of drugs and materials that the health centers purchase from other local suppliers is usually small.

The major relationship between health centers and the hospital is the referral of patients. In most cases, patients are referred to the hospital at no cost to the health center. In a few cases, however, health centers do have to pay a fee to the hospital for each referral. Such a fee is set by the hospital to discourage health centers from referring patients whose health problems can be treated at the health center level. In Kikimi, such a payment is of 5Z, and it obviously does not cover the costs generated by the referred patient. Kikimi is currently reviewing its fee. Kindu is another example of a zone where the health centers have to pay the hospital for the cases that are referred. In 1985, the hospital received 75,900Z ($1,500) worth of referral fees.

Finally, the reference hospital is intended to be a financially independent unit and its only formal relationship with the central office is in most cases, the purchase of drugs.

Figure 4.1

Typical Administrative
Structure of a Health Zone



Appendix D

Types of Health Units, Personnel and Services Provided in the Zones' Networks

Health posts provide basic curative services such as treatment of less complicated cases of diarrhea and malaria. They are operated by auxiliaries who have been trained through the zone's training programs. Health posts also provide vaccinations and carry out health education activities. Health posts have basic stocks of drugs and medications. Many health posts were formerly dispensaries and frequently the zones upgrade these posts to health centers.

Health centers offer a wide range of curative services, from basic treatment of parasitic and infectious diseases to more complicated cases that require ambulatory surgery. Health centers also provide the bulk of the preventive services in the zone. They seek to enroll children and pregnant women in their pre-school and pre-natal preventive programs. Both programs generally include immunization and prophylactic measures against infectious and parasitic diseases. Health centers sometimes have a maternity with 5 to 15 beds and some beds for surgery patients and cases of malnutrition. Health centers also promote health education activities among the population. Most have a microscope and can perform some basic diagnostic laboratory tests. Health centers' size varies substantially within a zone and among zones. A unit has between 5 and 20 beds (maternity included), and is run by a male nurse of A3 level (secondary school education and two years of nursing training), a midwife or traditional birth attendant (TBA), and one or two auxiliaries.

Reference health centers' services include those provided by a health center, plus many inpatient services such as those provided by the reference hospital. Their size varies from 15 to 50 beds, including a maternity unit. Reference centers provide a wide range of inpatient surgery. Most have 4 to 7 nurses of level A3, one or two of level A2 (primary school plus one year of training in the zone), one or two TBA and 2 to 5 auxiliaries. Reference centers usually have a laboratory a can perform diagnostic tests of some complexity. Most have a blood bank.

Reference hospitals are medium-sized inpatient units with 40 to 200 beds. They provide inpatient services in obstetrics, surgery, general medecine, pediatrics, nutrition, pre-natal observation, and isolation for contagious diseases. The number of personnel working at a reference hospital varies from 43 (Bwamende) to 130 (Sone-Bata) people. They usually have two or three physicians some of whom share their medical duties with administrative functions at the central office. Hospitals have between 15 to 30 A3 nurses, 3 to 5 A2 nurses, and several TBA and auxiliaries. In addition, reference hospitals have an administrative unit composed of one accountant (level A2 and two or three additional clerks. Most hospitals have a blood bank, a maternity and an outpatient unit. They normally act as reference health centers in their health area. Finally, hospitals can perform laboratory exams. They also have X ray capability and occasionally an EKG machine.

Appendix E

Table E.1

Medical Infrastructure
of Health Zones and
Ownership of Health
Facilities, 1985

	Eibenge	Bolonc	Ewamande	Dungu	Kalonda	Kaniema	Kikimi	Kindu	Kirotshe	Lore-Bata
Ownership Reference Hospital	PROT	CATH	OTH	GOZ	PROT	GOZ	CATH	GOZ	GOZ	PROT
# Refer. Htn. Ctrs.	6	4	4	3	3	0	0	0	2	2
Ownership										
GOZ	4	1		3						1
CATH	1				1				2	
PROT	1	2			2					
OTH		1	4							1
# Hth Ctrs	3	40	15	14	11	10	8	10	18	16
# Hth Post	0	na	1	11	0	4	0	0	2	16
Ownership										
GOZ	1	29		21	2	13	8	4	16	14
CATH	1	4		2	2			1		2
PROT		3		2	7					9
OTH	1	4	16			1		5	4	7
Total # Htn. Units	10	45	21	29	15	15	9	11	23	38
Ownership										
GOZ	5	30		25	2	14	8	5	17	15
CATH	2	5		2	3		1	1	2	[illegible]
PROT	2	5		2	10					[illegible]
OTH	1	5	21			1		5	4	[illegible]
Total Pop. of Zone (Thousands)	164.3	108.0	114.4	121.0	135.0	75.8	83.5	105.0	200.0	75.2
Average Population per H.Unit (Thousands)	16.4	2.4	5.4	4.2	9.0	5.3	18.3	9.5	8.7	[illegible]
# Beds Ref. Hosp.	200	168	138	200	120	166	38	127	105	[illegible]

GOZ :Government of Zaire
PROT :Protestant
CATH :Catholic
OTH :Others (other religious orders, firms, individuals)
na :not available

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Medical Infrastructure of Health Zones and Ownership of Health Facilities

(i) The number of health facilities shown in the table corresponds only to the facilitites that belong to the zones' networks. Parallel providers are not accounted for in the table and thus, the number of health units shown underestimates the total number of health facilities in the zones. Data on the number of parallel providers were not gathered by the study team.

(ii) Not all the zones conform to the standard model of a health zone suggested by the Department of Public Health. Instead, some zones like Kaniama, Kindu and Kilimi do not have reference health centers at all and therefore no intermediate facilities exist between the health centers and the reference hospital. Other zones support the activities of health centers with health posts, a less expensive way of extending coverage and freeing health centers from less complicated cases which can be treated by an auxiliar, at the health post level. For example, Sona-Bata has one health post for each health center both units serving the same health area. Some zones have decided not to install health posts such as Bibanga, Kalonda and Kikimi.

(iii) The table shows the ratio between the total population of a zone and its total number of health units. Although ratios between zones are not perfectly comparable (due to the differences in services provided by, and size of, health units) some comments can be made on the magnitude of the figures. For example, in Kilimi each health center covers an average population of 18,300, while in Kindu this figure is about halved. If one excludes the health posts in Sona-Bata (health posts and centers cover the same population in that zone), the average population per health center is 4,100, one-fourth that of Kilimi.

(iv) In addition to the number of beds of the reference hospitals shown in the table there exist a number of semi-hospital beds in the health zones, especially in the reference health centers and health centers. For example, in the health zone of Dungu, the three reference health centers have a total of 110 beds, and three health centers have a total of 46 beds.

Appendix F

Providers and Services Offered in the Health Zones

This appendix deals with issues related to the providers that belong to the zones' networks. Section 2 of this appendix describes the issues pertaining to parallel providers, i.e., those facilities that are not part of the zones' networks.

1. Health Care Providers Within the Networks

Health facilities belong to a zone's network if they have been authorized to operate by the Medecin Chef de Zone. Most network facilities within are subject to the supervision by the zone's central office. The networks' medical units are usually owned by the GOZ, by religious missions or by enterprises, which have created such units to provide health care to their employees.

The ownership of health facilities at the zone level is usually determined by the entity which provides the funds to finance the construction of the facility. Ownership is also determined by the affiliation of the individuals who operate the medical unit.

The GOZ owns 57% of the health units in the ten zones. Catholics, Protestants and other owners account for 8, 14 and 21%, respectively (see appendix E). In some zones (Bwamanda, Kikimi) the GOZ owns most of the health units whereas in others (Kalonda, Sona-Bata) Catholic, Protestant or private ownership dominates.

The majority of the health facilities owned or operated by Catholics or Protestants belong to the zones' networks, and therefore accept the supervision by the central office. However, some of these facilities refuse to pay supervision fees. Furthermore, Catholic or Protestant facilities sometimes apply different price schedules for services in the zones where the central office has attempted to develop a uniform pricing system.

Zairian firms are obliged by law to provide free care to all their employees and their families. Many private or GOZ-owned enterprises that operate in the health zones have created and operate their own health units, generally health centers.

Enterprises' health units generally conform to the rules and procedures recommended by the central office. The employees of an enterprise that owns a health center do not pay for their care. In most cases, enterprise-owned health entities also provide care to non-employees for which they charge the zone's uniform prices.

Those enterprises that do not have their own health facilities usually arrange to pay zones for care given to their employees and families in health centers and the reference hospital. As a result of these agreements, most health zones have established a system of a dual price list, one list for private individuals and another for employees of enterprises and their families. The health units that belong to the networks keep records of the

number and types of services provided to the enterprises' beneficieries. Periodically, the central office compiles this information and bills the enterprises with which it has a service agreement.

Fees for enterprises usually exceed those for private individuels. For example, in the health zone of Kaniama, the fee for an episode of disease treated at the health center is 5ZI for enterprises' beneficiaries, more than twice the price charged to private clients. In the zone of Kindu, the corresponding fees are 15ZI and 5ZI, respectively (see prices in appendix J).

Time constraints did not permit investigation of the reasons enterprises accept payments at higher prices than the general public. If health centers are able to cover their operating costs with their operating revenue, enterprises might also be able to build and operate their own units at a lower cost than what they currently pay to the zones. Further analysis and recommendations on this issue are made in section 5.1.7.

2. Competition From Parallel Health Care Providers

In some of the zones parallel providers present stiff competition to the zone's networks. In the zone of Bokoro, for example, the Medecin Chef de Zone estimates that between 5Z and 75% of the total curative ambulatory visits take place in parallel dispensaries. This results in a lower proportion of the total demand being channelled to the zone's units, and in the inability of some of those units to earn enough revenue to finance their costs. Many of the zone's facilities with operating deficits could become profitable if utilization was higher. Parallel dispensaries also perform more complicated procedures, such as surgical interventions, where they also compete with the zones' facilities.

The Medecins Chefs de Zone and their staffs are not only worried about parallel competition because of their negative effect on the network's cost recovery capability, but also because they argue that quality of care in parallel dispensaries is unacceptably low. The study group did not have the opportunity to visit parallel medical units to evaluate the quality of their services.

Some limited information was made available to the team members on the way parallel dispensaries operate. In Bokoro, most parallel units are operated by people without formal training. They charge a fixed fee per case, which implies that the patient has to pay every time he or she returns for further treatment. In the first half of 1986 the fee charged was 20Z per day ($.30). That fee is about equal to the per episode fee of 20-25Z charged by the health centers that belong to the network. Although the fees are comparable, the fee of the network allows the patient to make an unlimited number of visits to the health center until the disease episode is over. However, if a client has to return to the parallel dispensary during the same episode, he or she will have to pay 20Z for each visit. Drugs are paid for separately in both the parallel dispensaries and the network. However, clients of parallel providers have to purchase drugs at the parallel dispensary or from local pharmacies at higher prices than charged by the network's facilities. In the health zone of Kalonda, parallel health units

charge as much as 150Z per day, which compares with a fee of 50Z for treatment of a disease at the health centers of that zone. Thus, ambulatory health care appears to be more expensive in the parallel dispensaries than in the zones' networks in both Bwamanda and Kalonda.

Not all the health zones seem to have parallel competition. Health authorities in Bwamanda and Kindu claim not to have any competitors outside their networks. Section 5.2 analyzes in further detail the issue of parallel competition and its implications.

Appendix G

Utilization Statistics

Basic indicators of health care utilization and coverage are presented in the table of this appendix. Comments on that information follow:

(i) New episodes of curative treated (row D): The data in the table only report the curative episodes treated at the facilities of the health zones' networks. The total number of curative episodes being treated by all facilities within the health zones is unknown. In zones where parallel competition is substantial, the data of the table largely underestimate total utilization (e.g., Bokoro, Kikimi). In the zones were competition is negligible (Bwamanda, Kindu), the figures are a good estimate of total utilization.

The data of row D are imperfect indicators of total utilization of curative health services by the zones' populations. However, one can compare utilization of services within the networks. In Bokoro, for example, the average number of curative episodes treated at the network is .57 episode per person living within a health area per year (61.100/107,000). In Bwamanda the corresponding figure is similar, and equal to .77. In Kindu, such indicator is low, equal to .38. This last figure is especially low if one considers that Kindu claims not to have any parallel competition. Sona-Bata, on the other hand, has the highest utilization of ambulatory curative services in Zaire according to SANRU personnel. Its per capita utilization ratio of 1.43 is almost 4 times Kindu's. Sona-Bata is also the one health zone with the highest number of health units per population (see appendix E). In sum, average utilization for curative services at the zones' networks varies between .29 to 1.38 new episodes per person per year.

An interesting piece of information is the average number of visits that consumers make per episode of illness (not shown in the table). The number of repeat visits determines in part the cost to the system of treating one episode of illness. The greater the number of repeat visits, the higher the per episode cost to the health unit. If patients pay a per episode fee, additional visits only increase costs without increasing revenue. Data on Bwamanda, where accurate statistics are kept on the number of new and repeat visits per health unit, indicate that the average figure is 3.35. That means that each new episode of disease that is treated at a health center is expected to be followed by 2.35 additional visits by the patient, before the episode is resolved. Sample data for Bokoro suggest that each episode requires 4.3 visits to the dispensary (1 new and 3.3 repeat visits).

(ii) Rows F through I show the utilization of preventive services within the zones' networks. Rows F and H show the number of women and children that registered in pre-natal and pre-school programs during 1985. Rows G and I show the proportion of registered out of the total target population. This latter figure is approximated by the birth rate times the total population.

Appendix G (Cont'd)
Basic Utilization
and Coverage Statistics
Ten Health Zones
1985

Table G.1

	Eiban ge	Bolo-ro	Bwa-manda	Dungu	Kalon de	Kanie ma	Kiki-mi	Kindu	Kirot she	Sone Bate
A.Populat. (th.)	164	105	114	121	135	79	84	105	200	75
B.Pop. covered (thous.)	n	107	86	61	68	58	61	78	120	71
C.Number of health units	10	45	21	29	15	15	9	11	23	35
D.New epis.curat treated (th.)	n	61.1	66.8	50.0	n	20.3	23.8	30.0	n	102
E.New epis.curat treated per pop.covered	n	0.57	0.77	0.81	n	0.35	0.39	0.38	n	1.43
F.New pre-natal cases regist.	n	2674	5079	2629	2764	3880	660	3492	6413	n
G.New pre-natal cases regist. % target popul	n	0.57	0.96	0.53	0.46	0.98	0.21	0.95	0.45	n
H.New pre-school cases regist.	n	2007	4106	2926	2399	6152	1592	2864	n	n
I.New pre-school cases regist. % target popul	n	0.43	0.78	0.59	0.4	0.41	0.52	0.76	n	n
J.Number of beds Reference Hosp	250	168	136	160	120	166	36	127	105	130
K.Pt. days (th.)	n	16.8	49.6	24.5	n	9.7	n	31.7	14	45.2
L.Utilization	0	27%	100%	42%	n	16%	n	68%	37%	98%
M.Hospitalizts.	3730	1034	n	1828	1455	2855	1040	3424	1000	3852
N.Av.length stay	n	16.2 m	n	13.4	n m	n	n	9.3	14.0	11.4 m
O.Surgical Inter	1830	276	3916	1508	379	1239	n	763	646	847
P.Deliveries	n	n	1364	598	552	1295	190	1195	322	n
Q.X-ray exams	n	n	n	396	n	1144	n	371	287	1154
R.Lab.exams(th.)	n	26.5	22.2	17.0	19.1	n	n	12.9	n	n

n: not available or inaccurate data
m: only major interventions
*: maternity excluded

Row G shows that in Bwamanda, Mbandaka and Kindu, the number of pregnant women who registered in pre-natal programs during 1985 is almost equal to the number of women who, according to the estimated birth rate, got pregnant that same year.

Row I shows that in the zones with the best performance (again Bwamanda and Kindu), less than 80% of the children in pre-school age registered in pre-school programs in 1985. In five of the seven zones for which data are available, the proportion of pregnant women who registered in pre-natal programs was higher than that of children registering in pre-school ones. The exceptions to this rule are Dungu, where the ratios are somewhat similar (.52 vs. .59) and Kilimi, where the majority of pregnant women reportedly seek pre-natal programs in neighboring zones.

The discrepancy between pre-natal and pre-school registration rates (the former being larger than the latter) suggest that many women who follow pre-natal programs decide not to register their newborn children in pre-school programs. Data gathered at a few health centers in the zone of Kirotshe show dramatic differences between both rates.

Additional analysis of preventive programs' coverage and recommendations that may help reaching higher coverage are presented in section 5.1.5.

(iii) Rows J through R present inpatient utilization data. The lack of reliability of some figures does not permit a systematic comparison of information among facilities.

Table H.1

Appendix H: Sources and Uses of Funds Statements, Ten Health Zones, 1985 (1985

App.H, page 1	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda
CENTRAL OFFICE					
Operating revenue					
Superv. fees h.centers	18,190	423,433	108,600	153,100	nd
Net revenue drugs sale	106,463	0	0	0	838,457
Other operating revenue	54,814	0	0	0	0
Total operating revenue	181,487	423,433	108,600	153,100	838 457
Operating expenses					
Salaries	---	147,333	66,239	300,888	120,000
Maintenance vehs.&bdgs.	---	---	215,000	---	---
Fuel & lubrif.	---	---	---	150,720	---
Office supplies	---	---	12,584	14,400	---
Other expenses	604,973	283,284	31,575	67,560	452,510
Total operat. expenses	604,973	430,617	345,398	533,568	572,510
Op. income bef.subsidies	(423,486)	(7,184)	(236,798)	(380,468)	265,947
Operating subsidies					
GOZ	0	7,184	117,178	180,000	0
Other donors	423,486	0	119,620	200,468	120,000
Total oper. subsidies	423,486	7,184	236,798	380,468	120,000
Investments	1,712	42,534	0	0	631,225
Investment subsidies					
GOZ	0	0	0	0	0
Private	1,712	42,534	0	0	245,278
HEALTH CENTERS					
Operating revenue					
Sale health services	nd	2,229,255	1,312,131	1,114,896	nd
Sale of drugs	nd	---	---	1,048,560	nd
Total operating revenue	nd	2,229,255	1,312,131	2,163,456	nd
Operating expenses					
Salaries	nd	562,822	476,244	979,920	nd
Drugs	nd	1,170,672	521,298	873,804	nd
Supervision fees	18,190	423,433	108,000	153,096	nd
Supplies, miscellaneous	nd	52,172	126,405	396,000	nd
Total operat. expenses	nd	2,209,099	1,231,947	2,402,820	nd
Op. income bef.subsidies	nd	20,156	80,184	(239,364)	nd
		0			
Operating subsidies					
GOZ	nd	76,593	0	95,800	nd
Other donors	nd	0	0	143,564	nd
Total oper. subsidies	nd	76,593	0	239,364	nd
Investments	125,424	390,310	342,000	802,000	nd
Investment subsidies					
GOZ	0	0	0	0	nd
Private	125,424	390,310	261,816	802,000	nd

Appendix H (cont'd.)

App. H, page 2	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda
GENERAL HOSPITAL					
Operating revenue					
Sale health services	4,947,142	1,156,320	876,583	1,508,400	2,758,601
Sale of drugs	---	---	---	889,200	---
Total operating revenue	4,947,142	1,156,320	876,583	2,397,600	2,758,601
Operating expenses					
Salaries	2,399,673	675,024	739,207	1,892,240	2,074,077
Drugs	555,668	506,960	563,607	741,000	910,117
Maintenance veh.& bdgs.	822,971	28,786	176,947	60,480	31,295
Fuel & lubrifiants	439,160	170,925	163,839	79,200	68,350
Other expenses	753,383	145,962	160,244	116,400	187,741
Total operat. expenses	4,970,855	1,527,657	1,803,844	2,889,320	3,271,580
Op'g income bef.subsidie	(23,713)	(371,337)	(925,261)	(491,720)	(511,979)
Operating subsidies					
GOZ	0	38,023	0	198,200	24,000
Other donors	23,713	333,314	925,261	293,520	487,979
Total oper. subsidies	23,713	371,337	925,261	491,720	511,979
Investments	328,413	493,556	0	100,000	0
Investment subsidies					
GOZ	0	0	0	0	0
Private	328,413	493,556	0	100,000	0
HEALTH ZONE					
Operating revenue					
Sale health services	nd	3,385,575	2,190,714	2,623,296	nd
Sale of drugs	nd	0	0	1,937,760	nd
Other operating revenue	nd	0	0	0	nd
Total operating revenue	nd	3,385,575	2,190,714	4,561,056	nd
Operating expenses					
Salaries	nd	1,385,179	1,301,690	3,173,048	nd
Drugs	nd	1,677,632	1,084,905	1,614,804	nd
Maintenance veh.& bdgs.	nd	28,786	391,947	60,480	nd
Fuel & lubrifiants	nd	170,925	163,839	229,920	nd
Other expenses	nd	481,418	330,806	594,360	nd
Total operat. expenses	nd	3,743,940	3,273,189	5,672,612	nd
Op. income bef.subsidies	nd	(358,365)	(1,082,475)	(1,111,556)	nd
Operating subsidies					
GOZ	nd	121,800	117,178	474,000	nd
Other donors	nd	333,314	1,044,881	637,552	nd
Total oper. subsidies	nd	455,114	1,162,059	1,111,552	nd
Investments	455,549	926,400	342,000	902,000	nd
Investment subsidies					
GOZ	0	0	0	0	nd
Private	455,549	926,400	261,816	902,000	nd

	Kaniama	Kikimi	Kindu	Kirotshe	Sona-Bata
CENTRAL OFFICE					
Operating revenue					
Superv. fees h.centers	nd	0	0	130,563	0
Net revenue drugs sale	nd	0	0	88,299	110,073
Other operating revenue	nd	0	173,224	0	18,944
Total operating revenue	nd	0	173,224	218,862	129,017
Operating expenses					
Salaries	nd	283,663	409,500	119,784	160,546
Maintenance vehs.&bdgs.	nd	25,670	31,261	---	16,502
Fuel & lubrif.	nd	101,381	143,940	103,776	36,722
Office supplies	nd	11,313	33,228	33,498	21,030
Other expenses	nd	82,825	155,623	42,986	19,017
Total operat. expenses	nd	504,852	773,552	301,044	253,787
Op. income bef.subsidies	nd	(504,852)	(600,328)	(82,182)	(124,770)
Operating subsidies					
GOZ	nd	504,852	409,500	82,162	
Other donors	nd	0	190,828	0	124,770
Total oper. subsidies	nd	504,852	600,328	82,162	124,770
Investments	nd	464,546	0	0	209,934
Investment subsidies					
GOZ	nd	464,546	0	0	0
Private	nd	0	0	0	209,934
HEALTH CENTERS					
Operating revenue					
Sale health services	1,616,147	907,430	1,390,415	1,305,832	nd
Sale of drugs	---	---	---	1,068,408	nd
Total operating revenue	1,616,147	907,430	1,390,415	2,374,240	nd
Operating expenses					
Salaries	559,781	---	689,275	690,688	nd
Drugs	711,681	257,883	387,056	971,280	nd
Supervision fees	0	0	0	130,563	nd
Supplies, miscellaneous	704,913	859,408	307,695	365,649	nd
Total operat. expenses	1,976,375	1,117,291	1,384,026	2,158,400	nd
Op. income bef.subsidies	(360,228)	(209,861)	6,389	215,840	nd
Operating subsidies					
GOZ	22,728	0	0	130,000	nd
Other donors	337,500	209,861	0	117,731	nd
Total oper. subsidies	360,228	209,861	0	247,731	nd
Investments	995,218	1,745,612	162,109	829,632	nd
Investment subsidies					
GOZ	0	1,165,278	0	0	nd
Private	995,218	580,334	162,109	366,061	nd

Appendix H (cont'd.)

	Kaniama	Kikimi	Kindu	Kirotshe	Sona-Bata
GENERAL HOSPITAL					
Operating revenue					
Sale health services	2,946,630	807,800	1,536,555	1,328,115	nd
Sale of drugs	---	551,300	---	---	nd
Total operating revenue	2,946,630	1,359,100	1,536,555	1,328,115	nd
Operating expenses					
Salaries	1,348,639	500,000	1,172,897	1,527,586	nd
Drugs	1,528,125	845,000	673,600	217,178	nd
Maintenance veh.& bdgs.	179,492	60,500	---	47,712	nd
Fuel & lubrifiants	---	36,000	---	229,929	nd
Other expenses	275,718	170,500	310,393	305,839	nd
Total operat. expenses	3,331,974	1,412,000	2,156,896	2,328,244	nd.
Op'g income bef.subsidie	(385,344)	(52,900)	(620,341)	(1,000,129)	nd
Operating subsidies					
GOZ	385,344	0	200,666	1,000,129	nd
Other donors	0	52,900	419,675	0	nd
Total oper. subsidies	385,344	52,900	620,341	1,000,129	nd
Investments	0	0	0	0	nd
Investment subsidies					
GOZ	0	0	0	0	nd
Private	0	0	0	0	nd
HEALTH ZONE					
Operating revenue					
Sale health services	4,562,777	1,715,230	2,926,970	2,633,947	nd
Sale of drugs	---	551,300	---	1,068,408	nd
Other operating revenue	0	0	173,224	0	nd
Total operating revenue	4,562,777	2,266,530	3,100,194	3,702,355	nd
Operating expenses					
Salaries	1,908,420	783,663	2,271,672	2,338,058	nd
Drugs	2,239,806	902,883	1,060,656	1,188,458	nd
Maintenance veh.& bdgs.	179,492	86,170	31,261	47,712	nd
Fuel & lubrifiants	0	137,381	143,940	333,705	nd
Other expenses	980,631	1,124,046	806,945	749,172	nd
Total operat. expenses	5,308,349	3,034,143	4,314,474	4,657,105	nd
Op. income bef.subsidies	(745,572)	(767,613)	(1,214,280)	(954,750)	nd
Operating subsidies					
GOZ	408,072	504,852	610,166	1,212,291	nd
Other donors	337,500	262,761	610,503	117,731	nd
Total oper. subsidies	745,572	767,613	1,220,669	1,330,022	nd
Investments	995,218	2,210,158	162,109	829,632	nd
Investment subsidies					
GOZ	0	1,629,824	0	0	nd
Private	995,218	580,334	162,109	366,061	nd

Appendix I

HEALTH ZONES
STATEMENT OF SOURCES AND USES OF FUNDS
(Zaires, 1985)

	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda
SOURCES OF FUNDS					
TOTAL OPERATING REVENUE					
Central Office	54,814	0	0	0	0
Health Centers	na	2,229,255	1,312,131	2,163,456	na
Reference Hospital	4,947,142	1,156,320	878,583	2,397,600	2,759,681
Total	na	3,385,575	2,190,714	4,561,056	na
SUBSIDIES					
GOZ	na	121,800	117,178	474,000	na
Private Donors	na	1,259,714	1,306,697	1,539,552	na
Total	na	1,381,514	1,423,875	2,013,552	na
TOTAL SOURCES OF FUNDS	na	4,767,089	3,614,589	6,574,608	na
USES OF FUNDS					
TOTAL OPERATING EXPENDITURES					
Central Office	604,973	430,617	345,398	533,568	572,513
Health Centers	na	1,785,666	1,123,947	2,249,724	na
Reference Hospital	4,970,855	1,527,657	1,803,844	2,869,320	3,271,560
Total	na	3,743,940	3,273,189	5,672,612	na
TOTAL INVESTMENTS					
Central Office	1,712	42,534	0	0	631,225
Health Centers	na	390,310	342,000	802,000	na
Reference Hospital	326,413	493,556	0	100,000	0
Total	na	926,400	342,000	902,000	na
TOTAL USES OF FUNDS	na	4,670,340	3,615,189	6,574,612	na

Appendix I (Cont'd)

HEALTH ZONES
STATEMENT OF SOURCES AND USES OF FUNDS
(Zaires, 1985)

	Kaniama	Kikimi	Kindu	Kirotshe	Sona-Bata
SOURCES OF FUNDS					
TOTAL OPERATING REVENUE					
Central Office	0	0	173,224	0	18,544
Health Centers	1,616,147	907,430	1,390,415	2,374,240	na
Reference Hospital	2,946,630	1,359,100	1,536,555	1,326,115	na
Total	4,562,777	2,266,530	3,100,194	3,702,355	na
SUBSIDIES					
GOZ	406,072	2,134,676	610,166	1,212,291	na
Private Donors	1,332,718	843,095	772,612	483,792	na
Total	1,740,790	2,977,771	1,382,778	1,696,083	na
TOTAL SOURCES OF FUNDS	6,303,567	5,244,301	4,482,972	5,398,438	na
USES OF FUNDS					
TOTAL OPERATING EXPENDITURES					
Central Office	0	504,852	773,552	301,044	253,787
Health Centers	1,976,375	1,117,291	1,384,026	2,027,817	na
Reference Hospital	3,331,974	1,412,000	2,156,896	2,328,244	na
Total	5,308,349	3,034,143	4,314,474	4,657,105	na
TOTAL INVESTMENTS					
Central Office	0	464,546	0	0	209,934
Health Centers	995,218	1,745,612	162,109	829,632	na
Reference Hospital	0	0	0	0	na
Total	995,218	2,210,158	162,109	829,632	na
TOTAL USES OF FUNDS	6,303,567	5,244,301	4,476,583	5,486,737	na

Appendix I (cont'd)

HEALTH ZONES
CONDENSED STATEMENT
OF SOURCES AND USES OF FUNDS
(1985 thousands dollars, 1$ = 50 Z)

SOURCES OF FUNDS	Biban ga	Boko ro	Bwa- manda	Dungu	Kalon da	Kania ma	Kipi- mi	Kindu	Kirot she	Sona Bata
TOT.OPER. REVEVUE										
Central Office	1	0	0	0	0	0	0	3	0	0
Health Centers	na	45	26	43	na	32	18	28	47	na
Reference Hosp.	99	23	18	48	55	59	27	31	27	na
Total	na	68	44	91	na	91	45	62	74	na
SUBSIDIES										
GOZ	na	2	2	9	na	8	43	12	24	na
Private Donors	na	25	26	31	na	27	17	15	10	na
Total	na	28	28	40	na	35	60	28	34	na
TOT.SOURCES FUNDS	na	95	72	131	na	126	105	90	108	na
USES OF FUNDS										
TOT.OPER.EXPENSES										
Central Office	12	9	7	11	11	0	10	15	6	5
Health Centers	na	36	22	45	na	40	22	28	41	na
Reference Hosp.	99	31	36	58	65	67	28	43	47	na
Total	na	75	65	113	na	106	61	86	93	na
TOTAL INVESTMENTS										
Central Office	0	1	0	0	13	0	9	0	0	4
Health Centers	na	8	7	16	na	20	35	3	17	na
Reference Hosp.	7	10	0	2	0	0	0	0	0	na
Total	na	19	7	18	na	20	44	3	17	na
TOTAL USES FUNDS	na	93	72	131	na	126	105	90	110	na

Appendix J
Sample of Prices
of Health Care Services
Ten Health Zones
1986
(1986 Zaires)

	Biban-ga	Boko-ro	Bwa-manda	Dungu	Kalon-da	Kania-ma	Kiki-mi	Kindu	Kirot-she	Sona Bata
1.HEALTH CENTERS										
A.Per episode fee curative private	25	23	33	25	50	20	n	50	30	20
B.Per episde fee curative enterpr.benef.	n	n	n	n	100	50	n	150	150	n
C.Laborat. exam	20	12	a	10	n	20	n	a	20	5
D.Circumcision	45	75	n	150	n	70	n	n	75	50
E.Suture of large wound	n	100	250	100	n	140	n	n	75	n
F.Delivery	100	85	n	100	n	n	n	n	70	100
G.Tab. aspirine	n	0.6	a	n	n	n	n	a	0.5	n
H.Chloramphenic.	n	2	a	n	n	n	n	a	n	n
I.Peni-proc inj.	n	40	a	n	n	n	n	a	35	n
J.Chloroquine 100 mg	n	1.2	a	n	n	n	n	a	0.75	n
K.Oral Rehyd. Salts for 1lt.	n	6	a	n	n	n	n	a	5	n
2.PREVENTIVE PRG										
L.Pre-natal	45	40	40	25	n	n	n	60	30	20
M.Pre-school (per year eq.)	10	20	5	5	n	n	n	10	6.5	7
3.REFERENCE										
N.HOSPITAL Day Hospital. private	n	4	20	10	23	7	n	n	20	n
O.Day Hospital. firm benefic.	n	n	40	20	23	30	n	n	n	n
P.Delivery	100	190	250	n	350	n	n	n	40	150
Q.Uncomp.Hernia	500	500	250	700	900	700	n	n	225	n
R.Caesarean	1000	1000	600	1000	2500	1300	n	n	150	n

n: not available
a: price included in the per episode fee

Appendix J (Cont'd)
Sample of Prices
of Health Care services
Ten Health Zones
1986
(1986 Dollars)

	Biban.ga	Boko-ro	Bwa-manda	Dungu	Kalon-da	Kania-ma	Kiki-mi	Kindu	Kirot-she	Sona Bata
1.HEALTH CENTERS										
A.Per episode fee curative private	0.42	0.38	0.55	0.42	0.83	0.33	n	0.83	0.50	b 0.33
B.Per episode fee curative firm benefic.	n	n	n	n	1.67	0.83	n	2.50	2.50	n
C.Laborat. exam	0.33	0.20	a	0.17	n	0.33	n	a	0.33	0.08
D.Circumcision	0.75	1.25	n	2.50	n	1.17	n	n	1.25	0.83
E.Suture of large wound	n	1.67	4.17	1.67	n	2.33	n	n	1.25	n
F.Delivery	1.67	1.42	n	1.67	n	n	n	n	1.17	1.67
G.Tab. aspirine	n	0.01	a	n	n	n	n	a	0.01	n
H.Chloramphenic.	n	0.03	a	n	n	n	n	a	n	n
I.Peni-proc inj.	n	0.67	a	n	n	n	n	a	0.58	n
J.Chloroquine 100 mg	n	0.02	a	n	n	n	n	a	0.75	n
K.Oral Rehyd. Salts for 1lt.	n	0.10	a	n	n	n	n	a	0.75	n
2.PREVENTIVE PRG										
L.Pre-natal	0.75	0.67	0.67	0.42	n	n	n	1.00	0.50	0.33
M.Pre-school (per year eq.)	0.17	0.33	0.08	0.08	n	n	n	0.17	0.11	0.12
3.REFERENCE										
N.HOSPITAL Day Hospital. private.	n	0.07	0.33	0.17	0.38	0.12	n	n	0.33	n
O.Day Hospital. firm benefic.	n	n	0.67	0.33	0.38	0.50	n	n	n	n
P.Delivery	1.67	3.17	4.17	n	5.83	n	n	n	0.7	2.5
Q.Uncomp.Hernia	8.33	8.33	4.17	11.7	15.0	11.6	n	n	3.8	n
R.Caesarean	16.7	16.7	10.0	16.7	41.7	21.6	n	n	2.5	n

n: not available
a: price included in the per episode fee

Appendix K

Population's Expenditure in Health Care Services

Table K.1, below, derives the per capita expenditure in health care within the zones' networks for calendar year 1985. The team was unable to obtain data on people's health care expenditures in parallel dispensaries.

Per capita annual expenditure has been computed by dividing the annual revenue generated by each category of service (ambulatory curative and preventive, inpatient) by the population covered (see table on appendix G). Further details of how the per capita expenditures were derived can be found in appendix L.

Table K.1

Average Per-capita Health Care Expenditure Within the Zones' Networks 1985 (1985 zaires)

	Bokoro	Bwaman da	Dungu	Kalon da	Kania ma	Kiki mi	Kindu	Kirot she
Fees for ambulatory curative treatment (drugs and procedures excluded)	11	13	17	na	7	10	12	na
Ambulatory curative drugs and procedures	8	0	19	na	17	4	6	na
Fees for ambulatory preventive programs	1	2	0	na	3	1	0	na
Hospitalization and inpatient procedures	14	21	48	48	57	23	28	19
	35	36	84	na	85	38	46	na

The results indicate that in 1985 the expected per-capita expenditure of an average person in the zones' networks varied between 35Z ($.70) in the health zone of Bokoro and 85Z ($1.70) in the zone of Kaniama. In all the zones, the major component of the annual cost is that of hospitalizations. In Kaniama, for example, the expected hospitalization expenditure of a person was 57Z ($1.10) in 1985, representing 67% of the 85Z ($1.70) total expected per-capita expenditure in health care in the same year.

Appendix L

HEALTH ZONES
STATISTICS ON COVERAGE, UTILIZATION
AND POPULATION'S EXPENDITURE IN PRIMARY HEALTH CARE
(Zaires, 1985, 1US$=50Z)

	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda
A.Pop'n Health Zone	164,303	108,000	114,410	121,000	135,000
B.Population covered	na	106,920	85,807	60,500	67,500
C.Population covered (%)	na	99%	75%	50%	50%
D.New episodes curative	na	61,068	66,837	49,985	na
E.Unit price new ep. cur.	45	20	17	20	50
F.Total revenue n.ep.cur.	na	1,221,360	1,136,229	999,700	na
G.New episodes preventive	na	4,681	9,187	1,321	5,163
H.Unit price new ep.prev.	45	25	20	10	50
I.Total revenue n.ep.pre.	na	117,025	183,740	13,210	na
J.Total rev. new episodes	na	1,338,385	1,319,969	1,012,910	na
K.Total op. revenue H.C.	na	2,229,255	1,312,131	2,163,456	na
L.Rev. drugs & procedures	na	890,870	0	1,150,546	na
M.Average rev.drugs+proc. per new episode cur.	na	15	0	23	na
N.Total op. rev. Hospital	4,970,855	1,527,657	1,803,844	2,889,320	3,271,580
O.Number hospitalizations	3,730	1034	5926	1936	1455
P.Average rev. per hosp.	1,333	1,477	304	1,492	2,249

AVERAGE STATISTICS PER PERSON PER YEAR	Bibanga	Bokoro	Bwamanda	Dungu	Kalonda
Q.New epis. cur.treated	na	0.57	0.78	0.83	na
R.New case prev. treated	na	0.04	0.11	0.02	0.06
S.New hospitalization	na	0.01	0.07	0.03	0.02
T.Expenditure new ep.cur. drugs+proced. excluded	na	11	13	17	na
U.Expenditure in drugs and proced. new ep.cur.	na	8	0	19	na
V.Expenditure new ep.pre. drugs+proced. included	na	1	2	0	na
W.Expenditure hospitaliz.		14	21	48	48
X.Total aver. expenditure	na	35	36	84	na

Appendix L (cont'd.)

HEALTH ZONES
STATISTICS ON COVERAGE, UTILIZATION
AND POPULATION'S EXPENDITURE IN PRIMARY HEALTH CARE

	Kaniama	Kikimi	Kindu	Kirotshe	Sona-Bata
A.Pop'n Health Zone	78,836	83,521	105,000	200,000	75,000
B.Population covered	58,338	61,805	77,700	120,000	75,000
C.Population covered (%)	74%	74%	74%	60%	100%
D.New episodes curative	20,295	23,787	29,959	na	102,419
E.Unit price new ep. cur.	20	25	30	5Z/visit	20Z-60Z
F.Total revenue n.ep.cur.	405,900	594,675	898,770	0	na
G.New episodes preventive	10,032	2,602	681	na	na
H.Unit price new ep.prev.	20	25	50	na	20Z-80Z
I.Total revenue n.ep.pre.	200,640	65,050	34,050	na	na
J.Total rev. new episodes	606,540	659,725	932,820	na	na
K.Total op. revenue H.C.	1,616,147	907,430	1,390,415	2,374,240	na
L.Rev. drugs & procedures	1,009,607	247,705	457,595	na	na
M.Average rev.drugs+proc. per new episode cur.	50	10	15	na	na
N.Total op. rev. Hospital	3,331,974	1,412,000	2,156,896	2,328,244	na
O.Number hospitalizations	2855	1040	3424	1000	3952
P.Average rev. per hosp.	1,167	1,358	630	2,328	na

AVERAGE STATISTICS PER PERSON PER YEAR	Kaniama	Kikimi	Kindu	Kirotshe	Sona-Bata
Q.New epis. cur.treated	0.35	0.38	0.39	na	na
R.New case prev. treated	0.17	0.04	0.01	na	na
S.New hospitalization	0.05	0.02	0.04	0.01	0.05
T.Expenditure new ep.cur. drugs+proced. excluded	7	10	12	na	na
U.Expenditure in drugs and proced. new ep.cur.	17	4	6	na	na
V.Expenditure new ep.pre. drugs+proced. included	3	1	0	na	na
W.Expenditure hospitaliz.	57	23	28	19	na
X.Total aver. expenditure	85	38	46	na	na

Appendix M

Capital Cost Recovery Through User Fees

This appendix estimates the annualized capital expenditure of a typical health zone and its units and comments on the possibility that these expenditures be financed by the zones through user fees.

The investment cost of building a fully equiped health center is estimated at 430,000Z (December of 1984 prices, from Conclusions Generales de la Table Ronde sur les Soins de Sante Primaires, Republique du Zaire, Departement du Plan, December 13-16, 1984).

Assuming that the health unit has to be built, and that the investment is financed with a ten-year, interest-free loan, the monthly loan repayment should be 3,583Z, in nominal terms. In other words, if the useful life of the asset was 10 years, and if health centers were able to put aside nominal 3,583Z per month, at the end of ten years they would have repaid the loan and should be able to take a new loan to build a new facility.

The average monthly revenue of health centers can be compared with the estimated loan repayment to assess the center's ability to self-finance their investments. Information from Bokoro, Bwamanda and Kirotshe indicates that the 1985 average monthly revenue of a health center was 4,600Z, 5,440Z and 5,470, respectively (derived from appendix H which shows total revenue of each zone's health centers and from the table in appendix E which shows the total number of health centers in each zone).

Assuming an average monthly revenue of 5,500Z per health center, the 3,583Z loan repayment would represent 65% of the unit's monthly revenue in the first year. However, since the loan is fixed in nominal terms and the revenue presumably grows with inflation, assuming a 10% annual inflation, at the end of ten years the monthly revenue would be 14,265Z and the 3,583Z mortgage would represent 25% of the center's revenue. In other words, the average health center would have to be able to allocate 65% of its revenue for repayment of the loan in the first year and 25% in the tenth year.

If the best financing alternative for health centers were loans with an interest rate equal to inflation (i.e., zero real interest rate), the monthly mortgage would represent 65% of and average center's monthly revenue each year, during its 10-year's useful life.

If the health facility already exists (and has been financed with a subsidy), it would need to put aside in a capital replacement fund an amount of money equal to the depreciation of the center adjusted by market value. At the end of the useful life of the unit, the replacement fund should be equal to the investment cost required to build a new facility. Assuming a 10-year useful life, the market-adjusted depreciation allowance should be 3,583Z per month, in real terms, or 65% of a center's average monthly revenue.

Given the current financial situation of health centers, it is inconceivable that these units will be able to fully finance their capital investments in the short term. Many of them are incapable of recovering their operating costs through user-fees revenue. Furthermore, if health centers did not have access to interest-free financing, their ability to self-finance their capital investments would be reduced even further.

Similar calculations can be made for reference hospitals. The estimated investment cost of building a new fully equiped, 100-bed hospital, was 4,900,000 in December of 1984 prices (source: ibid).

Assuming that the hospital needs to be built and that it will be financed with a 20-year, interest-free loan, the monthly mortgage on the loan would be 20,416Z. Data from Table 4.4 and appendix C indicate that the 1985 average monthly revenue of a reference hospital was 150,000Z (arithmetic average for 8 health zones in 1985 zaires). A monthly mortgage payment of 20,416Z would represent 14% of the hospital's operating revenue at the beginning of the first year and 2% at the end of year 20. Stated differently, an average reference hospital should have to set aside 14% of its operating revenue to repay the loan in year one and only 2% at the end of year twenty. If the interest rate on the loan was equal to inflation, the mortgage payment would be equivalent in real terms to 14% of the hospital's revenue in each of the 20 years.

If the hospital already exists and has been financed with a subsidy, it would need to set aside a real depreciation allowance equal to 20,416Z, or 14% of its average revenue each month to be able to replace the building and its equipment at the end of 20 years.

Since all hospitals had an operating deficit in 1985, they would have to increase their revenue by an average of more than 14 percent to cover all operating and capital-replacement costs.

Hospital's ability to self-finance their capital investments is greater than that of individual health centers since the ratio of the hospitals' revenue to the assumed mortgage (or depreciation allowance) is much higher than that for health centers.

Finally, the set of health centers and the hospital should also be able to contribute to the financing of the investments made at the central office level. The required investment in a typical central office was estimated at 3,400,000Z (December of 1984 prices, source: ibid). Such an investment would add a monthly mortgage component of 18,900Z (15 years of useful life, interest-fee loan), approximately two times the monthly suppervision fees paid by all the health centers to the central office of Dungu or Bolore in 1985.

GLOSSARY
(In alphabetical order)

Ambulatory health care: care provided outside of inpatient settings (source:1).

Coinsurance: when some entity reimburses the patient for a certain fraction of the price of the health care service. A coinsurance level of 80 percent in effect lowers the price to the patient of those covered services by 80 percent (source:2).

Cost: the monetary value of the resources used to obtain or achieve some objective. For example, the cost of the supervision to the health centers by the central office includes the fuel used by the car, a proportion of the salaries of the supervisors, the per-diems paid to the supervisors, etc.

Cost recovery: ability of a health facility to raise revenue from the sale of goods or services so as to cover its costs.

Coverage: the term coverage is used in the text to denote the proportion of the population of a given geographic are which has access to, or is using a, given health service.

Cross-subsidization: refers to the action of using the revenues generated by one type of service or health unit to cover a portion of the costs of another service or unit.

Depreciation: loss in value of a building or equipment as a result of physical deterioration due to its use over time or to technical obsolescence. For example, if a building has a useful life of 30 years, it will be depreciated in 30 years. Annual depreciation is may be computed as the investment cost divided by the years of useful life. A building that cost 3,000,000Z with a 30-year useful life has an annual depreciation of 3,000,000/30 = 100,000Z.

Depreciation allowance: amount of money that is set aside periodically in order to be able to replace fully depreciated buildings or machinery in the future.

Expenditure: used in the text as a synonym for cost.

Expense: used in the text as a synonym for cost.

Fee: price charged to the user for a service. If the user is a patient, the fee is the price he or she pays for the care received.

Fee per episode of disease: price of the treatment of an episode of disease. Under a fee per episode system the patient does not have to pay for repeat visits to the health facility while treating the same episode of disease. Drugs and other procedures may or may not be included in the initial fee for the episode.

Financial autonomy: ability of an institution to generate enough funds with its own operations to cover all its operating and investment costs.

Fixed cost: costs that do not change in total as a necessary result of small changes in volume of production (source:3). For example, the cost of running a refrigerator is a fixed cost with respect to the activity of immunizations: the cost of running the refrigerator is the same whether the amount of vaccines stored in it increases or decreases.

Health area: geographic area whose population is served by a given health facility.

Health zone: geographic territory as delimited by the Department of Public Health of Zaire. An operational health zone has a reference hospital, between 10 and 40 health centers and a central office. Most health zones also have reference health centers and health posts (see description of facilities in appendix A). The average population living within a health zone is 100,000 people.

Health zone network: set of health facilities within a zone that have been approved by the zone's central office to operate and that conform to the rules established by the central office. Most of the technical activities of the units within a network are supervised by the central office.

Inpatient care: health care services provided to a patient who is hospitalized.

Investment: amount of money spent to acquire a good (e.g., building, machinery) or a service (e.g., education of the personnel) which will last more than one year.

Marginal cost: additional costs incurred when producing one additional unit of output. For example the marginal cost of vaccinating a child is the cost of the vaccine and that of the syringe if not used again. If the person who gives the vaccination was paid for each vaccine that he or she administers, then the amount paid to him or her would also be part of the marginal cost.

Medecin Chef de Zone: Medical director of a health zone.

Network: see health zone network.

Non governmental organization (NGO): organizations other than the government of Zaire.

Occupancy of hospital beds: percentage of the time that the set of the beds of a hospital are used by patients.

Operating cost: all the costs incurred by a health facility or the central office in their operations. It includes the costs of: salaries and bonuses paid to the personnel; drugs consumed; office supplies; fuel; supervision fees; maintenance of buildings and machinery. It includes neither investments nor depreciation.

Operating expenditure: used in the text as a synonym for operating cost.

Operating expense: used in the text as a synonym for operating cost.

Operating revenue: amount of money generated by the sale of services or goods by a health facility or central office.

Outpatient health care: health care services provided to patients not requiring hospitalization.

Overhead costs: costs of running a facility which cannot be linked directly to the volume and types of services produced by the facility. For example, the salary of the hospital's accountant is an overhead cost since it cannot be related or linked directly to the quantity or types of health services provided by the hospital. Overhead costs are fixed costs.

Parallel provider: or competitor. Used in the text to denote the health units or health personnel who provide health care services to the population but do not belong to the health zone's network.

Payment per episode of disease: see fee per episode.

Per-capita operating expenses: total operating expenses incurred by a zone or health unit during a certain period of time (for example the year 1985) divided by the population covered (see coverage) by the zone or unit.

Pre-paid health plan: contract between a health unit (or group of units) and a person (or group of persons) which entitles the person(s) to receive certain types of health services for a fixed price paid in advance. The contract may or may not include additional payments which vary with the services provided to the persons enrolled in the plan.

Profit: difference between the total operating revenues generated by a facility and the total costs incurred by it during the same time period.

Recurrent cost: used in the text as a synonym for operating cost.

Self-financed health facility: a facility whose operating revenue equals or exceeds its operating costs in a certain time period.

Sources of funds: monetary value of all the resources available to a zone or health facility to be used during a given period of time. It includes all operating revenues and subsidies.

Subsidy: money, goods, or services given free of charge to a zone or health unit by an external entity.

Surplus: used in the text as a synonym for profit.

Uses of funds: monetary value of the resources used by a zone or facility during a certain time period. It includes all operating costs and investments.

GLOSSARY (Cont'd)

User fee: same as fee.

Variable cost: any cost that must be increased in total if the [health facility] is to achieve a small increase in the level of activity (source:1).

Sources

1. Stephen, Williams and Torrens, Introduction to Health Services, Second Edition
2. Paul Feldstein, Health Care Economics, Second Edition
3. Shillinglaw and Meyer, Accounting, A Management Approach, Seventh Edition