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Better Health in Africa

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BETTER HEALTH IN AFRICA

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Foreword

Africa's[1] high levels of mortality and morbidity cost the continent dearly. Poor health increases suffering, reduces human energies, and makes millions of Africans less able to cope with and enjoy life. Poor health shackles human capital, reduces the returns to learning, and impedes entrepreneurial activities. African societies must — and can — increase the ability of individuals and households to improve their health.

Better Health in Africa sets forth a vision of health improvement that presents African countries and their external partners opportunities to rethink current health strategies. The report's underlying message is that great improvements are within reach in many African countries despite tight financial constraints. This study complements *World Development Report 1993: Investing in Health*, by offering a regional, operationally oriented perspective on how health gains can be realized. It also draws upon important initiatives from other organizations. The World Health Organization, through its Three-Phase Scenario for Health Development and its support to district health systems and other programs, has long been at the center. UNICEF, through the 1990 World Summit for Children and its follow-up in National Plans of Action, has given new impetus to actions to bolster health.

Better Health in Africa discusses action and "best practices" by African countries and their external partners and documents experiences in three major areas.

First, the report emphasizes the importance of strengthening the capacity of African households and communities to recognize and respond to health problems. Vitally important to this endeavor are the promotion of development strategies that focus on the poor, support for more education of girls and women, the strengthening of community monitoring and supervision of health services, and providing information on health conditions and services to the public. Action at the community level is a key means of balancing responsibilities for better health among the public sector, non-governmental organizations, communities, and households.

Second, the report strongly supports the endeavors of African governments to reform health care systems. Strategic emphasis is placed on making basic packages of health services available to all people through health centers and first referral hospitals. Critically important to this endeavor are improving the management of health care inputs, such as pharmaceuticals, health care personnel, infrastructure, and equipment, along with institutional and policy reforms. New partnerships between public agencies and non-governmental health care providers will be required, as will continuous attention to strengthening capacities throughout the sector, from Ministries of Health to non-governmental providers of health services. Ministries of Health can facilitate reform by giving more attention to policy formulation and public health activities, encouraging the health work of private voluntary organizations, and creating an enabling environment more conducive to the provision and financing of health services by the private sector.

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1. In this report Africa refers to Sub-Saharan Africa and the two terms are used synonymously.

Third, the report underscores the need for more efficient allocation and management of public financial resources for health so as to increase their impact on critical health indicators like life expectancy and child mortality. Equally important is the reallocation of public resources from less productive activities to the health sector. Action is also required to increase public and private funding of health activities. Greater commitment from domestic sources can be expected to be accompanied by increases in financial support from donors. About $1.6 billion per year would be needed in incremental resources to ensure a basic package of health services in the rural and peri-urban areas of low income Africa. Beyond an increase of nearly $1 billion from governments, the possible donor share of somewhat over $600 million would represent a 50 percent increase in levels of external assistance for health in Africa. Donors may wish to concentrate their support on low income African countries with active reform programs.

Verbal pledges to improve health must now be followed by concrete action. The length and nature of the transition to better health will undoubtedly vary from country to country, but no country can delay committing itself more vigorously to the task.

The first step should be the creation, at the national level, of an agenda for better health. Action planning and the establishment of signposts to measure progress would follow. At the international level, a Consultative Group of Africans and donors could be formed to set priorities and ensure coordinated international support for health training and operationally oriented research initiatives. A ministerial consultation could help to launch the Consultative Group, determine an initial action agenda, and establish monitoring and evaluation benchmarks. Such a consultation could bring African Ministers of Health and senior personnel from Ministries of Finance and Planning together with senior staff from donors and other international agencies.

Better Health in Africa was written by World Bank staff, in close cooperation with many individuals and institutions outside the World Bank. Africans have been associated with its design and preparation since the outset. The Regional Director of the WHO Regional Office for Africa, Professor G.L. Monekosso, and his staff participated in ways too numerous to mention. Staff from UNICEF assisted in the conception, preparation, and review of the study. An Independent African Expert Panel on Health Improvement in Africa reviewed the report and made suggestions for improvement. The panel, co-sponsored by the African Development Bank, WHO, UNICEF, and the Swedish International Development Agency, was chaired by the former Nigerian Federal Minister of Health and former Chairman of the WHO Executive Board, Professor O. Ransome-Kuti.

This report was written by R. Paul Shaw and A. Edward Elmendorf. The study team for *Better Health in Africa* was managed by A. Edward Elmendorf and Jean-Louis Lamboray, under the general direction of Ishrat Z. Husain and Pierre Landell-Mills. Jean-Louis Lamboray and Reiko Niimi contributed to the conceptual design of the study, the preparation of initial drafts of Chapters 2, 3 and 7, and coordinated a review of inputs of external partners. Zia Yusuf contributed to the design of the costing and financing framework used in Chapter 8. My Vu and Ali Sy prepared the statistical appendix, and James Shafer had principal responsibility for processing the text.

The Regional Director of WHO for Africa provided invaluable advice and moral support in the task. His African Advisory Committee on Health Development (AACHD), and the WHO/AFRO 'Health for All' team provided technical inputs and comments at various stages. WHO Headquarters also provided important support. Several UNICEF staff members, at Headquarters and in the field, made substantial contributions, at the design, initial writing, and final review stages. A large number of external and internal consultations, with African health leaders, donors to health improvement in Africa, and non-governmental organizations aiding health in Africa, contributed to the final product. Preparation of the study was also aided by a series of background papers, as well as the contributions and comments of many people inside and outside the World Bank. They are shown in the bibliography.

WHO/ICO contributed to the financing and planning of the study. FINNIDA financed the workshops held in Africa, and the Swedish International Development Agency financed the African expert review panel. The governments of Belgium, Finland, Japan, and the Netherlands contributed consultant support. Support was also received from the Center for Health and Development at The George Washington University, and the International Organization Fellows Program of the United Nations Association/National Capital Area.

CHAPTER 1: INTRODUCTION AND OVERVIEW

The Challenge

Good health is basic to human welfare and a fundamental objective of social and economic development. Yet, most countries in Africa lag far behind the performance of other developing countries in achieving health improvements.[1] Life expectancy is 7 years less, and infant mortality 55 percent higher in Sub-Saharan Africa than in other low income countries. Maternal mortality, at 700 women per 100,000 live births in 1988, is almost double that of other low and middle income countries and more than 40 times greater than in high income countries.

The potential economic benefits of improved health in Africa are such that the productivity of workers in some countries could increase by up to 15 percent through reduced morbidity. Pressures on households to borrow and dis-save at times of sickness could be significantly reduced. A reduction in the horrendous toll of maternal morbidity and mortality could considerably raise women's welfare and their contribution to development. And, with the control of disease and reduced risks of illness, new socioeconomic opportunities can be expected, such as the opening up of agriculture in lands previously inaccessible due to disease; greater returns on investments to education through longer life-expectancy; and greater command of reproductive outcomes through reduced infant mortality, thus paving the way for demographic and economic transition.

At center of the challenge to achieve better health are African households and communities. At this level, key health decisions are made on a daily basis. Households affect health through the food they produce or buy, their source and treatment of drinking water, self-care practices, use of traditional healers, purchases from private pharmacists, and as clients of privately and publicly provided health services. Woman play particularly important roles as managers of health at the household level. There is convincing evidence that households and communities are willing to expend substantial out-of-pocket sums for quality health services, indicating considerable scope for mobilizing private resources, even within poor communities.

The challenge facing African societies is to increase the ability of individuals and households to reduce suffering, morbidity and mortality at a faster rate than in the past. Successful health systems in Africa focus on household capacity for health and conceive of health services as support to households (see Box 1). It is only at the level of households and communities that the information, time, and resources of household members can be combined

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1. The terms Africa and Sub-Saharan Africa are used synonymously in this study.

effectively with the purchase and use of health goods, such as pharmaceuticals, and basic services, such as clean water. National and local governments have a key role to play in creating an enabling environment for health, through greater commitment to provide public services such as safe drinking water and sanitation, public health activities such as mass media campaigns for AIDS prevention, and assistance to those least able to afford health care. To this end, the capacity of national systems of health care must be improved so as to perform more efficiently, equitably, and sustainably. And, better use must be made of donor funds to build national capacities and sustainable health outcomes.

This study argues that the health status of Africans can be significantly improved despite binding financial constraints. This will require using public resources for health more efficiently, giving greater priority to primary care, restructuring health care delivery systems, strengthening management, mobilizing private resources, improving efficiency in the hospital system, and targeting funds to *cost-effective* "packages" of health services. Some African countries are already taking important strides in these directions, and successful experiences feature prominently in this report.

A priority is to improve conditions in *low-income* Africa, where a large majority of people are poor and underserved in rural and peri-urban areas. The high level of unnecessary suffering and the waste of human lives and potential underscore the urgency of the task. What follows is an overview of major themes, approaches and findings developed throughout this report.

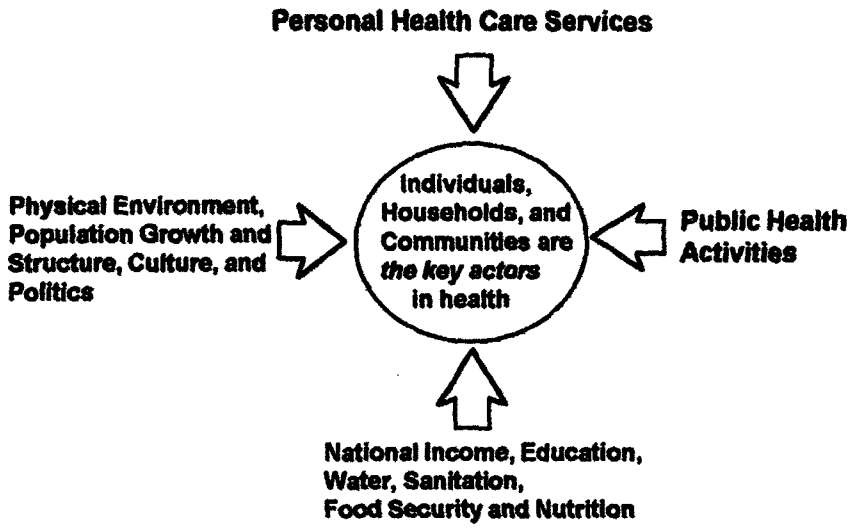
The Obstacles

The success of households and communities in preventing disease and suffering is often influenced by conditions outside their direct control. Part of the problem stems from the failure of governments to create an appropriate enabling environment for health. Despite commitments to the principles of primary health care (PHC), for example, most governments have been slow to facilitate community-oriented and intersectoral approaches to planning and operating systems of health care. (see Box 1)

Equally problematic is the lopsided way that private and public systems of health care have evolved. In many African countries 45 percent of the population does not have regular access to modern health care. Moreover, a large share of public funds for health — as much as 80 percent — goes to urban hospital-based curative care. Private-for-profit providers tend to be concentrated in urban areas, serving middle and upper income clients who are most able to pay for services. Private voluntary organizations such as missions are helping to fill gaps, but they seldom represent more than about 5 to 10 percent of expenditures on health. For rural households and communities, especially remote ones, quality care is a rarity and reaching hospitals often imposes immense time and travel costs. Incidents of people dying en route to health care facilities are common in Africa.

Inefficiencies in systems of health care are rampant, with the result that households get too little quality care for the scarce resources they have. Current systems tend to be multi-tiered, often with five or six levels ranging from village health post, to dispensary, health center,

Box 1. The Enabling Environment for Health



Better health in Africa hinges on the ability of households and communities to obtain quality health services at less cost and to use them more effectively. This requires:

- a strong political commitment to improving health, as reflected in preferential government spending;
- an intersectoral perspective in planning and operating systems of health care, including provisions for safe drinking water, sanitation, and health education;
- an appropriate organizational framework and managerial process;
- an equitable distribution of health resources;
- community involvement at all levels.

rural hospital or district hospital, regional hospital, and national hospital. Poorly trained personnel and inadequate supplies within several of the bottom tiers — a problem of spreading resources too thinly — prompts residents at the community level to by-pass lower levels to seek basic care from intermediate-level facilities and hospitals. In doing so, first referral care is often obtained at a higher cost than it should be, while personnel and facilities most appropriate for hospital-based care are mis-used for simpler forms of care — care that should be provided at the community level.

Management and operational problems undermine the supply of key health inputs. Central levels of health planning — ministries of health — tend to be inappropriately staffed with inadequately trained health professionals and managers, and personnel at all levels (for example, rural districts) tend to be underpaid and de-motivated. Publicly owned and operated infrastructure and equipment tend to be poorly managed and are visibly in decline in many countries. Stock-outs of drugs and supplies are frequent, especially in publicly run health centers and health posts. There is evidence to suggest that inefficiencies and waste in the procurement,

storage, prescription, and use of drugs — a major cost component in private and public health expenditures — are such that consumers in some countries are effectively using only $12 worth of quality drugs, on average, for each $100 spent by the public sector (see Chapter 4, Figure 1).

Broader societal conditions such as political instability, macro-economic shocks linked with the international economy, and national disasters are also part of the environment for health, affecting health outcomes in a major way. When political and economic problems precipitate ethnic conflict or civil war, entire systems of health care are disrupted or overrun by refugees and displaced families. Today, there are between 10 and 15 million such people. When poor economic performance and fiscal mismanagement (combined with mounting indebtedness) mandate budgetary reforms, governments have too often reduced the priority for health, while leaving other expenditures intact, such as military outlays. Between 1975-89, for example, government health expenditures (as a share of total government expenditures) fell in 13 of the 22 countries for which time series data are available. And when national disasters such as prolonged drought weaken farm productivity and food security, malnutrition severely threatens the health of the population, as observed in Southern Africa between 1991-92.

Rapid population growth and poverty are confounding matters. Combined with poor economic performance, rapid population growth has contributed to negligible, if not negative, rates of growth in GNP per capita in more than half of African countries over the past two decades. Women and children are particularly vulnerable; rapid population growth has resulted in huge increases in those most vulnerable to parasitic and infectious diseases, such as infants, toddlers and women of childbearing ages. Contraceptive rates are only about 11 percent, meaning that the positive health effects of family planning on reducing infant and maternal mortality — through improved timing and spacing of births — have been barely captured. Such problems are particularly concentrated among the poorest people, numbering about 185 million in 1990.

Weaknesses in social services other than health pose further problems. The level of female education is known to be critical to long term health improvement, yet participation of girls in schools in Africa lags well behind the rest of the world, with 58 percent female enrollment in primary school in Africa against 92 percent for all low income countries.

Pathways to Action

Admitting that some obstacles are more stubborn than others, this study targets constraints most amenable to change from a national perspective. It recommends a restructuring of systems of health care to the effect that:

- Governments would attach priority to creating an enabling environment for health through financing and provision of public health goods and services which benefit society at large, as well as subsidizing access to health care among the poorest segments of the population.

• Systems of health care would be decentralized, featuring management of health centers and a first referral hospital, at the district level, as well as strong community participation in the determination and management of health services. Greater autonomy at the district level would also be expected to contribute to organizational units that are more manageable, and to help to compensate for weaknesses in public and non-governmental capacity at the national level.

• Emphasis would be placed on basic services, provided in a cost-effective manner, featuring essential drugs and supporting community services, such as nutritional education and home visits. These would meet the needs of the most vulnerable groups — the newborn, children under 5, and women of reproductive age — as well as major diseases — perinatal, infectious and parasitic. This would aim to accommodate up to 98 percent of problems that can be treated clinically. Such services would be standardized featuring internationally recognized essential drugs and norms for monitoring and evaluating quality of care.

• Cost-sharing would be practiced on a wide scale at the community level, but not without the simultaneous improvement in the quality of services. Assurances of quality would therefore build confidence in the system and contribute to a sustainable cost-sharing strategy.

• Beyond first referral hospitals, central, national, and teaching hospitals would continue to offer tertiary level care and focus on training, with the caveat that patients seeking care would proceed through an orderly referral system — now streamlined and more efficient given district functions. Cost recovery would be implemented more extensively in such hospitals and government budget funding would be phased down. Patients by-passing the referral system would be charged up to 100 percent of cost.

• Ministries of Health would step up their leadership role in creating an enabling environment through financing, monitoring, and supervisory support of health activities right down to the community level, planning of national health systems with greater autonomy at the district level, promotion of cost-effective packages of health care, and creating conditions favorable to non-governmental financing and provision of such care. The need to concentrate limited public sector capacity on these issues, and the prevailing tendency of private-for-profit health services to concentrate in larger urban areas, means that private voluntary providers of health care and community autonomy in the financing and managing of health services merit maximum encouragement.

Role of Government

The role of the public sector in bringing about change is pivotal. Government's first priority should be to pursue its comparative advantage in providing goods and services that construe health benefits to society at large. Broadly speaking, this pertains to ensuring the financing and provision of public goods known to have immense impacts on health and social well-being, such as safe drinking water, sanitation, roads, communications systems. These require resource mobilization and economies of scale that are almost always beyond the capacity of individuals alone.

In the health sector government's comparative advantage lies in financing and ensuring provision of public health activities such as epidemiological data collection, health system planning, health education, regulation, licensing, and prevention of communicable diseases. Many of these activities have strong redistributive effects because, in the absence of adequate government spending, the poor tend to be least able to solve the problems targeted by the spending. Without National Demographic and Health Surveys, for example, it would not be known that 70 to 75 percent of deaths in the youngest age groups are caused by problems at or near birth, or by infectious and parasitic diseases. This information is crucial to setting health targets and indicating what actions are appropriate.

That governments should be attaching high priority to providing public health goods and other public goods and services is depicted in the figure in Box 2. This provides an analytical perspective on public sector versus private sector priorities, and a framework of analysis for this report.

Aside from public health activities, governments in many African countries are also involved in financing and, often, providing personal health care services. They have great interest in assuring use of cost-effective services. Cost-effectiveness is all the more important because governments face a heavy burden in assisting a large and growing number of poor families with a fraction of the resources available to more developed countries. Such assistance also benefits society at large when it includes maternal and child health care, family planning, infant nutrition, immunization, and treatment of communicable diseases. This places a premium on identifying cost-effective health services, tailored to the needs of the most vulnerable groups and the major diseases they encounter. This concern is depicted in Box 2 as a large circle, intended to represent government's concern with "cost effective packages of basic health services" (defined below).

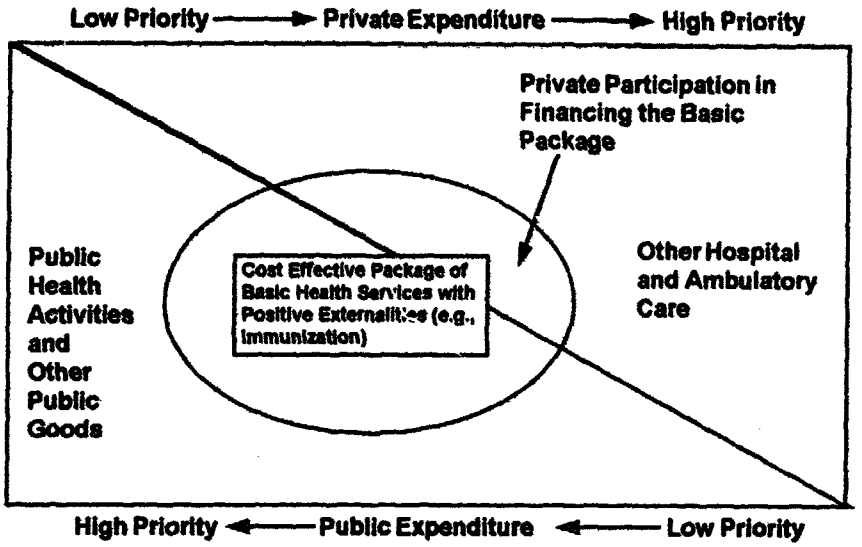
This report does not assume that government should be the main provider of health care, however. Ideally, government's role should be one of leadership, promoting cost-effective approaches in the provision of care, and persuading non-governmental partners to make them available. Government's share in health expenditures varies from as high as 60 percent or more in some countries (Burundi) to as low as 5 percent in others (Zaire).

Finally, *lowest* priority is accorded in the figure in Box 2 to spending *public* funds on acute care, in-patient and out-patient services at hospitals, and hospital "hotel" services since these deliver few benefits at a more collective, societal level. Consequently, user fees and cost recovery at public hospitals are justified as this would free up a sizable chunk of Ministry of Health budgets currently going to subsidize interventions based on curative care at central hospitals, for reallocation to preventive and primary care. The figure in Box 2 also suggests that the reverse applies to private spending priorities. Individuals are most willing to pay for emergency and curative care at hospitals.

In sum, priorities for action by African governments revolve around the following:

- Establishing programs of public health services, and financing them before supporting other health services.

Box 2. Public and Private Expenditure Priorities on Health



The war on disease in Africa cannot be won by individually-oriented health care services alone, but must involve interventions to control the transmission of disease and disease vectors in the physical environments where they thrive. These interventions, such as health education and information and the eradication of malaria from swamp areas, are usually supported and sometimes undertaken by governments, because collective action is required to make investments beyond the capacity of individuals alone. They are called **public goods** because they tend to benefit the community as a whole, and no individual can be excluded from their benefits. It is equally important to finance and, where necessary, provide other **public health services**, such as epidemiological data collection and analysis, health system planning, provision of health information to health care providers and consumers, health education, regulation, licensing, and *prevention* of communicable diseases. As depicted in the figure above, expenditures on public health activities and other public goods should be a high priority of governments. Indeed, without commitment to public health improvements, as well as an enabling environment for better health, high levels of per capita income cannot ensure good health.

Governments also have a critical role to play in supporting activities that sometimes benefit individuals directly (thus qualifying them more as private goods) but also construe large benefits to society at large. These include family planning, maternal and child health, infant nutrition, immunization, and *treatment* of communicable diseases. In the endeavor to assist the poorest households, government support for cost-effective packages of basic health care will almost certainly include such services . In the figure above, this is conveyed by the large circle, suggesting that governments have a strong interest in identifying and partly financing cost effective packages of health care.

Finally, the lowest public priority, and conversely, the highest private priority, is to allocate funds to acute care, inpatient and outpatient services, laboratory services and hospital "hotel" services. In the figure above, this is captured in the section "other hospital and ambulatory care". An implication is that charging fees and full cost recovery are most feasible at central hospitals because such tertiary-level services benefit individuals, and people are most willing to pay for them.

- Determining packages of personal health services which, if adequately used by providers and consumers of health care, are the most cost-effective.

- Providing incentives to non-governmental bodies, especially private voluntary organizations, to make these basic packages of care available to the largest possible share of the population.

- Subsidizing those components of the package with positive externalities.

- Subsidizing access to the package of services by the poor and, in the absence of non-governmental willingness to provide them on acceptable terms, directly providing these services.

- Providing information to the public that will stimulate demand for the basic package of health services, empower citizens to choose wisely among providers, and assist households to make sound use of the package of health services.

- Reducing direct government engagement in provision of health care where non-governmental providers show potential for an increasing role, and reallocating public financial support for health care from tertiary care to primary and preventive services with greater direct impact on health outcomes for the majority.

Underpinnings of a Cost-Effective Approach

Households and communities can get the best possible health per dollar spent in three mutually reinforcing ways. The first element involves a *flexible, cost-effective package* of essential health care services right down to the community level. Much can be learned from an assessment of successful experiences and factors undermining health inputs at the community level (see Chapter 3). The second element pinpoints *improved management* of essential inputs to health care — pharmaceuticals (Chapter 4), personnel (Chapter 5) and infrastructure (Chapter 6). This is informed by an analysis of management practices currently at odds with efficient health care delivery. The third element involves decentralization of health care delivery, featuring a leaner and more effective Ministry of Health, institutional pluralism with strong non-governmental representation, and management of district-based networks of community health centers and first referral hospitals (see Chapter 7).

The community figures prominently in the search for a cost-effective approach to better health in Africa because it is at this level of population aggregation that health care can be effectively complemented by collective action to provide critical public services (for example, hand pumps for safe drinking water, pit latrines for sanitation in rural areas). This is immensely important in Africa because so many people live in areas separated from urban-based utilities which have yet to extend to peri-urban and rural areas.

The Package Concept: The cost-effective package envisaged in this study is concerned with providing the best health services at the lowest cost in countries facing binding financial constraints. First, it emphasizes *basic health care* inputs relevant to the demographic and epidemiological profile of most African countries. People at greatest risk tend to be members of vulnerable groups, including newborns, infants, toddlers, and women of reproductive age. High risk groups tend to be afflicted disproportionately by infectious and parasitic diseases.

Services in the package include prenatal, labor, and delivery care, management of obstetric complications, post-partum care, well-baby services, and family planning, general out-patient care for such afflictions as diarrhoea and skin diseases, and the management of chronic illnesses. Methods employed include vaccinations, oral rehydration therapy, chloroquine, preventing iron deficiency, and treating urinary and gynecological infections. Stocks of essential

drugs in the package are cognizant of the priority diseases in Africa such as malaria, diarrhoea, diabetes, respiratory infections, measles, asthma, polio, and sexually transmitted diseases, including AIDS. Combined, these components speak to important health targets in low-income Africa. They are compatible with internationally accepted goals of 80 percent coverage for ante-natal care, and 80 percent coverage for immunization (see Chapter 3).

Second, the essential package emphasizes a broad range of information, communication and education services that enhance the impact of any contact between a health care provider and a patient seeking help. For example, a woman brings her child to a health center for treatment of chronic diarrhoea, and leaves not only with a cure but preventive information on better nutrition and health advantages of family planning methods. As another example, the package includes dissemination of self-care practices for the infirm and elderly at home, as well as AIDS patients. These *supporting services* help maximize community effectiveness by increasing channels of communication between providers of services and household preferences, demands, and use of services.

Third, the package includes provisions for additional inputs — beyond basic individual health care services for those communities that can afford them. These are treated as *incremental intersectoral interventions* insofar as they involve additional costs and mobilization of resources at the community and local government level to pay for them (Chapter 9). They include safe drinking water and sanitation.

The effectiveness of the essential health care inputs, supporting services, and intersectoral interventions described above depends largely on the degree to which they come together — private as well as public health activities — at the level of the community. It is their proximity and responsiveness to households and the community that counts. This is one reason why effectiveness is conceived in terms of "maximizing community effectiveness" in Box 3. Well-functioning community-based health centers, for example, can provide a mix of preventive and curative care that can meet up to 90 percent of health care needs.

Maximizing community effectiveness also makes sense from a facility-based perspective. When cost-effective packages of health care are offered in well-functioning community health centers, overall hospital admission

Box 3. Maximizing Community Effectiveness

Maximizing Community Effectiveness	= A: Basic Package of Health Care Inputs + B: Supporting Services + C: Intersectoral Interventions
A: Essential Health Care Inputs	= (EPI, Ante- and post-natal care, treatment of maternal morbidity, family planning, out-patient care, etc.)
B: Supporting Services	= (Information, education and communication to improve; + screening & diagnostic accuracy + provider compliance + patient compliance)
C: Intersectoral Interventions	= (Safe drinking water + sanitation)

rates have been reduced by up to 50 percent, whereas admissions for illnesses such as measles, tetanus and diarrhoea have been reduced by up to 80 percent (see Chapter 3). The rationale for promoting effective basic care at the community level, is not only to minimize costs, but also to (i) provide individual care at the closest possible level of contact (public health centers or private clinics), (ii) get the referral system working well through contact with a first referral hospital at the district-level, and (iii) reserve personnel and equipment at the tertiary level for functions that are less common or more costly, such as "high-tech" care. Getting the first two tiers in working order could accommodate up to 98 percent of the health problems likely to arise, thus reducing lopsided funding of central level hospitals.

Better Management: Better health in Africa involves hundreds of millions of people living in hundreds of thousands of communities, countless private practitioners and private voluntary organizations, public health systems, Ministries of Health and cadres of related institutions, billions of dollars, and the contributions of dozens of donors. Yet management of health care systems in most countries of Africa is generally extremely poor, being overly centralized, with restricted or limited authority delegated to district and local levels.

Deficiencies in management start with the inadequate formulation of national policies, and extend to weak planning, monitoring and evaluation of specific inputs to better health care — pharmaceuticals, personnel, infrastructure, and equipment. As one example, national drug policies that abide by essential drug lists are a rarity in most countries, though governments tend to be heavily involved in drug imports. As another example, expenditure statistics and survey data on health personnel, infrastructure, and equipment are mostly deficient, so much so that financing of these items cannot be adequately assessed in more than half of African countries because of the absence of data on non-governmental expenditures.

Nor is policy formulation and planning generally in the hands of professional managers who are trained in the principles and procedures of policy analysis and health care management. In one country, for example, almost all of the top management positions in the Ministry of Health are held not by professional managers, but by physicians without significant management training. Such practice squanders human resources and reduces efficiency by using physicians in tasks for which they have neither the inclination nor the training.

Where possible this study builds on "best practices" including incentive structures for optimal performance of line management, and management information systems (MIS) that monitor and evaluate health inputs, health system outputs, and health outcomes. These issues are taken up specifically in the context of managing pharmaceuticals, personnel and infrastructure in Chapters Four through Six. Also addressed are priorities for government action in determining the kinds of management structures needed to assure greater complementarity between public expenditures on public health activities and health care.

Institutional Reform and Decentralization of Health Care Delivery: The institutional weaknesses and system-wide problems that afflict public management and government administrations constitute a major obstacle to better health in Africa. For this reason, the organization and management of the health sector occupies a special place in this report; it has a critical bearing on cost-effectiveness. In some cases, systemic problems have been exacerbated

by vertical programs, such as immunization campaigns, with staff, goals, and budgets that are almost independent of existing health care systems. Undertaken so as to by-pass or avoid addressing systemic issues, they have often had the unintended effect of fragmenting health sector activities. Many such initiatives have been donor driven. Aware of such problems, African governments and donors have long been calling for more concerted efforts to build permanent institutions and integrated health systems — in other words, national capacity building.

Despite reforms in the 1980s, however, Africa's public administrations continue to remain weak (World Bank: 1989). Among the principal causes are:

- Inadequate transparency and accountability in the use of public funds
- Weak and underfunded local governments, with unclear delineations of authority and responsibility for mobilizing resources
- Proliferation of undisciplined civil servants in highly centralized public bureaucracies and public enterprises
- Staff who have little in-depth understanding of either the institutions they are supposed to manage or of the broader context in which they are expected to function.
- Difficulties faced by managers in motivating and disciplining their staff owing to the social and political context in which they operate.

For the most part, these systemic shortcomings need to be addressed as part of comprehensive public sector reform programs, since it is difficult if not impossible to attempt to reform one ministry on its own. Recognizing the drawbacks of relying too heavily on centralized public bureaucracies, several African governments have considered various degrees of decentralization to the local and community level in the management and delivery of services including health, education and public utilities. Success is particularly apparent when the planning and delivery of cost-effective health services are combined with community participation and public support, at the district level. From the perspective of ministries of health, the district can be seen as an effective unit of decentralization. The district has also often served as an effective administrative unit for communities to exert influence "upward", thereby to be heard by higher-level government providers of health services, as well as policymakers.

This appears to be paying off, particularly when communities are given a greater voice in determining what is to be provided and what is affordable. While there is no simple model of how to organize a national health care system, organizational principles are reviewed in Chapter 7, based on evidence from African countries with relatively strong health systems. This provides a perspective on the relationship between health planners and policymakers at the center (ministries of health), decentralization of health functions to the district level, and community management of health centers within districts.

Costing Basic Health Services

Costing a basic package of health services might best be left to individual countries where detailed information on incomes, prices, and priorities is most readily available. Yet a major concern of this study has been to assess the financial underpinnings of a cost-effective package of health care, especially relevant to low-income African countries. There is also great demand for *indicative costs* based on real experiences, especially when some countries in Africa have participated in those experiences and others wish to learn about them. Accordingly, a detailed costing framework, presented in Chapter 8 of this study, demonstrates the underlying *process* by which inputs to a cost-effective approach have been decided upon, and costs assigned. Included in the "package" are basic health care goods and services that speak to the demographic and epidemiological profiles of the majority of people in low income countries. The costing framework is also used to illustrate how costs would likely change (upwards) for countries with higher levels of income.

This study estimates that a basic package of health care services, plus incremental, multi-sectoral services can be provided for approximately $13 per capita, per year in low income countries. This has been disaggregated into costs for health care and facilities ($7.74 per capita), intersectoral interventions including safe drinking water and sanitation ($3.98), and institutional support ($1.50 per capita). No pretense is made, however, that a universally applicable cost or a single recipe for an essential package of health care services can be derived. One reason is simply that final costs (and services) will be highly conditional on differences between countries in wage and price levels, technologies in use, per capita incomes and aspirations. Another reason is that socioeconomic change brings with it modified demographic structures, epidemiological conditions, and changing societal priorities. Thus, a parallel costing exercise for a relatively "high-income" country in Africa, also presented in Chapter 8, suggests that costs would be about 20 to 25 percent higher, at about $16 per capita, per year.

Establishing an indicative figure of $13 per capita for a basic package of services in low-income Africa is valuable as a means of prompting reflection on what people are getting now for the amount they pay; how resources might be reallocated to usher in a more cost-effective approach; and additional resource requirements to assure that the poorest countries and poorest groups within countries could afford such a package. Accordingly, Chapter 8 goes on to assess financing of the package in three groups of African countries, classified according to levels of gross national product and per capita expenditures on health. Assuming the public sector — governments and donors — were willing to increase their resource commitments in ways suggested in Chapter 8, an additional $1.6 billion per year would be mobilized for better health in low-income Africa. Governments would contribute almost one billion dollars. Assuming that all low-income African countries had suitable health reform programs, the donor share, comprising about $650 million per year, would be about 50 percent more than the amount now provided from external sources in assistance for health improvement in Africa.

Resource Mobilization

All countries face financial problems when it comes to mobilizing resources for health, including relatively rich, developed countries such as the United States where runaway health expenditures are eating 14 percent of GNP. This study has been guided by realities and needs in Africa, to argue for action along five dimensions (Chapter 9). First, many African countries lag behind other less developed countries in their expenditures on health as a share of GNP. Equally, if not more important, is that many governments are lagging in their commitments of public expenditures on health as a share of their total government expenditures. Action needs to be taken to restore commitments to health in contexts where they have diminished or to raise such commitments in recognition of the immense importance of health for sustainable development. Ultimately, of course, well-allocated real per capita health expenditures count as much or more than the health share of the public budget or of GNP. Monitoring performance in this respect promises to pay dividends for African governments and their partners in health improvement.

Second, governments have control over how government expenditures are allocated, and can have an immense impact on the "enabling environment" for health by spending public funds on public health goods and services. This study shows that large shares, and sometimes the majority, of public funds for health are not being used to finance or provide public health goods and services. Action can be taken progressively to match symbolic commitments to preventive and primary care with reallocation of public funds away from relatively cost-ineffective and expensive, urban-based curative care, particularly those services concentrated in tertiary and central hospitals.

Third, governments can progressively implement user fees and cost recovery to help ensure financial sustainability of publicly financed or provided health care. This study shows there is considerable scope for expanding user fees. Though revenues generated at the outset may be modest, improvement in cost recovery is an essential part of any health finance reform program because (i) retention of fees at the point of collection can be an incentive to hospital and clinic managers to enhance both revenue collections and service quality, (ii) purely on equity grounds, patients from higher income households (many of whom will have health insurance), should be required to pay for the health care they receive, and (iii) research has revealed that even middle and low-income households are prepared to pay for most curative services, especially if service quality is good.

Fourth, governments can create conditions for the expansion of both public and private insurance programs, generating increased revenues for the health sector in general and stimulating expansion of private providers of health care. This study shows there is considerable promise for expanding insurance. A requisite is to introduce user fees so that possible private providers are not in competition with free health care. A possible approach for government action is to mandate compulsory insurance for salaried workers, encourage expansion of private or employer-provided insurance programs, and provide technical and other support to stimulate provider-based insurance programs at the community level.

Fifth, governments can progressively promote public-private collaboration as a means of increasing efficiency and fostering development of private-for-profit and private voluntary organizations. Subsidizing missions, for example, has paid handsomely in Africa as a means of providing for indigents and of serving areas where public and private-for-profit facilities are scarce. It also makes sense in view of the co-subsidies which come from abroad, paying salaries of mission staff, providing essential drugs, building and maintaining facilities. Fostering community control and ownership of health facilities and financing mechanisms — such as prepaid community-based insurance — has worked well to mobilize revenues in rural areas.

Finally, governments can reap far greater sustainable benefits through the use of available external funding than they have in the past. This study argues that donor initiatives and lending, while valuable on a number of criteria, have had problems achieving sustainable effects, and have often been criticized for fragmenting health systems rather than building national capacities.

A Call to Action

Who stands to benefit and who will be motivated to take action in keeping with the major themes of this report? Obviously, African households and communities stand to benefit in their quest to alleviate pain, suffering, and disease, through greater access to, and use of, quality health care. Public health officials are likely to be supportive because the cost-effective approaches emphasized here provide a framework for organizing their work more efficiently, equitably, and sustainably. Policy analysts associated with professional health associations, universities and think tanks can benefit in their endeavors to devise strategies for better health in Africa. Core agencies, such as Ministries of Planning, Finance, and Central Banks, stand to benefit given their interest in restructuring health care systems, as well as increasing efficiency and equity, in ways that countries can afford without compromising progress to better health. And the donor community can be counted on to play a supporting role given the promise that domestic health expenditures will be used far more cost-effectively than in the past.

Hard decisions on health are needed now, to convert the vision set forth in this study and other reports into implementable action plans. Governments have a responsibility, as well as the mandate, to take action that will reduce unnecessary suffering, increase human resource potential, and contribute to a major foundation of sustainable development. This study urgently recommends action along five distinct dimensions:

- Comprehensive health policies need to be adopted with explicit operational goals, prescriptions for the role of government in public health activities and other public services such as safe drinking water and sanitation, and statements on how the enabling environment affecting household decision-making and preferences will be strengthened.

- Cost-effective approaches to basic health services need to be implemented, featuring basic health care and drugs in well-functioning health centers and first referral hospitals, with particular attention to the most vulnerable groups in low-income Africa.

- Management capacity and institutional reforms need to be accelerated so as to improve the performance of health care systems and strengthen research support — including the

management of pharmaceuticals, personnel, infrastructure, and equipment — and to build more effective partnerships for health with private and private voluntary providers.

• Government commitments to health expenditures need to be increased, with simultaneous action to reallocate public expenditures so as to increase efficiency, and to stimulate expansion of private sector financing of health.

• Governments need to develop national strategies to direct external assistance, rather than mold national strategies around available donor funding. Where governments have sound plans for health reform, cost-effective interventions, and a clear commitment to implementation, a doubling of current levels of donor financing for health improvement in low-income Africa might reasonably be proposed. This would result, overall, in an increase of about 50 percent in external assistance for health in Africa.

Other countries are achieving better health at low levels of per capita income, why not countries in Africa? The child mortality rate in China, for example, is one-half the level in Zimbabwe, and one-quarter the level in Senegal and Côte d'Ivoire. It achieved this feat with a per capita income that is only 50 percent that of Senegal and Côte d'Ivoire. Though cultural and political differences are involved, many of the lessons learned are generalizable and transferrable. Moreover, Africans themselves have been experimenting with new approaches, the results of which constitute building blocks for future action. This study incorporates those lessons with the vision that the dream of "Health for All by the Year 2000" will be delayed, but that its worthy goals remain attainable.

CHAPTER 2: HEALTH AND DEVELOPMENT STRATEGY

Introduction

High levels of mortality and morbidity throughout most of Africa are costing the continent dearly in the quality of life and the capacity of its human resources. Poor health increases suffering, reduces people's alertness, and the ability to cope with and enjoy life. From a societal perspective, poor health shackles human capital, reduces returns to learning, and undermines socioeconomic environments conducive to entrepreneurial activities.

This chapter describes the epidemiological, demographic and socioeconomic conditions affecting health in Africa. It identifies important links between health and development, making the argument that far better health outcomes are possible even at low levels of income. This can be partially achieved by improving knowledge and use of factors that have immense impacts on health such as safe drinking water, sound food preparation and nutritional practices, education — especially of girls, sanitation, and family planning. Governments have an important role to play in targeting public expenditures to such ends because they contribute to the enabling environment for better health, including prevention of communicable diseases. Without such an environment, individual health care will yield far lower returns than are otherwise possible.

PART I: CHALLENGES AND PERFORMANCE

Africa is host to a number of major disease vectors, the transmission of which is aided by a warm, tropical climate and variable rainy seasons. As but one example, the mean number of infective malaria bites per person in forest or savannah areas can be ten times the number in the Sahel or more mountainous areas. In agricultural communities, the worst times of year tend to be the wet seasons when food shortages, high food prices, and demand for agricultural work combine with high exposure to infection, especially diarrhoea, malaria, and guinea worm.

Slow economic growth, combined with rapid population growth, has held back per capita incomes, undermining the ability of households to pay for better health and the capacity of governments to fill gaps. Rapid population growth has multiplied the membership of demographic groups most vulnerable to parasitic and infectious diseases, outstripping the capacity of governments to meet basic needs. Moreover, persistently high fertility regimes, and limited use of modern family planning methods, have undermined the positive effects that improved timing and spacing of births might otherwise have on infant, childhood and maternal mortality.

Progress in underlying socioeconomic determinants of health — especially the education and emancipation of women — has also been slow. Only 68 percent of 6 to 11 year-olds are enrolled in primary school, and the percentage of female enrollments tends to be about half those of males. Illiteracy is correlated with poor nutritional practices and inappropriate sanitation, and inhibits information and communication about better health practices.

Political instabilities arising from coups d'etat and civil wars have also undermined the effectiveness of health administrations in dealing with millions of refugees and displaced persons beyond the reach of formal health care systems. Upwards of 60 million Africans have been adversely affected by civil conflict and related famine between 1980 and 1990. Ten to fifteen million refugees and displaced persons are currently beyond the reach of formal health care systems. In countries such as Angola, Mozambique, Ethiopia, Somalia, and Uganda, health facilities have been extensively damaged or destroyed. It is under such conditions that households struggle to improve their health and that systems of health care are expected to make a difference.

Health Indicators

In the past quarter century, Africa's struggle to overcome disease has produced a mixed record of success. On the positive side, the mortality rate for children under the age of five has been cut in half and life expectancy increased by more than a decade between 1956-90. At the beginning of the period, only one in seven Africans were supplied with safe drinking water, whereas twenty-five years later about 40 percent of the African population was obtaining drinking water from a safe source. By the end of the 1980s, around half of all Africans were able to reach a modern health care facility within one hour (UNICEF 1992b).

Despite these achievements, however, life expectancy in Africa is only 51 years, compared with 62 years for all low income countries, and 77 years for high income countries. Africa's infant mortality rate is almost 50 percent higher than in all low income countries, and at least 10 times higher than in high income countries. Maternal mortality in Africa is twice as high as in all low income countries and six times higher than in middle income countries (Table 1).

Within the continent, mortality differentials between countries are no less striking. Mortality of children under five years of age ranges from more than 200 deaths per 1,000 live births in countries like Mali, Angola and Mozambique, to less than 100 in countries like Botswana and Zimbabwe (see map at end of report titled, "Geographic Variations in Under-Five Mortality Rate, Sub-Saharan Africa, 1991"). Maternal deaths per 100,000 live births have been estimated to range from

Table I. Key Health Indicators, Sub-Saharan Africa and Other Countries, 1991

	Country Group			
	High Income	*Middle Income*	*Low Income*	*Sub-Saharan Africa*
Life Expectancy at Birth (Years)	77	68	62	51
Infant Mortality (per 1,000 live births)	8	38	71	104
Maternal Mortality (per 100,000 live births)	—	107	308	686

Source: World Bank 1993e.

83 in Zimbabwe to over 2,000 in Mali. Adult mortality — the risk of dying between ages 15-60 — has been estimated to range from 18 percent in Northern Sudan to as high as 58 percent in Sierra Leone (Feachem and others 1991). In many countries, more than 30 percent of females and 40 percent of males of working age will die before the age of sixty.

Mortality also varies widely within countries, revealing inequalities in health status between urban and rural residence as well as socioeconomic groups. In Zimbabwe, for example, childhood mortality of urban residents is 45 percent less than levels in rural areas, and up to 20 percent less among urban dwellers in the Sudan, Togo and Uganda. Children of married women with secondary education are 25-50 percent less likely to die before age five than are children of women having no education. Differentials between higher income/residential areas and lower income/residential areas have given rise to the so-called "10 to 20" rule of thumb, meaning that in most settings, life expectancy of the richest 10 to 20 percent of the population is somewhere in the order of 10 to 20 years higher than that of the poorest 10 to 20 percent (Gwatkin 1991).

Cultural markers such as ethnicity also rank as powerful correlates of infant and childhood mortality differentials, even after controlling for education and occupation. In Cameroon between 1968-78, for example, the mortality of children less than two years of age ranged from 116 per 1,000 live births among one ethnic group, to 251 for another. In Kenya, child death rates ranged from 74 for one ethnic group to 194 to another, while in Ghana, they ranged from 74 to 158 and in Senegal, from 261 to 452 (Akoto and Tabutin 1991). Ethnic differentials may be partially attributable to different attitudes concerning illness, nutritional practices, access to and use of modern health services, and attachments to modern versus traditional healers. They are also due to schisms between ethnic groups that manifest in unequal access to socio-economic opportunities.

At all levels of statistical aggregation, therefore, huge gaps are apparent in key health indicators. Yet, the prevailing differences between countries in Africa, between people living in rural versus urban areas, and between groups of people classified by socio-economic status, are also indicative of the 'art of the possible'. A challenge facing all partners in better health in Africa is to identify ways both within and outside the health sector of closing gaps between those realizing better health outcomes and those excluded from them.

Causes of Death and Illness

Major causes of death and illness vary by age group, yet certain health problems continue to threaten all members of society (see Table II). Perinatal, infectious and parasitic causes are responsible for 75 percent of infant deaths in Africa. Infectious diseases and parasitic causes are further responsible for 71 percent of the deaths of 1-4 year olds, and 62 percent of the deaths of children aged 5-14 years. Childhood health in Africa is threatened particularly by diarrhoea, acute respiratory infections, malaria, and measles (see Table III). The incidence of disease among children can be profiled as follows (Feachem and Jamison 1991):

- The typical African child under five years old has five episodes of diarrhoea per year, a 10 percent risk of suffering from diarrhoea on any given day, and a 14 percent risk of dying from a severe episode. Diarrhoea accounts for 25 percent of all illness in childhood and for 15

Table II. Distribution of Causes of Death Within Age Groups in Sub-Saharan Africa, 1985

	Proportion of total deaths within the age category[a]						*Total Deaths*	
Cause of Death	*< 1*	*1-4*	*5-14*	*14-44*	*45-64*	*65+*	*(000's)*	*Percent*
Perinatal	30.0	0.0	0.0	0.0	0.0	0.0	627	9.3
Infections and parasitic	45.0	71.0	62.0	53.0	28.0	19.0	3,403	47.2
Cancers	0.1	0.3	1.0	3.0	14.0	9.0	42	3.4
Circulatory Sys.	1.0	2.0	6.0	12.0	34.0	41.0	909	12.6
Maternal	0.0	0.0	0.0	4.0	0.2	0.0	48	0.7
Injury	1.0	3.0	6.0	12.0	5.0	2.0	294	4.1
Other	23.0	24.0	24.0	16.0	18.0	28.0	1,635	22.7
Total	100	100	100	100	100	100	7,203	100.0

Note: a. Ages are in Years.
Source: Feachem and Jamison 1991.

percent of admissions to health facilities. WHO estimates that 37 percent of all cases of diarrhoea in the world occur in Sub-Saharan Africa where only 50 percent of children benefit from oral rehydration therapy, compared with 70 percent of children in Asia and North Africa (WHO 1990).

- The typical child appears to have approximately ten episodes of acute respiratory infections (ARI) per year and a 25 percent chance of suffering from ARI on any particular day. It is estimated that ARI is responsible for 25 to 66 percent of childhood illness and for about 17 to 41 percent of visits and admissions of children to a health facility.

- Vaccine-preventable diseases are associated with 20 percent of child mortality.

In 1985, before the effect of AIDS mortality was being felt on adult mortality, about half of all deaths of adults 14-44 was also due to infectious and parasitic diseases. However, the World Health Organization now estimates that one in forty African adults is infected with the human immunodeficiency virus (HIV), which causes AIDS. In many hard-hit African countries, AIDS is the major cause of adult deaths in this age group (see below). Among older adults, cancer and circulatory system diseases prevail among those 45-64 years of age, and 65 years and older. Injuries appear to be surprisingly unimportant, though the accuracy of these estimates is doubtful. A large proportion of deaths in all age groups (16-28 percent) are lumped under "other causes" in Table II, reflecting the weakness of the data.

Maternal mortality in Africa is unparalleled due to a number of factors, including hemorrhage, infections, obstructed labor, anaemia, hypertensive disorders of pregnancy, unsafe abortions, and sometimes violence (see Box 1). Problems are exacerbated by infrequent gynecological check-up and care, tardiness in treatment when infection occurs, and higher risks of sexually transmitted diseases due to multiple sexual partners. In Angola, rates of maternal mortality ranged from 570 per 100,000 live births nationally to more than 1,600 in areas like Kuando Hubango and Huamb in the early 1990s.

Table III. Child Morbidity by Selected Socio-Economic Characteristics

Proportion of Children with:	Sex		Residence		Education		
	Male (%)	Female (%)	Urban (%)	Rural (%)	None (%)	Primary (%)	Secondary or More (%)
	(Proportion of Children Affected)						
Diarrhea[1]							
Ghana	40.8	41.9	44.0	40.3	39.6	43.7	29.3
Senegal	55.2	52.0	48.2	56.7	55.4	51.9	31.9
Zimbabwe	39.5	33.5	29.0	38.9	37.2	34.7	39.4
Fever[2]							
Ghana	37.4	35.4	33.1	37.6	34.5	38.5	31.6
Senegal[3]	61.9	60.1	46.6	68.9	64.8	48.1	33.3
Zimbabwe	7.1	7.0	5.7	7.5	8.0	6.8	6.9
Respiratory Problems[4]							
Ghana[5]	20.8	20.4	18.6	21.4	18.9	21.9	21.5
Senegal[6]	na	na	na	na	na	na	na
Zimbabwe[7]	51.5	47.6	47.0	50.4	48.6	49.8	49.6

Notes: 1. Children less than 2 years old with diarrhea in the 2 weeks preceding the survey. 2. Children less than 5 years old with fever in the 4 weeks preceding the survey. 3. Data refer to malaria during the last cold season, 0-6 months preceding the survey. 4. See note 3. 5. Severe cough or difficult breathing. 6. Data not available. 7. Rapid or difficult breathing.
Source: 1986-89 National Demographic and Health Surveys.

Abortion-related deaths are thought to be a major cause of maternal mortality in Africa. Though comprehensive data on abortion in Africa are lacking, recent data from a study in Kenya estimated there were approximately 75,000 abortions in the country in 1990. Extrapolating to Sub-Saharan Africa suggests there could be up to 1.5 million abortions each year in the region. Studies in Ethiopia and Nigeria further indicate that almost 50% of maternal deaths result from complications due to abortion (Rogo 1991).

Africa also has the highest adolescent pregnancy rate in the world. Between the ages of 15 and 19 years, 18 percent of all African girls become pregnant each year, compared to 8 percent in Latin America, and 3 percent in Europe. A survey of 15 to 24 year olds in Uganda revealed that 7 percent had an abortion (Ageyi and Epema 1992). Early entry into reproductive life increases risk of health problems such as anaemia, malnutrition, and sexually transmitted diseases (Wasserheit 1989).

Persistent and New Health Threats

Malaria continues to be Africa's largest and most persistent disease problem. Pregnant women, fetuses, and young children are particularly susceptible to malarial infection and its consequences. WHO estimates the global number of malaria cases per year at 110 million, with nearly 80 percent of cases occurring in Sub-Saharan Africa and only 1000 cases in North Africa.

Box 1. Violence against Women as a Health Issue

Violence against women is a significant cause of female morbidity and mortality, leading to psychological trauma and depression, injuries, sexually transmitted diseases, unwanted pregnancies, suicide and murder. Violence against women includes childhood sexual abuse, physical and sexual assault, and certain culture-bound practices, such as female genital mutilation, that are harmful to women. A study in Kenya found that 42 percent of women were "beaten regularly" (Raikes 1990). Women are often beaten or otherwise abused if they do not comply with men's sexual and childbearing demands. Where spousal consent is required before contraceptives can be obtained, women can be at increased risk of violence. In Kenya, women have been known to forge their partner's signature rather than open themselves to violence or abandonment. When family planning clinics in Ethiopia removed their requirement for spousal consent, clinic use rose 26 percent in just a few months (Cook and Maine 1987).

A review of more than 400 studies on the subject suggests that malaria is responsible for about 40 percent of fever cases, and accounts for 20 to 50 percent of all admissions in African health services per year (although only 8 to 25 percent of persons with malaria visit health services) (Brinkman and Brinkman 1991).

Malaria also appears to be worsening in much of Africa, due to resistance of malaria parasites to chloroquine and other drugs. The incidence of malaria indicates annual growth rates of 7 percent for Zambia, 10 percent for Togo, and 21 percent for Rwanda. Data for Burkina Faso show a downward trend of 15 percent during the years from 1973 to 1981, but an 11 percent increase per year since then. And hospital data reported for Zambia indicate that mortality from malaria is rising 5 percent per year among children, almost 10 percent for adults (Brinkman and Brinkman 1991).

The incidence of tuberculosis is rising in Africa due in part to the interaction between TB and AIDS, and in part to the breakdown of surveillance and management of cases. By some estimates, approximately 171 million TB carriers are in Africa, and 10 percent of all deaths occur in children under 5 years of age (WHO 1991b).

AIDS, Acquired Immunodeficiency Syndrome, is the most dramatic new threat to health in Africa. More than 8 million African adults are estimated to be infected with the AIDS virus, HIV. Of those infected, over 1.5 million Africans are estimated to have progressed to AIDS, although only 210,000 adult and pediatric AIDS cases have been officially reported to WHO.

Geographical variations in the prevalence of HIV are wide among countries (see map at end of report titled, "Estimated HIV Infections, Sub-Saharan Africa, 1990"). Approximately one half to two-thirds of the HIV infections have occurred in East and Central Africa — an area accounting for only one-sixth of the total population of Africa. The number of HIV infections in men and women is close to equal. Young girls and commercial sex workers are particularly vulnerable. Also, in contrast to malaria and many other causes of excess adult mortality in Africa, AIDS does not spare the elite.

High levels of other sexually transmitted diseases, such as chancroid, syphilis and gonorrhea, and the high rates at which new unprotected sexual encounters occur, appear to be

Table IV. The Rank and Share of Malaria, AIDS, and Other Diseases in the Total Burden of Disease and Injury in Africans in 1990

Females	*Share (%)*	*Males*	*Share (%)*
Malaria	11%	Injuries	13%
Respiratory infections	11%	Respiratory infections	11%
Diarrheal diseases	10%	Malaria	11%
Childhood cluster[1]	9%	Diarrheal diseases	10%
HIV/AIDS	6%	Childhood cluster[1]	10%
Perinatal	6%	Perinatal	9%
Maternal	6%	HIV/AIDS	6%
Injuries	6%	Tuberculosis	5%
Tuberculosis	4%	Other STDs	2%
Other STDs	3%	Other Causes	23%
Other Causes	28%		—
	100%		100%

Note: 1. Pertussis, polio, diphtheria, measles, and tetanus.
Source: World Bank 1993e.

important factors in HIV transmission. Thus prevalence rates of STDs, other than AIDS, are good indicators of the potential spread of HIV in countries where HIV infection rates are still low.

Recent data suggest that the pandemic has continued to spread, particularly in Southern and Western Africa. Over 600,000 people are estimated to be infected in Zimbabwe, alone. In the major urban areas of Botswana, HIV prevalence has exceeded 18% among adults. In West Africa prevalence among pregnant women in Abidjan is reported to have risen from 3.0 percent in 1986 to 14.8 percent in 1992. Sentinel surveillance from Nigeria shows that the epidemic has spread throughout the country. In 9 of the 11 states in which sentinel surveillance has been instituted among people attending STD clinics, prevalence is reported to range from less than one percent to 22%.

The fact that African countries face such a formidable array of health problems highlights the need for a comprehensive approach which can address a wide range of illnesses. Such an approach must aim at reducing the transmission of disease vectors through appropriately targeted public funds and public health activities. This is not being done to the extent required in most countries. Much of the excess morbidity and mortality in Africa could be brought under control with technically simple interventions. Transmission of diarrhoea (the leading cause of death among children) in principle could be dramatically reduced if fecal contamination of drinking

water, food, and the living environment were halted. The communicable diseases of childhood including measles, polio, whooping cough and diphtheria could be controlled by timely vaccinations. The presence of helminths could be reduced through mass chemotherapy. Other parasitic diseases could be contained through measures to halt the breeding of the vectors that transmit the parasites among their principal hosts or reduce human contact with the vectors. Schistosomiasis could be controlled if human wastes were kept out of ponds, lakes and rivers.

There is also growing recognition that many chronic diseases among adults are not the inevitable consequence of aging but are the result of lifestyles and behaviors that can be changed. All the biological mechanisms are not fully understood and for many chronic diseases such as cancer and coronary heart disease, multiple risk factors interact in complex ways. Still, informing the public that reducing dietary fat and salt, avoiding obesity, exercising, sleeping and eating regularly, using alcohol moderately, and avoiding tobacco, has, in some countries, had a major effect on lifestyles and in declines of some of the leading causes of death (Mosley and Cowley 1991).

A comprehensive approach must also emphasize basic services and essential drugs commensurate with the epidemiological profile and illnesses incurred. The death rate due to acute lower respiratory infections for example could be slashed through the use of inexpensive antibiotics. Yet, more than half of Africans live without regular access to essential drugs. People at greatest risk include:

- Members of particularly vulnerable demographic groups, including the newborn, infants and toddlers, and other clients of maternal and child health programs
- High risk groups afflicted disproportionately by infectious and parasitic agents
- Poverty groups, relatively deprived in education, income and nutrition.

That HIV is becoming so widespread in many African countries further suggests the need for a comprehensive approach, away from short-term crisis intervention to combat an epidemic, towards long-term health system development with strong STD detection, treatment, and counseling, as well as information and communication programs.

Combatting Demographic Pressures and STDs

Africa is a continent of exceptionally high fertility and very low contraceptive use. In 1992 the total fertility rate — or children ever-born to women of reproductive ages — was approximately 6.5 children compared with about 3.6 children for all less developed countries. Contraceptive prevalence rates were only 11 percent on average in 1990, compared with approximately 51 percent for all less developed countries and 71 percent for more developed countries.

Rapid population growth also exacerbates critical gaps in basic health services, especially when economies are growing slowly or per capita incomes are in decline. Combined, rapid population growth and poor economic performance are responsible for negative average annual

growth rates of GNP per capita for almost one-half of all African countries between 1965-90. This is one reason why the ratio of people served per doctor in Africa increased at only half the rate of other low and middle income countries over the past 25 years.

A consequence of low contraceptive use is that couples are deprived of health benefits associated with family planning. Birth spacing and the integration of family planning services with maternal and childhood health care leads to reduced infant, childhood, and maternal mortality (see Box 2).

The AIDS epidemic provides an additional reason for including family planning and STD services as part of cost-effective packages of health care. Various estimates suggest that women with sexually transmitted diseases (STDs) are 10 to 50 times more likely to contract the AIDS virus than those without STDs. According to a recent World Bank/WHO study of women at a prenatal clinic of Malago Hospital, Kampala, Uganda, syphilis and gonorrhoea were prevalent among 11 percent, chlamydia T among 5 percent, and trichomonas vaginalis among 37 percent. Health care facilities should be organized to prevent, diagnose, and treat sexually transmitted diseases at any contact between client and provider, whether the consultation is motivated by an episode of child illness or for other reasons.

Box 2. Health Benefits of Family Planning

The most widely confirmed health benefits of family planning derive from more efficient birth spacing. This can be achieved through modern methods of family planning, helping women to improve their health in the process as well as to increase chances that children will survive. To illustrate, infant mortality rates are 69 percent higher among women in Uganda having a child less than two years after a previous birth, than among those who wait two to three years. The same survey shows that child deaths before five years of age are 27 percent higher among women who had their first birth before age 20, than those aged 20 to 29. Inadequate birth spacing also places women at risk of death themselves.

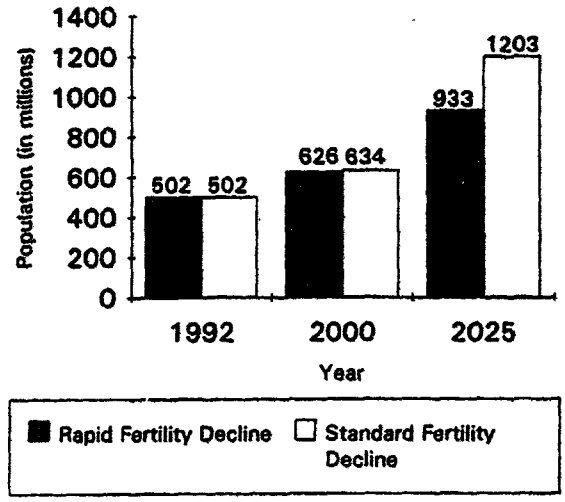
That women want such services, yet do not have sufficient access to them, is apparent from national Demographic and Health Surveys in nine Sub-Saharan African countries, which reveal unmet need for such services ranging from 22 to 40 percent of married women. Closing these gaps will clearly enhance the critical role women have to play as agents of change for better health.

Fortunately, awareness regarding the hazards of rapid population growth has risen greatly among African policymakers. Many African countries have developed, or are in the process of developing, national population policies, and most African government leaders are signatories of seminal declarations by parliamentarians in support of slowing rapid population growth. The Report of the South Commission, written by leaders from Nigeria, Ivory Coast, Mozambique, Zimbabwe, and Senegal took a particularly strong stand on population. Chaired by Julius K. Nyerere of Tanzania, the Commission concluded that not only do high rates of population growth reduce the resources available per capita, making it difficult in some countries to maintain subsistence levels, but also limit the ability to raise productivity.

Persistence of high fertility rates also means that growth of particularly vulnerable demographic groups is likely to outstrip the capacity of private and public health care providers. Rapid population growth produces an age structure that is heavily weighted towards infants, toddlers, and women of reproductive ages. Between 1990-95, approximately 75 million newborns will join Africa's population, 14 million each year. As noted previously, this has epidemiological implications. It is precisely these groups that are most susceptible to the major killers in Africa — perinatal problems and infectious and parasitic diseases.

World Bank projections indicate that at present trends, the number of Africans will grow from 502 million in 1992 to 634 million by the end of the decade, and to over 1.2 billion by 2025. Under this scenario, in less than 10 years, another 130 million people will be placing demands on a health care system that is already unable to fulfill the demands on it today; and, in a little more than a generation, policymakers will be confronted by health demands from a population much more than twice the current size.

Figure 1. Population Growth in Africa, 1990-2025



Source: Statistical Appendix.

Yet a different scenario can also be envisioned. Africa's population could grow far more slowly, to the extent there would be approximately 8 million fewer people than under current fertility rates, by the end of this decade; and 270 million fewer by 2025 (see Figure 1). By 2025 Africa's population growth rate would fall from its current level of 3.0 percent per year to 1.3 percent per year (see Figure 1). To accomplish rapid fertility decline, family planning would have to become an integral part of health care delivery, to the extent that contraceptive prevalence rates rise from about 11 percent, on average, throughout Africa today, to about 45 percent by the end of the decade and to 75 percent by 2025 (McNamara 1992). More than half of this increase could be achieved simply by accommodating unmet needs of 20 to 40 percent of sexually active women who currently want to limit their fertility, but do not have access to family planning.

Implications of current and prospective demographic trends for better health in Africa therefore are:

- Planning for better health in Africa will be hazardously incomplete unless family planning services are fully integrated with maternal and child health, including appropriate information campaigns on STDs, and outreach to the community. As a sign of progress in this area, governments of seventeen Sub-Saharan Africa countries currently have official population policies, nine having been adopted since 1990 (African Population Advisory Committee 1993b).

- The importance of raising contraceptive rates sharply throughout Africa cannot be overstated, especially over the next 10 years when reduced fertility will have a major impact on "population momentum" and the age distribution. Some countries, such as Botswana, Kenya, Mauritius, and Zimbabwe, are moving aggressively in this area. At the very least, this will help provide "breathing space" for governments currently unable to meet gaps in demand for basic health services.

- Even with progressive family planning, population momentum in most countries is such that cost-effective packages of basic and health services will be urgently required for rapidly growing numbers of people.

Proposals in this report — detailed in Chapters 3 and 9 — discuss the resources necessary to help achieve these goals.

PART II: HEALTH AND DEVELOPMENT

Economic Costs of Illness

The effects of poor health go far beyond physical pain and suffering, to the extent that learning is compromised, returns to human capital diminish, and environments for entrepreneurial and productive activities are constrained. And, in view of the demonstrated importance of human capital to economic development, it comes as little surprise that no country has attained a high level of economic development with a population crippled by high infant and maternal mortality, pervasive illness of its workforce, and low life expectancy.

Evidence showing that poor health imposes immense economic costs on individuals, households and society at large is strong worldwide. A selection of findings makes a compelling case that better health can contribute positively to economic outcomes in Africa:

- Household surveys in eight developing countries show that the economic effects of adult illness are substantial; three of the four study countries with the highest incidence of adult illness are in Africa — Côte d'Ivoire, Ghana and Mauritania. In Côte d'Ivoire, 24 percent of the adult labor force experienced some illness/injury during the month prior to the survey, and 15 percent became inactive due to their illness/injury. Those inactive experienced a loss of five full days of work, on average, and costs to treat their illness/injury amounted to about 11 percent of their normal monthly earnings. Bearing in mind the adjustments made by others and the cost of treatment, the economic costs of illness equalled almost 15 percent of per capita GDP. The loss of income from illness is similar in Ghana and Mauritania. Given the slow or even negative rates of growth of per capita GDP in many Sub-Saharan African countries during the last decade, the loss of 15 percent of GDP on a per capita basis takes on immense significance (see Table V).

- Studies of malaria in Rwanda, Burkina Faso, Chad, and the Congo suggest that the direct and indirect cost of an average case of malaria in Sub-Saharan Africa is equivalent to about 12 days output, on average. Accordingly, the annual economic burden of malaria has been estimated to be $800 million in 1987, and is projected to rise to $1.7 billion by 1995. The economic cost of malaria represented about 0.6 percent of GDP in 1987, and is projected to rise to 1 percent of GDP by 1995 (Shepard and others 1991). By comparison, the latter figure exceeds average government expenditures on health in several Sub-Saharan African countries during the mid-1980s.

- In Nigeria, Guinea worm has had multiple adverse consequences on health, agriculture, school attendance, and the overall quality of life of affected communities. In 1987 2.5 million Nigerians were infected, with temporary incapacitation for periods of 1 to 3 months. A

cost/benefit study of rice production revealed that, apart from finance, Guinea worm is the leading constraint to rice production; that approximately 12 percent of person days in rice production are lost due to Guinea worm; and that days lost translates into more than $50 million worth of rice production. The benefits of implementing a worm control program were estimated to exceed costs after only four years (UNICEF 1987).

Table V. Economic Burden of Illness, Three Countries

Labor Force Aged 20 to 59 Years	*Côte d'Ivoire (1987)*	*Ghana (1988/89)*	*Mauritania (1988)*
Workers Experiencing Illness/Injury (%)	24.1	44.4	18.4
Workers Inactive due to Illness/Injury (%)	14.8	26.4	17.2
Average Work Days Lost to Ill/Injured Workers	8.6	4.8	9.4
Share of Normal Monthly Earnings Used to Treat Illness-Injury (%)	10.9	6.7	17.6
Costs to Illness/Injury Averaged Across All Workers			
Average Income Loss per Labor Force Member (%)	6.4	6.4	6.5
Income Loss as Percent of per capita GDP (%) *	15.3	13.5	16.1

Source: King and others 1991.
Note: * Income loss as a percent of per capita GDP is higher than income loss per labor force member because, in the former measure, the level of per capita GDP is reduced by pooling both workers and non-workers.

• Diseases such as onchocerciasis and malaria are location specific and have been shown to discourage settlement on and development of fertile land. By some accounts, trypanosomiasis has rendered up to one-third of Africa unsuitable for cattle raising in the past, and has aggravated protein deficiency problems (Kamarck and World Bank 1976; Wells and Klees 1980). Onchocerciasis has been shown to contribute to the depopulation of river valleys in Nigeria (Bradley 1976) and in Ghana (Hunter 1966). Malaria and trypanosomiasis are acknowledged factors inhibiting migration and resettlement to new lands in Uganda.

• Even though it is far from the most prevalent disease in Africa, AIDS will have immense economic consequences because it is fatal and primarily affects adults in their most productive years. Mortality from AIDS will lower the incomes and well-being of affected households - leading to higher levels of malnutrition among children, lower school enrollments, lower consumption levels for survivors and higher morbidity for the rest of the household (Over et al, 1989). Household savings and productive assets are likely to be liquidated to pay for medical care and funerals. AIDS mortality may have particularly harsh impacts on women, as in many societies they are not entitled to inherit the property of their deceased husbands. Thus, the AIDS epidemic will create new pockets of poverty and leave large numbers of surviving family members, such as orphans and the elderly, with no means of support.

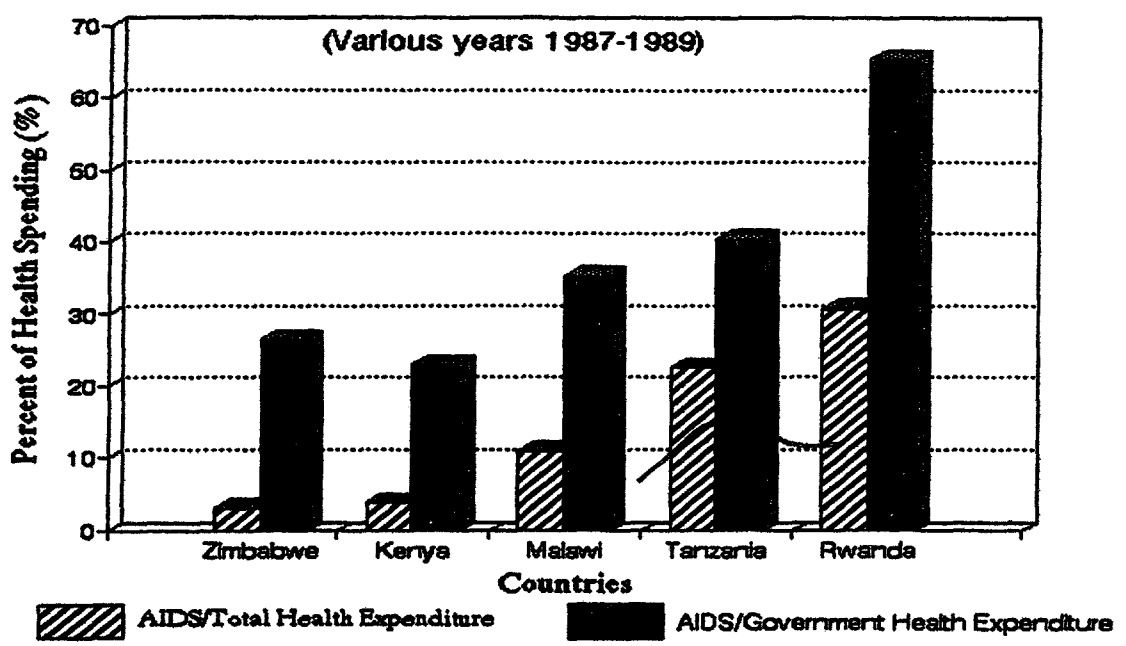
AIDS will also have a broad impact on African economies. Households and the health sector will be faced with potentially huge treatment costs prior to AIDS deaths. Figure 2 shows the potential cost of AIDS treatment if all persons infected in selected countries had sought and received health care. The cost of treating existing AIDS cases in Rwanda, for example, is potentially the equivalent of 60 percent of the public health budget. In severely affected countries, the work force is likely to become younger, less experienced, and less trained. In Tanzania and Uganda, AIDS has already increased absenteeism and lowered the productivity of the work force by killing some of the most skilled labor. Most models of macroeconomic

impact suggest that adult deaths from AIDS will cause per capita economic growth to be lower than it would have been in the absence of the disease. (Ainsworth and Over 1992, World Bank 1991i, African Population Advisory Committee 1993c).

• Dissaving and borrowing often take place at the onset of illness, to finance medical care and maintain consumption. West African households suffering from onchocerciasis, for example, used assets like bridewealth to finance medical care (Evans 1989). In Côte d'Ivoire, average medical expenditures by households at the time of illness exceeded full-time employment earnings — at the local minimum wage — lost during illness (Corbett 1988). Sale of livestock and land has also been frequently cited as a coping response to consumption shortages (Over and others 1991); in fact, in coastal Kenya, ill-health was the reason for selling land in 24 percent of land transactions (Chambers 1982).

• In addition to the direct costs of obtaining treatment and the indirect costs of foregone earnings from days of work lost, the costs of "coping mechanisms" adopted by the family, community and employer can also be substantial. To illustrate, among 250 Sudanese tenant families that became ill due to malaria and schistosomiasis, (El Takir and others 1986) unaffected family members took time from other activities to preform the work function of the ill to maintain production. Other studies of malaria also found that decreased days worked by the affected individual were at least partially compensated for by other members of agricultural households (Conly 1975; Castro and Moakte 1988). And in urban areas, employers who suffer from high absenteeism due to employee health problems must sacrifice specialization and thus deprive their enterprise of many of the benefits of mass production (Over and others 1991).

Figure 2. Potential AIDS Treatment Cost as Percent of Total and Government Health Expenditure



Source: Ainsworth and Over 1992.

The relationship between poor health and economic activity is unambiguous. By extension, improved health can be expected to have a positive impact on the economic well-being of families by lowering costs of treatment for disease, reducing demands on family members to care for the ill or for their survivors (for example, orphans), and reducing labor turnover and the loss of key skills and experience to employers.

Creating an Enabling Environment for Health

Sound governance is essential to creating an enabling environment for better health. Governance, as it affects the surrounding of households and communities, has many dimensions that go well beyond strictly political issues. The extent of the involvement of beneficiaries in the design and management of health policies and programs, decentralization, and autonomous local management of health services, reflects government attitudes towards appropriate governance in health. The design and definition of public expenditure programs for health is another aspect. Enormous benefits could, for example, be gained by reducing excessive military expenditure so as to expand public health activities and other social services. One study observed that when the share of health services in twenty developing countries fell, on average, by nearly one quarter, from 5.5 to 4.2 percent of central government expenditures between 1973 and 1986, defense expenditures climbed, on average, from 12.7 percent to 15.2 percent — an increase of one-fifth in a public expenditure category that was already the single highest. This section considers, in further detail, the following aspects of the enabling environment for health: income and wealth; water supply and sanitation; food and nutrition; female education; roles and status of women; culture; and the roles of households.

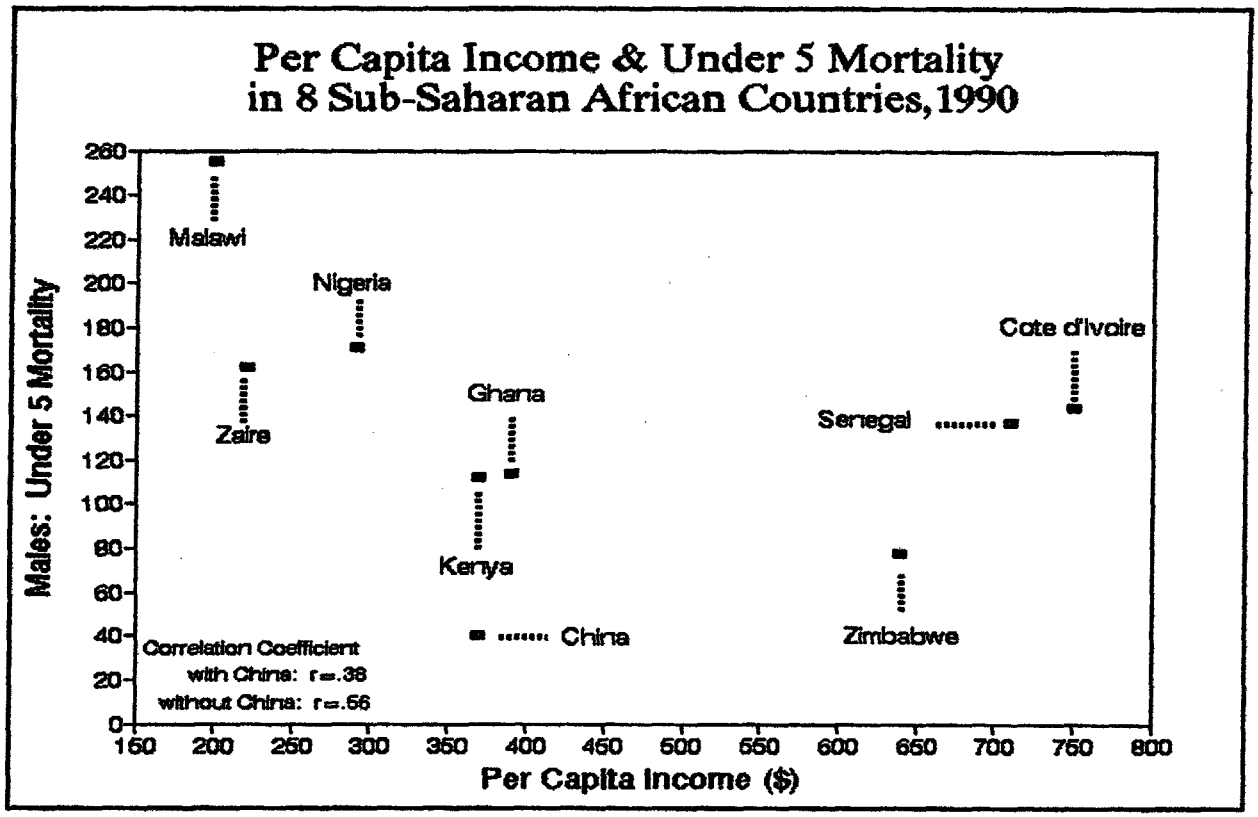
Income and Wealth.

A cursory inspection of the world health picture suggests that the single most important factor determining survival is income. Sub-Saharan Africa, with an average per capita income of $340, has an average life expectancy of 51 years, while North America with a per capita income of about $20,000 has a life expectancy of 75 years on average. Indeed, the higher a country's average income per capita, the more likely its people are to live long and healthy lives.

Yet a central message of this study is that even within existing levels of per capita income, health in Africa can be dramatically improved by appropriate health and development strategies. Household activities and public funds can be directed more effectively to create an enabling environment for health. As a public health activity, for example, households and communities can be educated about the immense importance of health determinants that lie outside the formal health sector.

That income is not the sole determining factor in health status is apparent from an analysis of cross-country variations in life expectancy that simultaneously assesses the impact of income as well as other influences. Only one-half of the total gain in life expectancy over a 30 year period from 1940 to 1970 could be accounted for in terms of changes in per capita income, adult literacy and calorie intake (Preston 1980 and 1983). Equally important is to realize that wealth does not necessarily bring health. One of the best performers — world-wide — is China, which has reduced its male childhood mortality rate to 40 with a per capita income of only $370. This is less than in Thailand which has a per capita income of $1,400, as well

Figure 3



as in Saudi Arabia with a per capita income of $7,000.

Figure 3 further shows that the childhood mortality rate of males under 5 years old in Zimbabwe is approximately one-half that in Côte d'Ivoire, even though Zimbabwe's per capita income is lower. And in Kenya, with a per capita income one-half that of Côte d'Ivoire, the childhood mortality rate is again lower, at 112 per thousand, compared with 144 for Côte d'Ivoire.

To explore why a few poor developing countries and regions have managed to achieve such remarkable gains in health, the US based Rockefeller Foundation convened an international conference in Bellagio, Italy in 1985 on the theme "Good Health at Low Cost" . Selected for in-depth analyses were China, Sri Lanka, Costa Rica, and the state of Kerala in India. Although Kerala was among the poorest states in India with a per capita income of $160 in 1982, it had already achieved a life expectancy of 69 years. The conference concluded that good health in poor countries can be achieved if there is a political commitment to equity, translated into policies and programs that assure wide access to basic health services, education, and food. The four country case studies indicated that to guarantee access to health care, governments must work to overcome the social and economic barriers that can exist between disadvantaged groups in the population and medical services. A common characteristic in these countries was that their approach to a specific disease problem, such as diarrhoea, was multifaceted involving social and environmental interventions as well as the introduction of medical technologies through a well-managed and accessible health system.

Figure 4

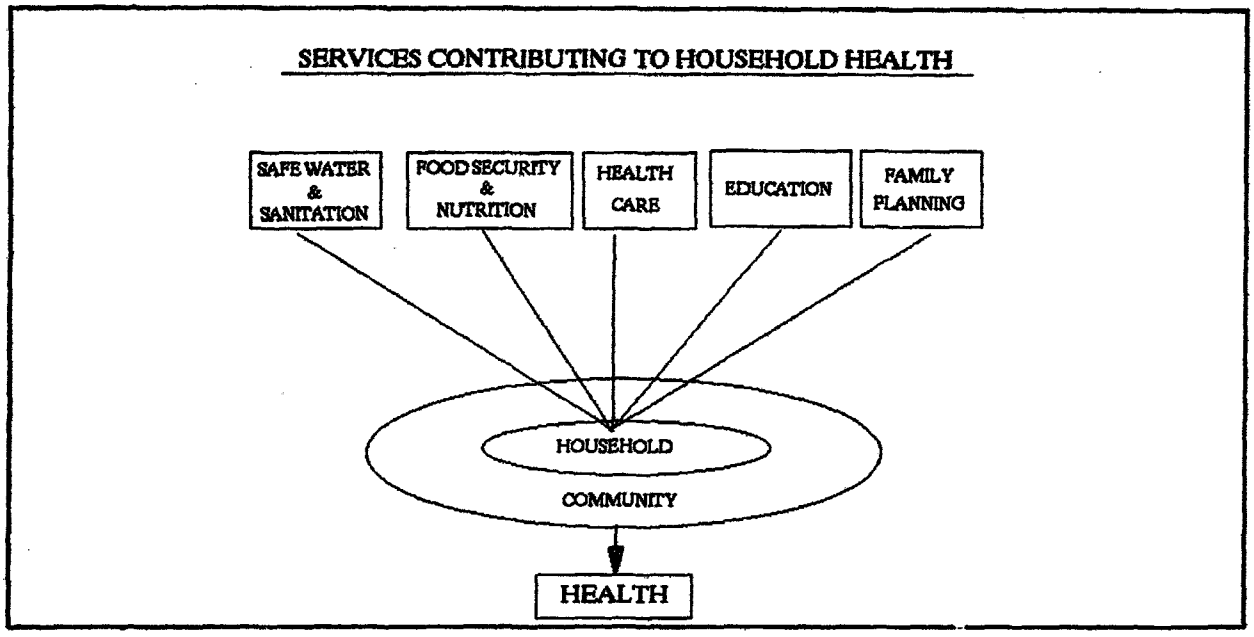


Figure 4 places this commitment in perspective as it relates to the simultaneous use of other inputs known to impact on health at the household and community level. The kinds of benefits involved can be illustrated with regard to environmental services (water supply and sanitation), food security and nutrition, education, and culture.

Environmental Services

Safe water is an essential pillar of sustainable health for rural and urban populations in rich and poor countries alike. Yet large shares of the population are deprived of safe drinking water in many African countries, particularly in rural areas. In Ethiopia, Mali, and Uganda, for example, less than 25 percent of the population have access to safe drinking water, and most live in urban areas. Poor sanitation and disposal of fecal matter complicate matters, particularly in rural areas and peri-urban slums where seepage can contaminate ponds, streams, and rivers (see Box 3).

A review (Esrey and others 1991) of findings from 144 studies revealed that improved water supply and sanitation often reduces child diarrhoeal mortality by 50 percent, and sometimes as much as 80 percent, depending on the type of intervention and on the presence of risk factors such as poor feeding practices and maternal illiteracy. Improvements in the rural water supply in Africa have resulted in a remarkable reduction in the number of cases of Guinea worm. In Nigeria for example, there were 640,000 cases reported in 1989, declining to 282,000 in 1991 as a result of a combination of improved water supply/treatment and education.

It is also evident that improved excreta disposal has a major impact on health, as does improved personal, domestic, and food hygiene. According to one study, improvements in excreta disposal reduced diarrhoea morbidity by 22 percent as compared with improvements in water quality (16 percent) and water availability (25 percent) or both together (37 percent). Studies in Lesotho recorded a 36 percent reduction in diarrhoea related to improved excreta

Box 3. The Environmental Dimension of Urban Health: The Case of Accra

The Accra Metropolitan Area (AMA) has an estimated 1990 population of 1.6 million that is expected to grow to more than 4 million by the year 2020. Accra is characterized by overcrowding, inadequate municipal services, and substandard housing. Almost half of the urban population have incomes below the World Bank's absolute poverty threshold. In this environment, cholera cases are increasing steadily: 113 cases reported between July and September 1990 rose to 354 in November and 239 in the first two weeks of December, mostly in low-income residential areas.

Almost half of the 36 significant diseases that are reported in Accra (malaria, measles, enteric fever, food poisoning, tuberculosis, diarrhea, leprosy, polio, guinea worm, typhus and cholera) can be linked to the following problems:

a. Overcrowding in economically depressed neighborhoods — for example, with average occupancy rates of 4.4 persons per room in the low-income residential area of James Town — facilitates the spread of communicable disease and puts enormous pressure on shared resources such as kitchens, bathrooms and laundries. Poor drainage forces sullage, or waste water discharge, to flow through holes in household walls onto the ground outside and gives rise to stagnant pools for mosquitos and moist soils in which hookworm ova readily develop. Data from 1988 show malaria to be the single most widespread disease, with 92,046 reported cases in the AMA, or over 40% of diseases report at outpatient facilities.

b. Where excreta disposal systems are poorly developed — especially in slums, squatter settlements and peri-urban areas without convenient access to public facilities — defecation in public space, beaches and watercourses is common.

c. In slum areas where water is frequently purchased and/or water supply is irregular, daily per capita consumption is about 60 liters, or less than half of middle income neighborhoods. While water quality is generally good at the source, its risk of contamination during transport, and low likelihood of being boiled for sterilization, raises the incidence of water-borne diseases.

d. Until recently, illegal garbage dumps have choked the roadside, drains and open spaces around households, and provided breeding grounds for insects and rodents. Incinerating refuse has resulted in air pollution and acute respiratory diseases within the community.

e. Poor hygienic food preparation and handling in Accra lead to higher prevalence of communicable diseases, as noted in: (i) a 36% prevalence of diarrhea among children in households where their hands were not washed prior to eating; (ii) swarms of disease-spreading flies around street side food vendors and small restaurants (chop bars); and (iii) the absence of enforceable legislation on food quality and hygiene.

f. Accra's high temperatures and considerable rainfall also favor disease vectors, of which the most problematic are malaria-transmitting mosquitos, houseflies, cockroaches, bed bugs, and lice; rodents are also prevalent. Unfortunately, toxic pesticides can also have negative health consequences.

These environmental health problems arise from a combination of inadequate infrastructure and services, lack of settlements planning, and cultural practices. The resulting economic cost: 70% of national expenditure on health problems in Ghana has been attributed to environmentally related diseases — taking account of lost labor, and the cost of resources (doctors, nurses, technicians, administration, equipment, and drugs).

disposal (Daniels and others 1990). The study concluded that interventions to improve excreta disposal would produce larger impacts than improvements in water quality, particularly in highly contaminated environments where the prevalence of diarrhoea is high.

Fecal-oral disease transmission, on the other hand, becomes more important as population densities increase. A study (Bradley and others 1992) comparing infection with helminths in an urban slum in Lagos and a rural area showed that 95 percent of school children in the study area were infected, as compared with 52 percent in the rural area. Differences were due to the population density, low levels of hygiene, poor drainage and absence of excreta disposal facilities. Other sanitation interventions such as solid waste management, sullage disposal, and drainage are important in urban areas and all have important impacts on health (Box 3).

Food and Nutrition

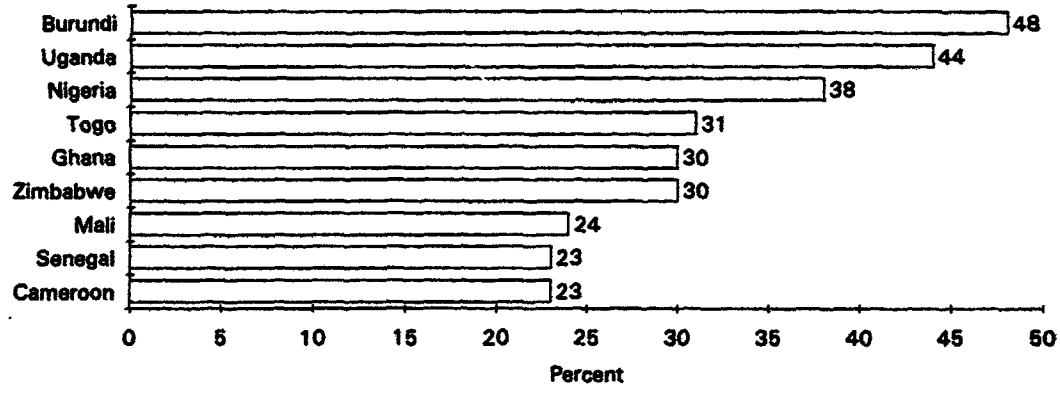
Malnutrition underlies more than one-third of infant and child mortality in many African countries (McGuire and Austin 1986) and 20 to 80 percent of maternal mortality. In Tanzania in the late 1980s, half of all children under five years were malnourished. Protein-energy malnutrition, nutritional anaemia, vitamin A deficiency, and iodine deficiency disorders have been identified as the most serious problems in Africa. Inadequate quality and quantity of food intake (including breastmilk) causes growth failure, decreased immunity, learning disabilities, poor reproductive outcome, and reduced work productivity. Breastfeeding also reduces the risk of infection. (see Box 4).

According to FAO estimates, the average per capita dietary energy supply had increased worldwide from 2000 in 1983 to 2600 calories per day by 1985, but currently only 2100 calories are available per person per day in Sub-Saharan Africa. Though increases in incomes of the poor may lead to increases in calorie consumption over and above the general population, improved income alone cannot be expected to raise calorie intake. Nutrition policy can make a difference, however, by offering nutrition education parallel to income-generating activities so as to influence purchasing and feeding practices, providing women with functional literacy classes using nutritional themes, and targeting food subsidies.

Box 4. Nutrition and Household Health

Nutritional deficiencies represent an extremely serious health problem in Africa. Stunting, which reflects chronic, longstanding undernutrition, is more widely prevalent that wasting, which reflects acute nutritional crisis. A series of demographic and households surveys in the 1980s revealed more than 25 percent of children from three to thirty-six months old to be stunted, compared to only 2 percent in a reference population.

Undernutrition among Children Age 3 to 36 Months in Selected African Countries, 1986-1991



Source: adapted from US Agency for International Development 1991, Figure 2, p.5.

Poor feeding practices are at the heart of child nutrition issues, reflecting once again the importance of household behavior for health improvement. WHO recommends that all infants be breastfed exclusively until they are 4 to 6 months old, but in Nigeria, for example, only one percent of such infants are exclusively breastfed. In contrast, in Uganda, exclusive breastfeeding in this period is 70 percent, despite the fact that older infants and young children are widely undernourished. Similarly, WHO recommends that, by the age of 6 months, all infants should receive solid foods in addition to breast milk. Yet, only 45 percent of infants from 6 to 9 months old in Mali, and 57 percent in Ghana, receive breast milk and solid foods.

Nutritional rehabilitation is best done as part of a basic package of health services — as elaborated in Chapter 3. In Tanzania, for example, the Iringa Nutrition Program and child survival and development programs in other regions have succeeded in reducing severe malnutrition from a pre-program level of about 6 percent to a post-program level of 2 percent. In Botswana, supplementary feeding programs achieved 83 percent coverage as compared with 6 to 10 percent in other countries, largely because of wide primary health care coverage.

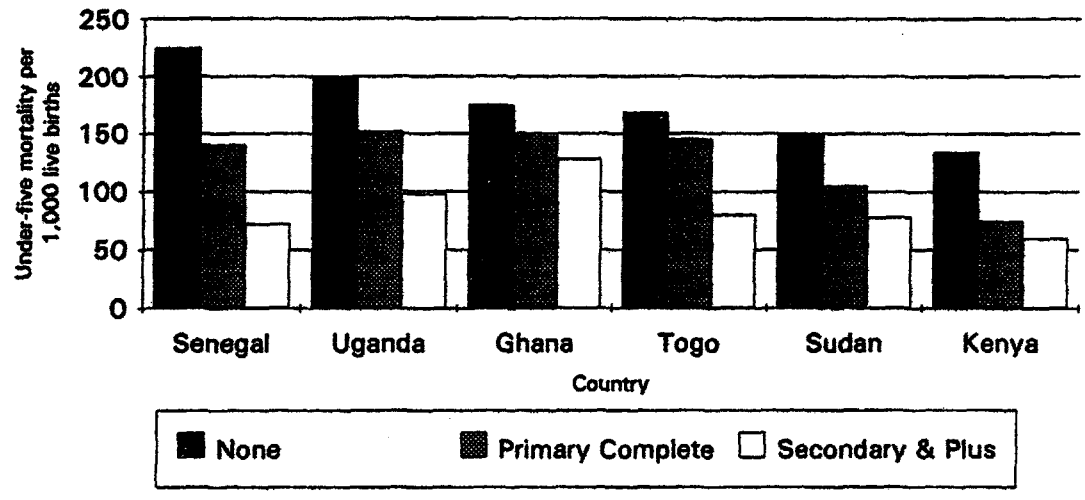
Along with increasing household food security, nutrition social marketing can also be used as a key public policy intervention that can help to generate consumer demand for nutritious foods, healthy child growth, and complementary health and nutrition services. Such policy for example can emphasize the immunological and nutritional benefits of breastmilk in African countries, where UNICEF reports the proportion of infants 0 to 3 months exclusively breastfed to vary from about 2 percent to 89 percent. A breastfed baby is only one-twentieth as likely to die from diarrhoeal diseases and one-quarter as likely to die from pneumonia as a baby who is bottle-fed (UNICEF 1992a).

Female Education

The education of females is so important to health improvement that it merits special attention in any reformulation of health policies that aim to improve health outcomes rather than solely the delivery of health care services. More educated women marry and start having children later, make better use of health services, and make better use of information that will improve personal hygiene and the health of their children. Household surveys in Ghana, Nigeria, and Sudan show that the single most important influence on child survival is the level of a mother's education (see Figure 5). Data for thirteen African countries between 1975 and 1985 show that a 10 percent increase in female literacy rates reduced child mortality by 10 percent, whereas changes in male literacy had little influence (World Bank 1993e). The effect of a mother having attained secondary level education may contribute to lowering the infant mortality in a given family by as much as 50 percent. Finally, having an educated adult female population can significantly increase the effectiveness of government expenditures on health; without an educated female population, the impact of government expenditures on health appears to fall dramatically (Bhargava 1992; Stomberg and Stomberg 1992).

Female participation in primary and secondary schools has improved significantly in Africa over the past 30 years, but has a long way to go to deliver the kinds of health benefits reviewed above. At the primary level, female participation rose from 24 percent in 1960 to 69 percent in 1990. At the secondary level it increased from 1 percent in 1960 to 16 percent in 1990. (Over the same period, male participation rose in primary education from 46 to 83 percent and in secondary education from 4 to 32 percent.) These level compare poorly with the rest of the world. In 1985, for example, female primary enrollment in Africa was 58 percent, compared with 92 percent for the low income economies as a whole. Furthermore, the chances for girls to pursue higher levels of schooling worsen as they progress from grade to grade. Seventy-six percent of girls start school, compared with 86 percent of boys, but only 36 percent of the girls finish primary school, compared to 44 percent of the boys. Of the girls who finish primary school, only 41 percent continue to secondary school, and — of this group — only 18 percent finish secondary school. These low levels of attainment are further reflected in the median literacy rates among African countries, which were only 30 percent for females in 1990,

Figure 5. Under-Five Mortality and Level of Female Education, Selected Countries, 1985-90



Source: Compiled from Demographic and Health Survey data.

as against 52 percent for males. (Hartnett and Heneveld 1993)

Special Roles and Status of Women

Women occupy a special place in efforts to improve health because they participate in, and often manage, many activities that impact on the health and well-being of their families. For example, women perform an estimated 60 to 80 percent of all agricultural labor in Sub-Saharan Africa, thus placing them in an important position to contribute to food security and nutrition. Women are also largely responsible for fetching water and fuelwood, thus placing them in an important position to assure safe drinking water and adequate cooking and preparation of food. In Kenya, for example, 89 percent of rural women over age 14, but only 5 percent of the men, report fetching water and fuelwood as one of their normal tasks (Cleaver and Schreiber 1992).

Research on the determinants of infant mortality further shows that, "... the mother is the most important health worker for her children." (Schultz 1989). This conclusion not only reflects the strong correlation between female literacy and lower infant mortality, but agrees with studies of government expenditures on health showing that their effects are likely to be greater when they interface with an educated female population (Bhargava and Yu 1992; Stomberg and Stomberg 1992).

Time availability is one of the most important constraints affecting the ability of women to produce health. Surveys in Central African Republic, Côte d'Ivoire, Sudan, Tanzania, and Zambia show that rural women in Africa work more than ten hours a day, even without counting child care and health care responsibilities (Leslie 1987). Policymakers need to bear in mind that the supply of health care services, or even pharmaceuticals, may not lead to use if it does not respond to women's sense of priorities and imposes unacceptable time costs for travel or time away from work.

Culture

Africans have a long tradition of placing a high value on health care since good health is seen as the basis for development and societal growth. Traditional notions of disease and their origins are well established and can determine when, where, how, or even if, treatment will be sought. African traditional societies categorize diseases and illnesses as man-made and/or "spiritually" induced. For instance, smallpox among some communities in Burkina Faso, Niger, and Chad was considered of natural origin and not of sacred or supernatural sources. As a result, people practiced a combination of vaccinations and isolation of the sick. In contrast, in the Groun and Yoruba regions of Benin and Nigeria, respectively, smallpox was considered to be the manifestation of a supernatural power, Segbata -a punishment inflicted by the goddess on those who had incurred her anger. Instead of being isolated, the sick person was taken from one place of worship to another in an effort to appease the goddess and, being in constant contact with the worshippers of Segbata, spread the disease unnecessarily to a greater number of people. Yaws is not considered a disease in some parts of Cameroon, and goiter, which is an indication of a malfunctioning thyroid gland, is not regarded as an illness in many traditional Nigerian communities.

So important are culture and ethnicity to health outcomes, that *even* if structural constraints are removed in the health sector, desired results are unlikely to be achieved unless the cultures of communities, of health policymakers and planners, and of providers of health care are taken into consideration. Indeed, increased attention by policymakers to these issues increases the chances of success in implementing policy. If this is done, providers will be less likely to display an ambivalence toward the use of traditional medicine; and users will be less likely to vacillate between modern and traditional medicine (Amadi 1992).

Households at the Center

Slowing the transmission of disease, and curing illnesses, will require a wide range of services, as shown above, including safer drinking water and sanitation, increasing levels of education, improved food security and nutrition, family planning, and health care. The effectiveness of these services in interrupting the spread of disease and curing sick people depends critically on efforts by the individual and the household.

For drinking water to be safe and beneficial, households must be able to distinguish safe from non-potable water, filter water when necessary, and ensure that their members rely exclusively on these supplies for consumption. For example, a social marketing strategy was used in the Idere project in Nigeria to integrate primary care and use of nylon filters for drinking water, to prevent transmission of Guinea worm. Addressing malnutrition requires appropriate storage, preparation and sharing of food. The management of individual food supplies and use of food resources can only be undertaken at the household level, occasionally with community support.

Self-care for illness can be promoted by ensuring that households have sound health information available and, in schools, suitable health education. The importance of self-care is indicated by a study in a Nigerian town which revealed that over 80 percent of the illness episodes over a twelve month period had been managed by the household (Brieger,

Ramakrishna, and Adeniyi 1986). Finally, without the active involvement of households in identifying symptoms of illness, providing information on the history of the illness to health care providers, and complying with treatment plans, even the best individual health care will have no impact on illness. Increasing levels of education will contribute to the understanding of scientific rationale for care.

Engaging households and communities in health, and responding to the health-related demands of the public, must therefore be central to the concerns of African governments for health improvement. How household cooperation affects the outcome of an intervention, and what can be done to ensure it, are important questions to be addressed in formulating health policies and programs.

Important implications for health in Africa are:

- Households and communities must be recognized as being at the heart of the health system, not merely as recipients of medical interventions but as participants in the design, funding and management of a wide range of interventions cutting across many sectors.

- Provision of sound health information, in forms that are readily comprehensible by and acceptable to households, is a central responsibility of African governments.

- The impact of improved health care services on health outcomes of households and communities will either be greatly facilitated or constrained, depending on conditions in the socio-economic and cultural enabling environment.

PART III: COMPLETING THE AGENDA

All across Africa, health policymakers, planners, and researchers have been hampered by the lack of accurate, reliable, and timely data on households and communities. As a result it is extremely difficult to profile the health status, needs, behaviors and preferences of different demographic groups within countries, let alone the epidemiological characteristics of different socio-economic groups. Lacking such information, health problems tend to be "invisible" or "moving targets" from a planning perspective. Moreover, household behaviors including self-diagnosis, self-treatment, willingness and ability to pay for help from traditional healers and modern practitioners, remain poorly understood. The entire process of monitoring and evaluating progress is undermined as a result.

Systems for the registration of births and deaths are very weak across Africa, thus depriving planners of a timely tally of births and deaths, by characteristic and by geographic area (African Population Advisory Committee, 1993a). Only relatively small island nations have vital registration systems that have been classified as "complete" (meaning more than 90 percent complete). These include Cape Verde, Mauritius, Reunion, Sao Tome and Principe, St. Helena, and the Seychelles. Several other African countries have vital registration systems but estimates of completeness of death registration are only 10 to 25 percent. These include Botswana, Djibouti, Guinea-Bissau, Kenya, Rwanda, Sierra Leone, and Togo. Since 1984, Demographic and Health Surveys (DHS) have been undertaken in many countries, with 18 sub-Saharan countries having conducted a DHS by 1992. In addition to complete information on fertility and

contraceptive use, these surveys are an invaluable source data on the health status of women and children. By 1990, most countries of sub-Saharan Africa had conducted population censuses, though major bottlenecks continue to undermine timely processing and dissemination of data. Growing numbers of countries, however, including Burkina Faso, Niger, Tanzania, and Uganda, among others, are making good use of microcomputer technology to produce results in record time.

Knowledge-based action for health has been further undermined by failures to analyze data that has been collected, and to use the resulting information effectively (Lucas 1992). In some cases, health information has been suppressed, whereas in others, epidemiological and other information has been ignored in drawing up priorities for action. Suppression of information on the AIDS epidemic during the early 1980's is a case in point.

• *A first step, therefore, in completing the agenda for better health in Africa is to support essential data collection, analysis and research on prevailing patterns of morbidity and mortality, with special attention to variations in disease and illness by gender, and among socio-economic and cultural groups. Data are particularly scant on variations in health status between ethnic groups in most countries, as well as the extent to which these variations are attributable to ethnically distinct cultural practices, residential patterns, or variables of a more political nature. Given the concern with governance issues in Africa, its diverse ethnic background and the challenge of promoting equity in multi-ethnic societies, the demand for such data is likely to grow in the future.*

Action for better health in Africa is likely to be stalled if the commitment of health planners and policymakers to principles, declarations, and initiatives for primary and preventive health care remains more symbolic than real. Most of the problems described in this chapter have been the subject of national and international conferences, replete with calls for action. In 1978, the Alma Ata Declaration focused attention on primary health care, stressing the moral imperative of reducing gross inequalities in health status among groups of people, while acknowledging this could not be achieved without efforts to provide critical public health goods and services, such as safe drinking water, basic sanitation, maternal and child health care, family planning services, better nutrition, education, and so on. The Declaration goes on to emphasize that these aims can only be achieved through cooperation of the health sector with other sectors and programs, including public works, education, communications, and community development.

In 1980 the African Charter for Health Development was signed, to implement the call for Health for All in the Alma Ata Declaration. In 1985 in Lusaka, the African ministers of health ratified the African Health Development Scenario in Three Phases developed by the African Regional Office of WHO, AFRO. In 1987 at Addis Ababa, this approach was unanimously ratified by African Heads of State meeting at the Organization of African Unity. By 1990 these themes received further endorsement by many African governments at the World Summit for Children, sponsored by UNICEF. At this summit meeting, governments agreed to draw up National Plans of Action (NPAs) covering, among other concerns, primary health care, family planning, environmental sanitation, nutrition, and basic education (UNICEF 1990b and 1991). Prior to 1990, this study was able to find *comprehensive, operationally-relevant* health policy statements by only seventeen governments. Of these, only five focused on problems in the enabling environment for health and outlined programs to correct them — Botswana, Mali,

Nigeria, Swaziland, and Tanzania. Following the World Summit for Children, NPA processes are underway in many countries. WHO reports, as of mid-1993, that twenty-nine African countries have adopted basic health policies (Monekosso 1993).

Perhaps most obvious is that health planners and policymakers should promote intersectoral collaboration for better health. At the national level this means engaging and coordinating the health related activities of principal agencies of government, including public works (water supply and sanitation), commerce (for drugs and other pricing issues), education (especially in support of education of girls and women), and so on. The role of the Ministry of Health in this endeavor may be largely one of advocacy, with policy coordination managed by a core agency such as finance or planning, or even the prime ministry. Currently it is a rarity in Africa for such coordinating agencies to be effective in this task.

- *A second step, therefore, in completing the agenda for better health in Africa is for all governments to formulate comprehensive health policies, including explicit goals, targets, and statements on how the enabling environment for health will be strengthened, including specific arrangements for monitoring and evaluating progress. In particular, such policies should be operationally relevant, and fully informed of the cooperation needed between the health sector and other sectors and programs. Finally, such policies should integrate international initiatives, such as the NPA process, the Bamako Initiative (Chapter 9), and the Three-Phase Scenario, and adapt them to local circumstances.*

Of the many factors that can make an immense difference to health outcomes — outside of individual behavior and economic growth — perhaps none is more important than a commitment to provide public goods and public health services known to have immense impacts on health. Such goods and services are those which people are unlikely to be motivated to provide on an individual basis, such as vector control, but which stand to benefit the community at large. Thus collective action is required by local or national governments to raise money and ensure that such goods are provided. Moreover, national and local governments are often the only institutions that are officially mandated to provide such services.

Public goods also have redistributive effects because they construe benefits beyond single individuals — to the wider community for example — and no one can be excluded from benefitting from them. Commitments to public health improvements are in keeping with cost-effective development strategies because (i) the public sector almost always has a comparative advantage in mobilizing resources and capturing scale economies in providing such goods and services, and (ii) such efforts promote equity through the redistributive effects of unrestricted access to public goods, irrespective of income level.

A challenge to health planners and policymakers is to assess current use of public funds to determine if they are being used cost-effectively and equitably to create an enabling environment for health and to finance public health services. Though data on the allocation of public expenditures tend to be limited, of poor quality, and irregular, available assessments suggest that inadequate targeting of public health expenditures is common throughout Africa. While this subject will be taken up more fully in chapter 9, expenditure patterns in Uganda tell the story. In 1990 and 1991, 63 percent of government health expenditures went to curative care, 20 percent on administration and training overhead, 6 percent on preventive care, and only 11 percent on other community services. Well over half of Uganda's public spending on health

was devoted to curative care of the ten major killers and causes of morbidity in Uganda, *despite the fact that most of this spending could have been avoided through other public action.* That is, it would have been far more cost-effective to allocate public funds to interventions aiming to control the underlying causes perpetuating Uganda's major killers — Malaria, ARI, Trauma, TB, Anemias, AIDS, Malnutrition, Meningitis, Diarrhoea, Tetanus — than to use the money to address symptoms.

• *A third step, therefore, in the agenda for better health in Africa is to allocate sufficient public funds to public health and community health activities, so as to gain greater control over the underlying causes of preventable diseases and, subsequently, to reduce curative spending on symptoms.*

Governments are also charged with promoting equity through assistance to low income households and the poor. This is important because failure to include disadvantaged groups in health care can result in negative externalities that will affect the community at large. For example, if the poor cannot afford to pay for immunizations, and if immunizations are not subsidized or required by law, then the control of communicable diseases may be undermined, threatening the community at large. Assistance to low income households is a particularly important policy issue in Africa given the prevalence of poverty, as well as a variety of economic and political conditions making for unstable incomes. The challenge facing health planners and policymakers is to subsidize, provide, or facilitate such assistance in as cost-effective a manner as possible, with a fraction of the resources available to more developed countries.

In addition, governments should play a central role in providing a wide variety of health information to consumers and providers of health care, and in promoting health education at all levels. Health education includes, for example, the health benefits of family planning, information on sexually transmitted diseases, the role of food preparation in better nutrition, and the role of sanitation and safe drinking water in preventing parasitic and infectious diseases. All indications are that education and communication programs on such themes — through radio for example — are most cost-effective, yet remain inaccessible to a large share of the African population.

• *Therefore, a fourth step in the agenda for better health in Africa is for governments to provide leadership in determining cost-effective approaches to health care, to stimulate the adoption of such approaches by public, private voluntary, and private providers of health care, and to assure that such approaches reach the poor.*

As a consequence of economic crisis in the late 1970's and throughout much of the 1980's, many African countries changed their economic policies. They adopted macroeconomic reforms intended to achieve price stability and sustainable internal and external monetary balance, and made institutional reforms to promote the efficient use of resources and faster economic growth. These changes typically involved changes in public spending, the opening of the economy to competition, liberalization of prices, measures to improve the efficiency of public expenditures, and the development of sounder financial systems and other institutions needed in a well-functioning market economy.

In support of these reforms, the World Bank and the International Monetary Fund have extended adjustment lending. The purpose of this lending is to cushion an economy during the transitional phase to its new growth path. Adjustment lending is therefore essentially an investment in a more productive future, and it has been central to the reforms in Sub-Saharan Africa. However, adjustment lending is also a subject of controversy, prompted by questions about its impact on the poor and whether cuts in public spending have jeopardized food security, education and health.

As these questions are taken up more fully in Chapter 9, it is noted here that adjustment lending has often contained "conditionalities" designed to protect investments in key social services. Moreover, as part of endeavors to promote human resource development and protect the poor during adjustment programs, some governments have actively redirected public expenditures away from less productive to more productive sectors of their economy. In Lesotho, for example, adjustment lending and austerity in some sectors has been accompanied by increases in public expenditures on health and education, both as a share of gross domestic product, and in real, per capita terms. Health and welfare received about 6 percent of total government expenditures in 1982/83, rising to about 10 percent in the early 1990's. Over the same period, education's share increased from about 15 to 20 percent. To achieve these impressive commitments, public expenditures on less productive sectors, namely military spending, have declined -- as a share of total government expenditures -- from about 24 percent in 1982/83 to about 10-12 percent during the early 1990's. These are particularly revealing trends, because even if total government revenues and *expenditure levels* fall, government retains complete control over how those expenditures are apportioned among competing social and economic sectors.

• *Therefore, a fifth step in the agenda for better health in Africa is for governments to restructure their health systems as part of the adjustment process, rather than in reaction to it. Restructuring should aim to weed out inefficiencies and inequities, and to foster the adoption of cost-effective health services which maximize the well-being of households and communities. With such changes in place, the extent to which current resources can most efficiently finance and/or provide health services can be better determined, and shortfalls defined.*

CHAPTER 3: IMPROVING HEALTH CARE SYSTEMS

Introduction

Effective use of health goods and services by households — as part of the response to the shock of illness — is what determines health. Yet, the success of households in preventing disease and suffering is heavily influenced by health care systems, and the extent to which they are operating efficiently, equitably, and sustainably. To expand coverage, systems of health care must provide preventive and curative care in greater proximity to where the majority of Africans live and work. To improve efficiency, they must provide services more cost-effectively. To promote equity, public resources for health must construe greater redistributive benefits for the poor. And, to ensure sustainable impacts on health, investments in individual health care must be complemented with multi-sectoral strategies emphasizing safe drinking water, sanitation, and other critical inputs.

Governments are concerned with improving cost-effectiveness because unconstrained markets can allocate health resources inefficiently and inequitably. Furthermore, governments may be the largest supplier of personal health services. In Nigeria, for example, the government health sector accounts for about 80 percent of health facilities and 70 percent of hospital bed capacity. On equity grounds, governments play an important role in subsidizing health care for the poor, and wish to do so at least cost. This is particularly important in peri-urban and rural areas given that private-for-profit providers tend to be concentrated in urban areas, serving relatively well-to-do clients. And, by lending support to more effective and inexpensive forms of health care, governments can provide signals to the private sector about preferred methods and proven approaches.

This chapter describes systems of health care as they are performing now, and identifies approaches to resolving lagging performance. This provides a perspective on what is missing and sets the stage for a major concern of this report — underpinnings of a cost-effective approach to health care, particularly applicable to low-income countries. Experience in several African countries suggests that household utilities are expanded and cost-effectiveness prevails when preventive and curative services are offered in the context of well-functioning health centers and first referral hospitals.

Specifics on pharmaceuticals, personnel, infrastructure, and administrative environments that affect the quantity and quality of public and private health services are taken up in chapters 4 to 7.

Past Performance

That systems of health care in Africa have helped households in their endeavor to reduce morbidity and mortality is not in question. The issue, rather, is that a great deal more remains to be done to expand household access to and use of basic services, increase efficiency, and reduce inequities. Consider the following:

- During the period of colonial rule, health programs in Africa stressed the control of endemic diseases, especially those transmitted by insect vectors or by fecal contamination. Health care services were developed principally for the benefit of European administrators and settlers, or were the by-product of missionary activities. A few elite Africans were invited from time to time to use the modern facilities established for outsiders. The French authorities made serious efforts to deal with vector-borne diseases through the use of control programs organized on a para-military basis. The British placed greater stress on controlling fecal contamination. Health education, immunization, screening of populations for latent diseases, and nutrition activities played only a small part in colonial health policies and programs. As a result, the health care systems inherited by African countries at independence were equipped to provide modern, individual health care services to only a small fraction of the population.

- Across Sub-Saharan Africa, UNICEF data suggest that for every ten people who can access health services in urban areas, only two or three have that possibility in rural areas (Africa's Children, Africa's Future 1992). When access is defined as being no more than an hour distant from a health facility by the local means of transportation, only 11 percent of the rural population in Sierra Leone have such access, 15 percent in Somalia, 25 percent in Rwanda, and 30 percent in Liberia and Madagascar. Some countries on the other hand have made a concerted effort to expand access by emphasizing primary health care and out-reach in rural areas. Access is 99 percent among rural areas in Mauritius, 85 percent in Botswana, 73 percent in Tanzania, and 70 percent in the Congo (Global Coalition for Africa 1993).

- In Togo and Uganda only one in five married women can obtain family planning advice at health centers or pharmacies within walking distance. In Angola only 27 percent of pregnant women have contact with health services, and only 16 percent are attended by a doctor, trained midwife, or trained traditional birth attendant. Conversely, close to 50 percent of rural women and 85 percent of urban women can obtain such services from health centers in Zimbabwe.

- Within countries, access to services tends to be highly unequal across administrative districts and between rural and urban areas. Among 23 states in Nigeria the prevalence of health facilities ranges from one per 200 people in Lagos State to one per 129,000 in Benue State, and 75 percent of the country's public and private health facilities are concentrated in urban areas, serving only 30 percent of the population (World Bank 1991c). In Angola the supply of hospital beds ranges from 3.9 per 10,000 people in the province of Malage, to 41.6 per 10,000 in Lunda Norte. In Kenya there is one doctor on average per 500 people in Nairobi, compared with one per 160,000 people in Turkana district. Peri-urban areas are also often underserved, especially squatter-type settlements which also lack basic water and sanitation services.

• Hospitals often utilize half or more of total national expenditures for the health sector, and commonly account for 50 to 80 percent of government recurrent health sector expenditures — for salaries, equipment, maintenance. In the mid-1980s, the share of hospitals in total public recurrent health expenditures was 74 percent in Lesotho, 70 percent in Somalia, 66 percent in Burundi, versus about 49 percent in Botswana and 54 percent in Zimbabwe (Barnum and Kutzin 1991). Hospitals also use a large proportion of the most highly trained health personnel. In Kenya 60 percent of the total number of physicians and 80 percent of the nursing officers are assigned to hospitals. (Bloom, Segall, and Thube 1986). The dominance of hospitals in the health system, the use of more expensive inputs in outpatient services, and more reliable supplies of drugs often means that hospitals compete with, rather than complement, primary care services (see Box 1).

Box 1. Three Good Reasons Why Primary Care Should Not be Provided in Hospitals

• Providing primary care at hospitals is uneconomical because treatment cost per illness is much more expensive than at a health center or dispensary. By some estimates it can be 10 to 25 times as much.

• Provision of primary care at a hospital distorts its functions, with many of the apparent shortcomings of hospitals linked to congested out-patient departments, and overworked laboratories performing hundreds of so-called routine tests.

• The pressure of primary care on hospital facilities also distorts health program development at the community level, because it fixes attention on the distressed hospital, creating the impression that further extension and development is required, when the real need is for many more effectively functioning health centers.

• Inpatient spending in hospitals tends to be on conditions that are preventable. These include malaria, tuberculosis, abortion, digestive ailments, ill-defined fevers, respiratory infections, and skin infections. Among the ten leading causes of admission to hospitals in Malawi and Nigeria, for example, parasitic and infectious diseases ranked first in the mid-1980s. On a conservative estimate, a third or more of hospital expenditures could be avoided if other health sector strategies that are more cost-effective — such as vector control, environmental health, and sanitation — were successful in reducing the incidence of infectious and parasitic diseases.

These are examples of the potential gains from more cost-effective allocations of public sector health expenditures and better resource management. In the poorly performing countries, health problems continue to be connected to the same infectious and parasitic diseases that for centuries have dominated health problems in Africa, let alone other world regions such as Asia. Emphasis on health programs that give children a healthy start in life, that address needs of women of childbearing ages, and that seek to expand access to quality care in rural areas and to residents of peri-urban slums must be a top priority.

Multi-Tiered Systems

Performance problems in the past can be partially traced to structural problems in the way health systems are organized. In many African countries, prevailing structures mirror existing administrative hierarchies. Village health posts, dispensaries, health centers, and provincial, regional, and national hospitals attempt to provide primary care services to the surrounding village, county, district, or province, while also serving as referral facilities for

patients from lower to higher levels. This structure can be viewed as a pyramid, its logic being to concentrate the supply of services in places where they are in demand and most cost-effective. This means that the base, or the broadest part of the pyramid, such as a village health post, is where the most frequently occurring health problems are supposed to be treated least expensively. At the top of the pyramid, such as a national hospital, the rarest and most expensive conditions are supposed to be treated.

Structuring health services along administrative lines and in terms of the hierarchy above has not worked as intended, however. Public resources have not been allocated to allow least-cost health services to address the majority of health needs, and household members tend to ignore administrative levels when seeking the best possible care (Mwabu 1989). Nor have private providers or private voluntary organizations filled gaps. For profit reasons, private clinics and hospitals tend to concentrate in urban areas, serving more well-to-do clients. Private voluntary organizations, such as mission hospitals and clinics, tend to be effective where they are located but represent only 5 to 10 percent of health expenditures in most countries (see Chapter 8).

Quality of care has been undermined in rural and peri-urban areas as a result, often visible in shortages of qualified health workers, lack of essential supplies, unreliable information, and limited numbers of functioning health facilities. In some cases, primary health facilities are over-staffed and under-utilized; in some rural health centers in Tanzania for example, twenty health workers are available to treat three patients daily that have been referred by dispensaries, whereas other communities remain deprived of basic health services (World Bank 1989g). Even as public providers face budget crises, it is not uncommon for expensive brand-name drugs to be supplied to a limited number of health facilities when generic drugs could be procured at one-quarter to one-half the cost (see Chapter 4) A lack of standards in facilities and procedures complicates matters. As a result of laissez-faire building standards, basic health facilities in Sahelian countries, for example, range anywhere from 46 to 1734 m^2 in floor space, thus contributing to uneven infrastructure across communities (Abeillé 1991).

Clients often bypass poorly functioning health facilities and intermediate referral levels to seek quality care at full-fledged hospitals (Bocar Dem 1989). Over-qualified staff and expensive infrastructure are therefore used in ways that place hospitals in direct competition with primary care facilities whose mandate is to provide such care at far lower cost. Most hospitals in Sub-Saharan Africa are now providing primary care services such as vaccination, growth monitoring, and ante-natal care services (Van Lerberghe, Van Balen, and Kegels 1989). While the technical quality of the primary care provided by the hospitals may be quite good, it comes at a high cost. It should not be necessary for a pregnant woman to travel for hours to seek pre-natal care, nor to trek with her child for a vaccination by harried and over-burdened doctors. In addition to longer travel and waiting times at hospitals, clients are deprived of personal attention and follow-up that can be provided by a local health center.

Performance of Central Hospitals

Central or tertiary level hospitals are at the top of the referral pyramid in most African countries. Often, but not exclusively, they are associated with a medical school, and offer

clinical services highly differentiated by function, technical capacity, and skills, including for example cardiology and specialized imaging units. Depending on the population to be covered, the number of beds ranges from 300 to more than 1,500.

The greater case mix complexity and more intensive input use of higher level hospitals commonly translates into much higher operating costs per unit than at lower levels of the referral hierarchy. However, the extent to which resources are concentrated in central level hospitals often goes beyond that which might be justified in order to fulfill their tertiary functions (Barnum and Kutzin 1991). In Zambia, for instance, the three large central hospitals used 30 percent of Ministry of Health resources and an estimated 45 percent of total MOH hospital resources in the 1980s, leaving the remaining 55 percent to cover 39 lower level hospitals. In Kenya the Kenyatta National Hospital used almost 20 percent of recurrent MOH hospital expenditures in 1986-87, while provincial hospitals used another 24 percent. In Zimbabwe 45 percent of MOH recurrent hospital expenditure was for four central hospitals.

As routinely applied, services in upper level hospitals are less cost effective in reducing mortality or morbidity than alternative uses of health sector resources described above. Ghana provides an example of an epidemiological environment typical of many low income and high mortality African countries. The leading causes of morbidity are upper respiratory illness, diarrhoea, and parasitic diseases and accidents. The leading causes of mortality are vaccine-preventable diseases, respiratory diseases, malnutrition, diarrhoea, and accidents. With the exception of accidents, hospitals in general, let alone central hospitals, do not play a dominant role in reducing lost years of life from these causes (Barnum and Kutzin 1991). Rather, by eating up large shares of public resources, central hospitals compete for resources from district level hospitals, undermining service quality and impeding the function of district hospitals as the institution of choice for first referral.

Central and teaching hospitals also tend to be located in cities and metropolitan areas. Even when they are intended to provide a tertiary referral service for a broad population base, they actually serve a disproportionately urban clientele for primary and first-referral care. And because the urban populations generally have higher incomes than those living in rural areas, the location of most central and teaching hospitals has implications for income and geographical equity in access to health services. Surveys of patients at Niamey National Hospital in Niger, for example, showed that inpatients had a median income that was comparable or slightly higher than other urban residents, who in turn, had higher incomes than rural residents. Outpatients also had a higher median income than inpatients (Weaver and others 1990).

Concentration of resources at the central level, with benefits disproportionately going to higher income households, is at odds with the priority objective of providing equitable and cost-effective basic health care, because even minimal preventive and curative services are not available to the majority of the population. Basic health coverage in urban areas is also undermined because overcrowded outpatient departments in large tertiary-care hospitals cannot develop the patient-provider relationship essential for primary care. This does *not* mean that central hospitals should be ignored. They have a special role to play in treating cases that require specialized or high-tech medical procedures, where systems of health care already respond to social needs and financial possibilities, and are affordable to the country. The

challenge is to get the referral system working right so as to free up central hospitals and to allocate public financial resources more efficiently.

Record of Primary Health Care Strategies

Generating political consensus on primary health care (PHC) is one matter, implementation is another. The 1978 Alma Ata Declaration put community participation at the center of PHC. However, ensuing attempts to implement PHC spotlighted "selective PHC strategies" and Village Health Workers, and tended to ignore the wider socio-economic and cultural issues which impinge on the health of men and women. In most countries, neither strategy convinced policy-makers to shift resources away from central hospitals towards primary care. Rather, selective programs were developed with the support of donors and the promulgation of ambitious international goals.

Selective Primary Health Care

In the past, selective PHC strategies have focussed on specific health problems, such as immunization, tuberculosis, and AIDS control and family planning. By narrowing the range of activities involved, as well as assuring funds to reach specific health targets, these strategies were able to harness all possible means — including mobile teams — to provide quality care and to stimulate use of the specific interventions through social mobilization. Coined vertical programs, these initiatives have appeared to perform well, particularly in the eradication of smallpox. They also appear to be cost-effective when "crisis management" has been necessary to ward off epidemics or deal with emergencies.

However, there are limitations in being selective. As African countries complied with donor initiatives to launch these technocratic strategies, vertical administrative entities developed parallel to existing health systems, bypassing instead of contributing to national capacity building both within health care systems and in community development. With little coordination between vertical programs in the same country or region, and with little integration with the rest of the health care system, the impact of selective interventions has been disappointing (see Table I). Reviews of programs in Burkina Faso, Mali, Niger, and Central African Republic have uncovered a plethora of problems, such as:

- District health teams have had up to ten coordinators, each supervising health personnel and reporting to discrete program hierarchies linked to the central level, when one or two supervisors could monitor the same programs just as well.

- Parallel distribution systems exist in some countries for sending AIDS screening kits and EPI vaccines to the ultimate user. As an extreme case, Zaire's national family planning program was artificially divided and executed by two agencies (the Comité National des Naissances Désirables and the Projet des Services de Naissances Désirables), at the cost of competition that did little to increase contraceptive prevalence rates in the country.

- As selective PHC strategies attract a disproportionate amount of resources from both donors and governments, other causes of mortality and morbidity, such as sexually-transmitted

Table I. Single Purpose Interventions: A Review of Studies in Africa

Study design	*Intervention*	*Conclusion*
Longitudinal with control group	Measles vaccination (Kasongo, Zaire: Kasongo Project Team 1981)	Reduction in measles deaths partly wiped out by delayed excess mortality from other causes in vaccinated group;
Before/after	Oral rehydration (Several studies: Black, R. 1984)	Impact on under five mortality lower than expected from reduction of diarrhoea deaths;
Time series	Community based nutrition (Iringa, Tanzania: JNSP 1988)	Under five mortality gains reversed due to malaria;
Before/after	Malaria control and measles vaccination (Saradidi, Kenya: Kaseje and others 1989)	Reduction in under five mortality attributed to measles vaccination, not malaria control;
Before/after	Measles vaccination (Mvumi, Tanzania: Matamora 1989)	Impact on under five mortality wiped out by malaria;

Source: Knippenberg, Ofosu-Amaah, and Parker 1991.

diseases have been largely ignored. Exceptions include Zimbabwe, Senegal, and Zambia. A striking effect is to find up to 15 percent of women suffering from untreated syphilis in the same areas where vertical programs have been active, thus creating a particularly receptive terrain for HIV. Although vertical programs may seem to address selected health issues more efficiently, the health care system has been fragmented as a result.

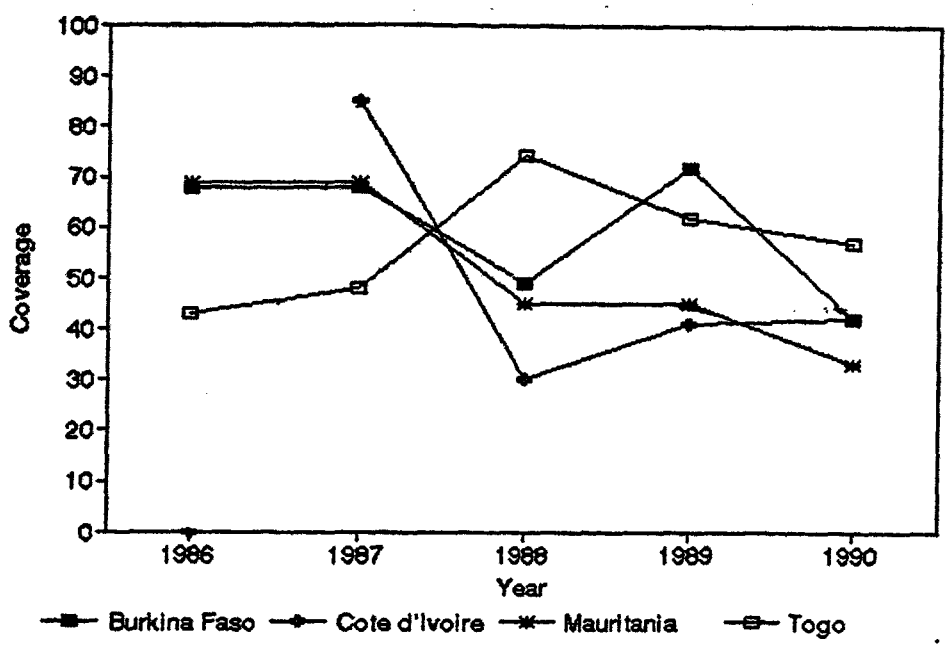
- Routine health services can be disrupted and national capacity undermined when vertical programs train or support health specialists, luring them temporarily or permanently away from national health systems.

On a more positive note, selective PHC programs have enjoyed positive and robust results in situations where health centers and under five clinics offer integrated child care. High levels of immunization have been sustained and significant reductions in infant and child mortality rates achieved by integrating maternal and child health care services in health facilities in Guinea and Benin.

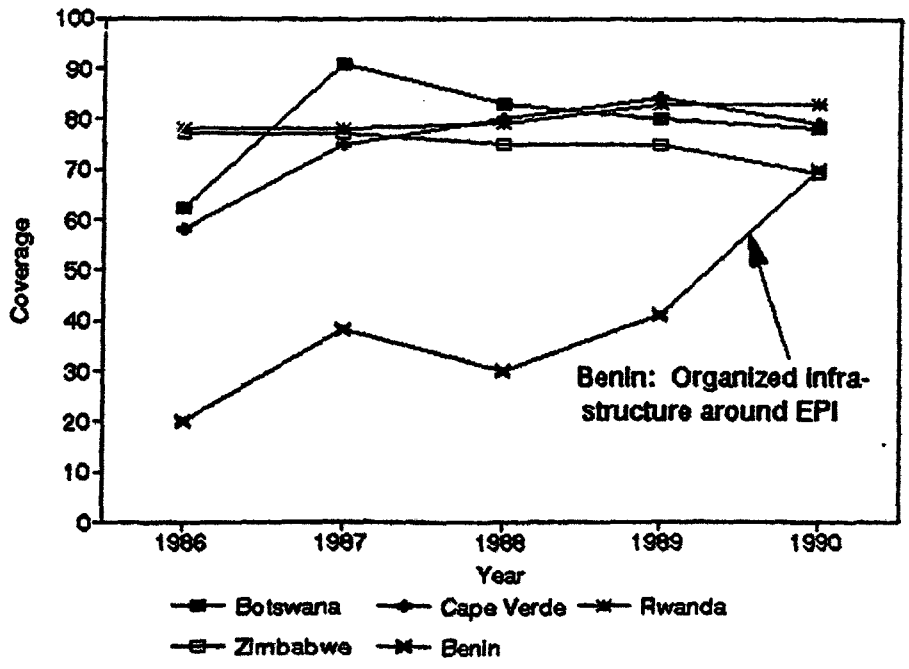
The experience with selective PHC strategies leads to a striking finding, perhaps best illustrated with respect to child care and immunization. A child born after a mobile team comes to its community to vaccinate against immunizable diseases might wait another six months to be immunized, or may die from another disease in the meantime, instead of being taken by its mother to a health facility offering vaccinations. Hence nation-wide social mobilization efforts in Togo, Senegal, Ivory Coast and the Congo (UNICEF) increased coverage only temporarily where EPI was not integrated into the daily responsibilities of functioning health center networks (See Figure 1, Part A). In contrast, high levels of immunization coverage have been sustained, and significant reductions in infant and child mortality achieved when maternal and child health services have been integrated in health facilities in Zimbabwe (Cornia, Jolly, and Stewart 1987), Botswana and Cape Verde (UNICEF 1990a). In Benin strategies of simultaneously improving health service and immunization coverage have led to a steady and sustained increase in Expanded Programme of Immunization (EPI) coverage (see Figure 1, Part B).

Figure 1: Performance of EPI Under Different Conditions

Part A: EPI THROUGH CAMPAIGN AND/OR MOBILE STRATEGIES



Part B: EPI THROUGH STRONG NETWORK OF HEALTH CENTERS



Unfortunately, the resources wasted in funding selective PHC programs stand out sharply when compared with the lack of resources for strengthening the health system as a whole. The challenge facing health planners and policymakers is to channel resources for specific health interventions in such a way as to strengthen rather than fragment health systems and to contribute to capacity building for sustainable health outcomes.

Village Health Workers

Another approach to PHC features networks of village or community health workers (VHW or CHW). These have been modelled on the success of Chinese barefoot doctors and local-level initiatives in countries such as Niger, which helped to expand access to health care and combat inequalities. VHW programs aimed to correct the mismatch between the care sought by households and services that health care systems were providing by *extending* modern health care beyond hospitals and health centers. CHW programs were principally intended to be catalysts for community development and a more holistic approach to health.

CHW programs have performed relatively well when their role as liaisons between the community and the health care system is clear, and when they receive support from the system, particularly from reliable and viable health centers. This has been the case in Lesotho, where over 4,000 trained village health workers are supported by local development councils, in Zimbabwe where over 6,000 CHWs receive stipends as general development workers from the Ministry of Community and Cooperative Development; and in Zaire, where CHWs are citizens selected by their respective communities to liaise with the health establishment whenever necessary — they are not necessarily remunerated financially (Reynders and others 1992). The contribution of VHW or CHW workers to community involvement in the planning and management of health services has also been documented in Saradidi and Tenwek (Kenya), Mvumi (Tanzania), North Kivu (Zaire), and in northwestern Somalia (Lamboray and others 1991; Leneman 1986, p. 4; Vaughn, Mills, and Smith 1984). Working as part of the health care system, they have also filled gaps by servicing households and communities that would otherwise lack access to care for geographic or financial reasons.

Conversely, VHW and CHW programs have not worked well when links to the health system and communities have been weak or poorly established. In Burkina Faso, Gambia, Ghana, Niger, and Tanzania, CHWs were trained on a massive scale to be the principal vehicle for PHC implementation in the 1980s. With limited training, and nebulous links to the formal system of health care, these CHWs were forced to rely on support and supervision by a cadre of specialized coordinators, often organized by NGOs and externally-funded projects. The contribution of CHW to efficient, equitable, and sustainable health care in Africa has been blunted by lack of constant support and supervision (Sauerborn and others 1989; Walt 1988; Walt, Perera, and Heggenhougen 1989).

Table 2 summarizes findings of a number of studies on the performance of VHW and CHW programs, revealing that their performance has been mixed, sometimes poor. When they work in isolation rather than as an extension of the health system, CHW throughout Africa have been bypassed as households go to consult the first level of formal health care. Their presence may even delay necessary access to professional care rather than deterring unnecessary

Table II. Reviews of Village Health Worker (VHW) and Community Health Worker (CHW) Programs

Country	*Method*	*Findings*
Africa	Review of 1000 publications (Ofosu-Amaah 1983)	Problems in all aspects of the functioning of VHWs (tasks, selection, recruitment, training, remuneration, and most seriously in their support);
West African Countries	Desk Review (Varkevisse 1983)	Same observations;
Senegal and West African Countries	Case Studies (Senghor 1983)	Same observations; questioned relevance and sustainability;
Tanzania	Multiplicity of methods was used to gather information on the acceptability, quality, and cost of the CHW program (Heggengougen and others 1987)	Below a certain level of support, the quality of community-based health services is very questionable;
Niger	Systems analysis combined questionnaires from VHWs, mothers, supervisors, and community representatives; structured observations of service delivery and support activities; and focus group discussions with villagers (PRICOR 1989)	Training of over 13,000 VHW provided additional access to PHC in 45 percent of the villages of Niger, but low quality of care was linked to weak support;
Burkina Faso	Representative household survey on MCH utilization was carried out (Nougtara 1989)	Presence of village health posts did not increase utilization of MCH care;
Gambia	Mortality surveys to assess the impact of a TBA program on maternal mortality (Lamb and others 1984)	No impact of TBAs on maternal mortality;
Ghana	Study of community clinic attendants (VHWs) in nine out of the ten regions of the country (Ofosu-Amaah 1990)	Problems related to the selection, training, abuse of functions, lack of remuneration, shortage of drugs, and supervision; the program generally failed to achieve its objectives;

Source: Knippenberg, Ofosu-Amaah, and Parker 1991.

consultations. The high attrition rates, exacerbated by dwindling donor support for vertical CHW programs, call for a reexamination of their role within each country's national health care system before more resources are used in this direction.

What is Missing?

The reality in many African countries is that systems of health care are not providing cost-effective health services to households in ways that can make the greatest impact on major causes of illness and death. Health care tends to be multi-tiered, with fewest resources and poorest quality care available at village health posts, dispensaries, and health centers — precisely where the majority of Africans live. Poorly trained personnel and insufficient supplies among several of the bottom tiers — a problem of spreading resources too thinly — prompts residents at the community level to by-pass lower levels to seek primary care from intermediate-level facilities and hospitals. As a result, personnel and facilities most appropriate for curative care

tend to be mis-used to provide primary and first referral care at higher cost. For households, this means low confidence in the health system, and barely marginal improvements in health at the community level. For governments, it means that a large share of public expenditures on health are wasted. And for private providers it means dealing with a vast number of unmet needs with little effective guidance, assistance, or competition from the public sector.

Chronic shortages of drugs within health facilities as well as uninformed use by households are major bottlenecks to improving health care in Africa. As documented in Chapter 4, shortages of appropriate drugs tend to plague public sector health facilities. Prevailing drug selection, procurement, distribution, and utilization practices have also undermined access to priority drugs. For example, in Nigeria, ineffectual and even dangerous drugs abound and are unwittingly procured. Branded rather than less expensive generic drugs are procured, and some local governments pay up to six times international prices as drugs are often purchased locally in small quantities instead of in bulk through open international tender. Furthermore, many drugs are damaged after purchase by faulty storage practices or disappear due to inadequate stock control procedures (World Bank 1991c).

Problems in the maintenance of equipment, logistical support, and supervision further contribute to inefficiencies because public sector health workers can neither implement what they are trained to do, nor can they exercise control over the situation (see Chapters 5 and 6). Also lacking are procedures or management information systems to monitor and evaluate the quality of health care, and to assure that providers are accountable to clients. The same applies to national standards and yardsticks needed to permit comparison of problems and progress in resolving them across communities, districts, and countries (Smith and Bryant 1988; Pangu 1988). Thus, it is difficult for anyone to know whether a particular health system is having a discernible impact on the major health problems in African countries, especially in poor rural and urban areas.

That the first referral hospital is a vital element of a well-functioning health care system seems obvious. Yet, policymakers behaved as if district hospitals did not exist or were irrelevant in the aftermath of Alma Ata. Small, first-referral hospitals are only now being dusted off, after hospitals in general fell into disrepute with PHC-conscious donor agencies during the late 1970s. The Tanzanian Essential Drugs Programme, for example, provided donor-funded drug kits to dispensaries in the rural areas, but not to hospitals. PHC policies have done less to divert public resources away from major urban and teaching hospitals than they have to weaken the resource base of peripheral district and rural hospitals. Small referral hospitals need to be strengthened and organized to complement primary health facilities at costs lower than that of central and national hospitals.

Finally, if improvements in health care are to have sustainable impacts on health outcomes, they must be complemented by multi-sectoral inputs such as safe drinking water, sanitation, and health education. Far too often such inputs are treated as being outside the traditional purview of ministries of health, the responsibility of other agencies. It is at the household and community level where opportunities present themselves to merge these complementary approaches. Africans are organized into hundreds of thousands of communities, often tight-knit with common bonds of kinship, language, and traditional homeland. It is at this

level of population aggregation that collective action can mobilize resources and capture scale-economies in the provision of critical services.

Underpinnings of a Cost-Effective Approach

Reacting to the problems above, a case can be made that a well-functioning health facility, together with the support of a first referral hospital, could provide a mix of health care services responsive to up to 98 percent of local health care needs. Based on experience in a number of African countries, the most fundamental element of such an approach is a flexible, cost-effective package of basic services that can be delivered right down to the community level. Three components of such a *package* are reviewed here. The first is a basic set of health care inputs. The second is a battery of supporting services which aim to insure that households make most effective use of such inputs. The third component comprises multi-sectoral inputs to better health, as discussed in Chapter 2.

The basic services emphasized in this report, and particularly the evidence supporting their cost-effectiveness, pertains largely to countries that have as yet to pass through what is coming to be labelled the health transition. This means a shift in the demographic and epidemiological make-up of a country from a pre-transition environment dominated by high fertility, high mortality, infectious disease, and malnutrition to a low mortality, low fertility environment with a disease profile that increasingly emphasizes non-communicable conditions of adults and the elderly. It is also true, however, that some population groups within individual African countries, particularly among the elite, have entered or passed the health transition, and that the idea of a basic service package can apply to all countries and populations. As will be demonstrated in Chapter 8, both the content and the cost of a basic package will vary according to a country's epidemiological profile, social priorities, and income levels.

A number of public health interventions have been documented to be particularly cost-effective, and include health and nutritional education aimed at personal behavior change; control of environmental hazards; immunization; and screening and referral, for example, of selected infectious diseases and high risk pregnancies. A review of disease control priorities in developing countries includes among the most cost-effective interventions the following; breastfeeding promotion, DPT plus polio immunization; measles immunization; smoking prevention; pneumococcal vaccine; antibiotic treatment of acute respiratory infection in children; and supporting therapy, including vitamin A (see Box 2).

Health facilities featuring cost-effective services may be publicly operated, private-for-profit, or private voluntary organizations, such as mission facilities. When they function well, they respond to local health and economic conditions by "bundling" services into basic care packages. Moreover, this study emphasizes the delivery of these services in contexts where they can be applied correctly — namely in well-functioning health centers — thus providing another rationale for cost-effectiveness to be sustained if not increased.

Basic packages of care can be flexible insofar as specific activities may change over time to adapt to the evolving epidemiology, as well as changing resource availability. For example, oral rehydration therapy (ORT) has been strongly promoted in well functioning health centers,

Box 2. Cost-Effective Health Interventions

The cost-effectiveness of many of the health interventions recommended in this study has been substantiated in the World Bank's 1993 World Development Report, *Investing in Health*. Given a common currency for measuring cost, and a unit for measuring health effects, the 1993 World Development Report compares the costs required for different interventions to achieve one additional year of healthy life. Outcomes are expressed in terms of disability-adjusted life years (DALY's). The ratio of cost and effect, or the unit cost of a DALY, is called the cost-effectiveness of the intervention. The lower the unit cost to gain one DALY, the greater the value for money offered by the intervention.

Only a small share of the thousands of known medical procedures has been assessed using the cost-effectiveness criteria described above, but the approximately fifty studied would be able to deal with more than half the world's disease burden. Just implementing the twenty most cost-effective interventions could eliminate more than 40 percent of the total burden and fully three-quarters of the health loss among children.

Several public health activities stand out as being particularly cost-effective: the cost of gaining one DALY can be remarkably low — sometimes less than $25 and often between $50 and $150. Activities in this category include immunizations; school based health services; information and selected services for family planning; programs to reduce tobacco and alcohol consumption; regulatory action, information, and limited public investments to improve household environment; and AIDS prevention.

Though the cost-effectiveness of clinical services will vary from country to country, depending on local health needs and the level of income, five groups of interventions are highly cost-effective and address very large disease burdens. These include services to ensure pregnancy-related care (prenatal, childbirth, and postpartum); family planning services; control of sexually transmitted diseases; tuberculosis control; control of STD's; and care for the common serious illnesses of children — diarrheal disease, acute respiratory infection, measles, malaria, and acute malnutrition. These interventions form the core of the package of health care services recommended in this study.

Source: World Bank. 1993e.

as a low-cost technology to manage cases of diarrhoea. As the incidence of diarrhoea decreases, however — more people learn to use ORT at home or clean drinking water becomes more accessible — health workers would spend less time on treatment and more on prevention. As coverage rates for immunization increase — through sustained understanding and demand by the population — vaccination would continue to be important though its place in the health worker's daily caseload would be reduced.

To combat frequently occurring illnesses and health conditions, such as malaria, hypertension, diarrhoea, diabetes, respiratory infections, measles, asthma, polio, STDs and malnutrition, a basic package of health care inputs also includes a regular supply of essential drugs. As far as households are concerned, the availability of sound medicines is one of the most important and immediately visible symbols of quality care.

Making drugs, contraceptives and vaccines more available to the community is only one dimension of better health, however. These inputs need *supporting services* to insure that people are diagnosed correctly, that providers prescribe or apply the service correctly, and that clients using the service do so correctly. While these underpinnings of cost-effectiveness may sound obvious, problems of diagnosis, prescription, and use are sufficiently prevalent in Africa that

effectiveness of potentially good solutions can be reduced by up to 50 percent (see Box 3).

Bringing these services together in well-functioning health facilities can benefit households in a number of important ways:

- *Comprehensive care.* This means that the health care provider not only examines the symptoms, but also endeavors to consider the underlying causes or the broader social context. For example, a battered child receives more than a pain killer or a cast for a broken leg — his family situation is of concern to the health care provider as well. Not only are vitamin supplements provided for the child suffering from micro-nutrient deficiencies — the health care provider takes stock of what the child is being fed.

- *Continuity of care.* The health care provider interacts with household members as long as necessary to have an impact on health status. A tuberculosis patient, for example, will not only receive a prescription, but is asked to discuss her work and family situation so that an appropriate treatment program can be scheduled. If she stops treatment prematurely, the health service will try to reestablish contact by visiting the home or contacting other members of the household. Continuity of care also implies that community health workers and health care providers channel support to households who are not using the essential package of care at opportune times. For example, children less than one year old are identified during home visits, as has been practiced in well-functioning health facilities in Danfa, Ghana (Ofosu-Amaah and others), Zaire (Niimi 1991), Pahou, Benin (Alihonou and others 1988), and Nigeria (Ransome-Kuti 1990).

- *Integrated care.* By moving from project-based to program-based approaches, the health care provider performs several tasks simultaneously, cognizant of the household's time constraints and cultural background. The provider may link preventive and curative care so that a pregnant woman who is feverish from malaria will have an antenatal consultation before going home. Her children's immunization records will be checked at the same time, so that a vaccination can be given if necessary. In Kenya integrated care resulted in increased use of under five clinics, less consultations, a more balanced use of health staff, a reduction in unmet

Box 3. Comparative Advantages of Health Centers

Most health problems, ranging from common illness to measles, malnutrition, tuberculosis, or sexually transmitted diseases can be treated with the technology and competence available to well-functioning health centers. And in 80 to 90 percent of preventive work and for most curative cases, the health center can outperform hospitals in terms of continuity, comprehensiveness, integration, and cost of care.

The small scale of the health center also favors integration of various programs. Major gains in vaccination coverage or family planning can be made when the health center staff consults a sick child's growth monitoring chart and vaccination record. Conversely, at a hospital, out-patient care is a service separate from vaccination, growth monitoring, or family planning.

Over-prescription is also less common in health centers than hospitals. In Ghana, for example, a study found that the average cost of drugs per person, per episode was $.20 at hospitals versus $.07 at health centers, with the lower costs explained by less sophisticated prescription and better management of drug stocks (Hogerzeil 1986).

The health center's comparative advantage lies in its accessibility and potential for communication with the community. Its scale of operations permits nurses to become acquainted with the households and their social environment, thus preventing drop-out and greater ease of reestablishing contact if the patient stops treatment. The small-scale of the health center cannot guarantee greater interpersonal communication and empathy towards clients, but it makes it possible.

demand (such as women with an illness needing antenatal care or vice versa), and a striking increase in immunization rates (Dissevelt 1976).

Health Centers Can Make The Difference

As a concept the health center has been around at least since the 1960s (Fendall 1963; King 1966; Roemer 1972). During the 1970s and 1980s, health centers with community outreach began to appear in Africa, launched with donor assistance in Danfa (Ghana), Pahou (Benin), Machakos (Kenya), Pikine (Senegal), Kasongo (Zaire), Kinshasa, and Lagos. As part of an evolutionary process to make health centers more effective, planners have developed methods to tackle problems of accessibility (Van Lerberghe, Pangu and Vandenbroek 1988), acceptability, intensity and compliance of use, quality of care (Kasongo Project Team 1982), recurrent costs (Pangu and others 1988), and community ownership (Jacobson 1989; Kaseje and others 1989; Matamora 1989).

In several African countries the health center (sometimes known as health post or dispensary) is a recognized physical entity at the hub of community life and is *the first level of contact with the formal health care system.* Community participation, and especially the participation of women, in deciding the location and operation of health centers is critical to their success. By serving communities of 5,000 to 15,000 people, health centers are in a position to justify a critical mass of personnel and services, thus providing a strong underpinning of cost-effective health care. This is one reason why selective PHC and VHW experiences were most successful in the context of well-functioning health centers. Health centers have also gained attention because they have performed more effectively, and at less cost, than hospitals in providing primary health care (see Box 4).

Box 4. Prototypical Health Center

Demographic Profile of Community Served:

Total Population	= 10,000
Children < 1 year (4% of the pop.)	= 400
Women 15 to 49 years (20% of the pop.)	= 2,000
Children < 15 years (50% of the pop.)	= 5,000

PACKAGE OF CARE AND SERVICES PROVIDED:

Maternal Services
- Pre-delivery care, delivery care and post-delivery care
- Breastfeeding IEC
- Micronutrient Supplements (iodine for pregnant women)
- Supplementary Feeding (pregnant/lactating women)

Well-Baby Services
- Expanded Program of Immunization (EPI)
- Micronutrient Supplements (iron, iodine, and Vitamin A)
- Nutritional Rehabilitation (children aged 0-5)
- Supplementary Feeding Programs (children aged 0-2)

School Health
- Anti-helminthic treatment (children aged 5-14)
- Vitamin A + iodine, as required

Curative Care (especially children 0-5)
- Basic Trauma
- Malaria
- Diarrhoea
- Other local infections

Limited Chronic Care
- TB treatment

STDs and AIDS
- STD testing, treatment and IEC
- AIDS prevention (provision of condoms and IEC for high-risk groups)

Family Planning
- Family planning IEC
- Provision of contraceptives

STAFF PROFILE
- doctor on visiting basis from District Health Management Team
- 1 registered nurse; 2 assistant nurses/midwives, 1 community service (FP/Nutrition) assistant; 1 clerk

INFRASTRUCTURE PROFILE
- 1 building (approximately 125m^2,includes sanitation facilities); 1 housing unit for staff
- 2 bicycles, 1 refrigerator and other medical and office equipment

Note: IEC includes ongoing dialogue during consultation and outreach visits to villages and groups served by the health center.
Source: Adapted from World Bank 1993a.

An essential precondition for well-functioning health centers is that the communities they serve be well-defined. For example, when a given health center is serving 10,000 people, the staff can estimate that about 400 children are likely to be born per year. To meet objectives of universal immunization, the planning of EPI activities can therefore be based on roughly 35 new children a month. When district-based health systems are in place, health centers can obtain information useful for patient management. Though largely ignored for such purposes in national health systems, household files can be used by health center nurses to contact individual households, to profile the community to be served, even in urban areas where geographical boundaries are more fluid, and to provide measures of health impact and promotion within the district.

Nutrition services targeted towards severely malnourished children, as well as feeding programs for pre-school children, pregnant women, and lactating mothers can also be organized effectively at the health center and community level. Information available to this study suggest nutritional services of this kind can be provided for about $1.32 per capita (Yusuf 1993a).

Health centers are also in a position to generate their own information on community coverage and utilization. When combined with in-house assessments of staff workload and costs, a balance can be established to assure reliability, accuracy, and affordability of services (Imboden 1980, Dc Sweemer 1982, Jagdish 1985, King 1984). For example, a low-cost health management information system (MIS) in Zaire has been developed to trigger timely management decisions and actions by health centers and communities (Beza and others 1986). In Guinea and Benin, the entire MIS was revamped and simplified so that health center staff could use it for integrating and managing their own services. Forms, files, and registers were redesigned to first serve supervisors and local monitoring needs (including feedback to communities), and secondly for reporting purposes to provincial and national level (Knippenberg and others 1990). Although registering the information (such as on patients, children, drugs, and receipts) and performing periodic analysis are time-consuming, most health center staff consider this an important responsibility, and do not suggest a reduction of the quantity of forms and files (MSP Benin 1990, MSPAS Guinea 1990).

Any attempt to generalize characteristics of well-functioning health centers must, of course, be wary of different conditions, resources, and needs between and within countries. At the same time, however, it is helpful to visualize what may be involved, especially in view of the renewed attention to criteria of well-functioning health centers in Africa. A prototypical health center is therefore depicted in Box 4, in terms of demographics of the community serviced, package of care and services provided, staff profile, and infrastructure.

First Referral Hospital

Well-functioning health centers require back-up for more complicated health problems, typically by a district hospital. Working together, these two tiers have demonstrated their capacity to provide comprehensive and effective care to the communities they serve (WHO 1992; Hamel and Janssen 1988; Van Lerberghe, Van Balen, and Kegels 1989; Barnum and Kutzin 1992; Mills 1990; Van Lerberghe and Lafort 1991). In Kasongo (Zaire), for example, the health center network that provides comprehensive primary care clearly reduces hospitalization

rates. Hospital admission rates of rural dwellers were 50 percent lower in areas with health centers than in areas without. Treatment for illnesses, targeted in the past by selective programs, such as measles, tetanus, and diarrhoea, dropped by 86 percent when health centers were in place providing, for example, vaccination, ORT, chloroquine, as well as general outpatient care for amoebiasis, skin diseases, and accidents. Conversely, patients who really needed hospitalization, for example, for cesarean section, benefitted from easier access to hospital care within functioning networks (Van Lerberghe and Pangu 1988).

First referral hospitals also provide a package of services. Judging from the performance of a number of rural hospitals in central Africa, three to four physicians, and sometimes a surgeon, are providing the following services at an affordable cost and with reasonable technical quality:

Outpatient Care: Doctors treat emergencies and patients referred from health centers. A nurse may provide the package of care similar to the health center, but it would carry a high consultation fee so as to discourage patients from bypassing the first line facility.

Box 5. Prototypical First Referral Hospital

Demographic Profile of Community to be Served:

Inhabitants served by 15 health ctrs.	= 150,000
Children < 1 year (4% of the pop.)	= 6,000
Women 15 to 49 (20% of the pop.)	= 30,000
Children <15 years (50% of the pop.)	= 75,000

PACKAGE OF CARE AND SERVICES OFFERED:

In-patient Care
- Obstetrics and Gynecology
- Pediatrics
- Medicine: Infectious Diseases
- Medicine: Limited Surgery

Out-patient Care
- Emergencies
- Referred patients

Other services
- Basic laboratory
- Blood bank

STAFF PROFILE:
- 3 medical doctors; 10 registered nurses; 25 assistant nurses/midwives; 3 medical technicians
- 2 management staff (incl. accountant)
- 15 support staff (inc. driver); 2 clerks

INFRASTRUCTURE PROFILE
- 1 building (approximately 4,000m²/140 beds)
- 3 vehicles (including 2 ambulances)
- Cold storage facilities
- Medical equipment
- Other equipment (including beds, furniture, etc.)

Source: Adapted from World Bank 1993a.

Inpatient Care: Wards for pediatrics, medicine, surgery and orthopedics, gynecology, and obstetrics are provided.

Laboratory Services: These services include blood microscopy, direct examination of cerebro-spinal fluid, urine and faeces tests, vaginal smears, HIV serology, and blood grouping. The hospital produces its own intravenous fluids, has a blood bank, and performs blood transfusions. Also important is the quality control of microscopy at the health center, primarily for the detection of tuberculosis.

Radiography and fluoroscopy of extremities, skull, chest, stomach, and bowel.

There is of course great variation in district size, infrastructure, and personnel, both within and between countries. Based on the median of two surveys of 89 and 40 hospitals, and average figures from official sources, a typical rural district hospital serves 110,000 to 160,000 inhabitants, with 140 beds, 3 physicians, and 10 peripheral units in its district. It conducts about 1000 deliveries and hospitalizes 4,000 to 5,000 patients per year on average. This varies from

as little as 30 to 40 beds in Mozambique, for example, and catchment areas of tens of thousands, as in Lesotho, to hundreds of thousands, as in Ethiopia or Tanzania (Van Lerberghe, Van Balen, and Kegels 1989; Hamel and Janssen 1988). More important than the number of beds or staff size is that the first referral hospital functions at full capacity and is neither under-used (by-passed) or over-crowded (in competition with health centers). A prototypical first referral hospital is depicted in Box 5, again with the caveat that its community profile, services, staffing, and infrastructure are at best indicative.

How Central Hospitals Fit In

Building on the premise that a well-functioning health center and first referral hospital can serve up to 98 percent of preventive and curative health care needs, central level hospitals could be expected to provide technical back-up and support by training health personnel for service in district-based facilities and to perform rarer interventions, such as cataract operations, that can be afforded by the country. One might also be developed and formally recognized as a "center of excellence", as in Mozambique.

The challenge is to enlist central hospitals as partners of more efficient and equitable health care in Africa, instead as competitors whose consumption of resources jeopardizes the adequate provision of basic packages of care to the majority of the population. Recognizing that central hospitals have a certain elitism in national systems of health care — created historically more from social than medical need and in response to technical pressure — their actual contribution to the health needs of society merits reexamination so that their links with the rest of the system can be better articulated. Instead of treating them as special cases, qualifying for disproportionate shares of resources, the outputs of central hospitals need to be quantified and analyzed so as to better determine whether the people requiring specialized procedures are actually benefitting, and the costs at which these benefits are provided. Despite the general dearth of such studies, central hospital administrators will easily recognize that most of their staff time and space are being used for primary and first-referral type of health care.

Second, governments need to consider ways of enforcing the referral system. One option is to recover costs of those who willfully by-pass the referral system — assuming that a well-functioning health center and first referral hospital are in place. One-hundred percent cost recovery would not be unreasonable at central hospitals.

Third, governments need to consider ways of charging user fees at central hospitals, or assessing privatization as an alternative, so as to divert public resources to health interventions that are most cost-effective. Prospects and methods of cost recovery are taken up in Chapter 9, and it will suffice to say here that cost recovery at central hospitals has appeal because (i) people are generally willing to pay for care at hospitals, given that acute problems are usually involved, (ii) the demand for such care tends to be price inelastic, meaning that higher prices do not deflate demand, (iii) clients of tertiary level hospitals tend to be from middle- and upper-income echelons of society, (iv) and hospitals are more likely to have the administrative capacity to assess and collect fees. Change will not be easy because those who suffer short-term losses as a result of cost-recovery tend to be better organized and have easier contact with decision makers than the vast majority of the people who can be expected to benefit from these actions.

Box 6. AIDS and Health Care Reform in Africa

The burden of AIDS underscores the importance of reforming African health care systems. Despite the incurable character of the disease, AIDS patients have begun to overwhelm hospitals in a number of African capital cities, including Bujumbura, Harare, Kampala, Kigali, Kinshasa, and Lusaka. These patients displace others who can be cured, thus further reducing the effectiveness of the health care system. The development and introduction of guidelines for treatment and care of AIDS patients for use by health care personnel are critical. WHO's Global Program on AIDS has done important work on this subject to help developing countries.

An appropriate public policy response by African governments to the public outcry to combat HIV infection starts with prevention. The top priority is to use available public financial and human resources for carefully targeted public education and condom promotion campaigns, and for the detection and treatment of other sexually transmitted diseases. For those affected by the opportunistic infections associated with AIDS, the first point of contact in a well-functioning health care system will be with health centers for drugs, counseling, and relief of suffering. As the afflicted develop full-blown AIDS they may need referral to a hospital. In the final stages they tend to become bed-ridden at home, best served at the community level by family members and outreach from health centers. Making the health care system function as it should can be expected to reduce what would otherwise become an unbearable burden of AIDS patients on African hospitals.

A possible first step would be to freeze existing budget levels for tertiary care, instead of increasing them with population growth and inflation.

Community Effectiveness and Multi-Sectoral Inputs

That well-functioning health centers combined with first referral hospitals and redefined central hospitals can help transform health outcomes in Africa is beyond doubt. Yet this report is also concerned with sustainable improvements in health with the implication that health care per se can only master part of the task. Equally important is to determine how complementary, multi-sectoral inputs can be put into place at the community level as well. It is with this in mind that the idea of cost-effectiveness used in this report contains a provision for maximizing community effectiveness, achieved when a cost-effective package of basic health care, supporting services, and multi-sectoral inputs works together simultaneously to improve health.

It is at the local or community level where women and children fetch drinking water; where human wastes need to be controlled to prevent contamination and disease; where nutritional deficiencies can best be seen and corrected; and where families make decisions about the number of children they want. Moreover, it is at the community level where resources for many non-health interventions can best be planned, monitored, and evaluated, especially in rural areas where national or regional systems of tapped water and sewage disposal are not in place.

Because the support services and complementary inputs usually require collective action beyond the capacity of individuals or households, a certain level of population aggregation is required to provide them. Single communities, or collectivities of communities can perform this function. Collective action to provide mechanically operated hand pumps is an example. Twenty communities in Kwara State, Nigeria, installed handpumps to provide clean drinking water with the result that Guinea worm infections decreased by 81 percent (Edungbola and others 1988). Information assembled in Chapter 8 suggests that a borehole and handpump serving up to 250 people in a village with about 20 liters each day can be provided for about

Box 7. Ensuring Support from Public Health Services

Many of the services in the basic health services package outlined in this chapter, such as immunization, nutrition programs, and mass chemotherapy against helminths, are sometimes considered to be public health interventions because the benefits extend beyond the immediate recipient. They are included in the basic package here because they are usually provided with the support of the structure of health centers, first referral hospitals and district health management teams which provides individual health care also. In this study, therefore, public health services are conceived somewhat more narrowly.

Key public health activities falling outside the basic package of health services discussed in this chapter, which merit increasing attention in many African countries include:

- *Disease surveillance, epidemiological and health program analysis, and policy formulation.* A sound understanding of the disease profile affecting households and communities is central to provision of health information and choice of cost-effective interventions for inclusion in the basic package of health services. Yet, many African Ministries of Health have allocated few resources to these essential activities. As they reduce their role in management of health care facilities, and give greater attention to steering the total health care system, including private providers, and endeavor to take into account the likely household response to public actions, African Ministries of Health will need to develop increasing sophisticated analytic capacity. Sometimes they will be able to draw upon university facilities and other outsiders for policy and program analysis, but formulation of policies is a public function which cannot be delegated to others.

- *Provision of health information to the public.* A wide range of health information will help individuals and households to take greater responsibility for their own health, but it must be provided in a manner and by sources that makes it acceptable and credible. Health information has sometimes been distorted or withheld by African and other governments. The issue is of such importance that public access to health information is asserted as a human right by some writers (Lucas 1992). Topics that might be covered under information programs encompass: disease levels and outbreaks; the quality, price and availability of individual health care services; environmental health threats such as indoor air pollution; substance abuse, including smoking and alcohol; and traffic safety, including the growing burden of vehicle accidents on African roads.

- *Health legislation and regulation.* Many African countries have basic health legislation that has not been updated since independence. Burundi, to cite an example to the contrary, has adopted a public health code covering the promotion and protection of health and the exercise of the medical professions. Some other countries, including Angola, Botswana, Burkina Faso, Central African Republic and Senegal, have adopted laws or regulations touching on key health variables (WHO/AFRO, 1990. document AFRO, ICP/HLE/001, April 1990). Pharmaceuticals is a particularly important area for action, given the technical complexity of the issues (see Chapter 4).

$2.60 per capita per year (including amortization) in low-income countries of Africa.

Another feasible and affordable technology is the pit latrine. Improper disposal of human faecal material can lead to pollution of ground water and springs, not to mention contamination of food supplies. A study in Uganda, for example, found that 30 to 40 people in a neighborhood were required to use the same latrine. Yet, as illustrated in Chapter 8, a ventilated and improved pit latrine (VIP), made of local building materials for a family or household cluster of ten can be provided for about $1.40 per capita per year in low-income countries of Africa.

At the heart of the matter is collaboration and partnership between providers of health care on the one hand and community support of multi-sectoral inputs on the other. If national and local governments are already providing multi-sectoral inputs through public works and other support, then community action on this front becomes less critical. In most countries, however, national and local governments are having a hard time maintaining, let alone extending public goods and services into more remote areas. Community action must therefore be at the apex of strategies for better health. Governments can help facilitate this process, as argued in Chapter 7, by encouraging and empowering communities to take a greater role in determining their own health outcomes.

Conclusion

Far greater headway is likely to be made in resolving Africa's health crisis if systems of health care feature cost-effective packages of basic services, well-functioning health centers and first referral hospitals at the district level, and community participation. Emphasis on basic and essential health care services is precisely what is needed given the demographic and epidemiological profile of African societies. Development of well-functioning health centers and first referral hospitals is compatible with the goals of promoting equity by extending services to underserved households in rural and peri-urban communities. By improving efficiency of health care services at the first level of contact and getting the referral system working well, prospects of bringing skyrocketing hospital costs down improve. A distinctly community focus helps to overcome weaknesses in capacity at the national level and offers the opportunity of determining a locally relevant health care package, enhancing accountability between providers and clients of health care, and mobilizing resources for multi-sectoral inputs to health. Finally, support from public health services can play a critical role in building more effective channels of communications between health providers and consumers as regards, for example, health legislation and regulation affecting facilities and health care services, and provision of health information to the public (See box 7).

CHAPTER 4: PHARMACEUTICALS AND ESSENTIAL DRUGS

Introduction

Medicines offer a simple, cost-effective answer to many health problems in Africa, provided they are available, accessible, affordable, and properly used. From the household's perspective, the availability of medicines is one of the most important and immediately visible symbols of quality care. Expenditures on medicines were about 48 percent of household expenditures on health in Senegal between 1981-89 and 55 percent in Ghana in 1987-88. Inadequate or unreliable supplies of drugs motivate clients to abandon one provider for another, and contribute to failure of the referral system.

From the perspective of health care providers, a regular supply of drugs is a fundamental component of a well-functioning health system. In public and private health facilities, pharmaceutical expenditures typically comprise 20 to 30 percent of total recurrent costs, second only to personnel costs (World Bank 1992d) When resources are insufficient to maintain stocks of drugs, the effectiveness of recommended treatments and public confidence is undermined. Studies have found that when drugs are out of stock in Nigeria, for example, utilization rates for health facilities can fall by 50 to 75 percent (World Bank 1989b).

Governments seek to improve the performance of pharmaceutical markets because drugs are a vital component of cost-effective approaches to health care. More than 90 percent of pharmaceuticals in Africa are imported, and both public and private providers are concerned with procuring quality drugs at low cost. Governments also have an important role to play in correcting imperfections and informational asymmetries, which characterize markets for drugs. In pharmaceutical markets, the consumer seldom chooses a particular drug, but rather relies on the competence of the prescriber or seller. Consumers may be entirely unable to assess the effects or relative merits of particular drugs, even after using them. When drugs are inappropriately prescribed or mis-used, personal injury can result.

For the above reasons, governments have a multi-faceted role to play, related to disseminating information on the proper use of drugs; instituting and maintaining quality controls; establishing essential drug lists; formulating national drug policies; ensuring appropriate roles for the public and private sectors; and coordinating donor assistance in financing and procuring drugs.

This chapter begins by documenting problems that are undermining the potential contribution of pharmaceuticals to better health in Africa. Inefficiencies and waste in the management of pharmaceuticals are highlighted. This sets the stage for a review of more efficient, equitable and sustainable drug practices in the context of well-functioning health centers and first referral hospitals. Such practices are particularly relevant to low-income Africa and the cost-effective approach to health care featured in this report (Chapter 3). Broad guidelines for government action in support of more comprehensive, national drug policies are then reviewed.

Performance

Between 1986-87, the World Health Organization conducted a survey in 104 developing countries on the availability of essential drugs (WHO 1988d). In 17 countries comprising about 200 million people, including Nigeria, about 70 percent had no regular access to essential drugs. In another 14 countries, again comprising about 200 million people, 40 to 70 percent had no regular access. And in nine countries with a combined population of 50 million people, 10 to 30 percent had no regular access. Combined with other sources, these estimates suggest that up to 60 percent of the population of Sub-Saharan Africa has no regular access to essential drugs.

Shortages of appropriate drugs plague public sector health facilities in many countries, especially at lower levels in the referral system. Drug stock-outs have been widely documented in peri-urban and rural areas due to management, logistical, and financial problems. In Angola, drug stock-outs have been frequent, even in major hospitals. In seven provinces for which data are available, only 48 percent of the communities had regular health staff visits ("controlo sanitario" visits), to resupply local health facilities with drugs and other supplies. In Tanzania, under-financing of drugs by the Ministry of Health led to under-provision of medicines in hospitals and reliance on foreign aid to provide drugs for rural primary care.

Private-for-profit facilities tend to have fewer problems with drug shortages, but clients also tend to be upper-income households in urban areas. The small numbers of trained pharmacists working in Africa generally prefer to open city retail pharmacies, conducting a trade largely in western specialty drugs. Western drug firms or their representatives operate in similar fashion, as does the wholesale trade, providing supplies largely to private pharmacies in cities. In Niger, for example, 46 percent of private drug sales in 1986 were in Niamey, the capital city, and another 35 percent were concentrated in capital cities of other administrative departments. Only 20 percent of private sector drug supplies were distributed among 85 percent of the remaining population, located predominantly in rural areas (World Bank 1986).

The organized private sector also tends to thrive on the sale of high-cost, high-profit drugs in cities, benefiting from the widespread belief that its products are superior and thus worth a higher price. In Sierra Leone, for example, the mark-up on private sector sales of chloroquine ranged from 400 to 800 percent in 1983. Irregular private drug suppliers are generally more accessible to peri-urban and rural households throughout Africa — in the form of private clinics, drug shops, and travelling peddlers — but the quality of services provided is often poor. Moreover, drugs sold at these outlets are frequently stolen from the public sector or imported from neighboring countries without quality control (Whyte 1990). Such non-system providers of care cannot be ignored. Markets, for example, were estimated to represent 35 percent of the supply of antimalarial drugs in Togo in 1989.

When medicines reach their point of destination, they are often inappropriately administered and used, because of inadequate knowledge among professionals as well as consumers. In Mali, a survey found that the average prescription contained ten drugs, sometimes including duplication of the same drug under different names. In many cases, it is likely that one or two drugs would have sufficed (Foster 1990). In the treatment of a large sample of cases of diarrhoea in Nigeria, it was found that expenditures were some thirty times higher than they need have been, largely because of the use of specialty antibiotics which were not required (Isenaklumhe and Oviawe 1988). And despite the fact that injections are needed only in a minority of treatments, a study in Ghana found that 96 percent of visits were treated with at least one injection. There was an average of 3.9 items per prescription (Dabis and others 1980). This did not, of course mean that each item was available or efffectively used.

Drugs are all too readily conceived as the answer to almost every health problem in Africa, thus encouraging consumers to use them ineffectively. Even essential drugs are often mis-used because limited understanding and information leads to poor compliance with prescribed regimens (Foster 1990). Moreover, a common misconception among consumers (as well as prescribers), is that "generic" or low-cost drugs supplied through public services are inferior to those sold in the private sector. This is rarely the case, but the misconception can often lead to illogical and wasteful drug choices. In Kenya, for example, it was found that some patients traded in their free generic drugs at pharmacies to buy identical specialty drugs which they believed were better (Ministry of Health, Kenya 1984).

Many countries have launched Essential Drugs Programs (EDPs) aimed at improving availability, affordability, and proper use. To help facilitate this, the World Health Organization has prepared and occasionally updates a model list of about 250 essential drugs that can effectively treat, at reasonable cost, a large majority of ailments frequently experienced in Africa and other world regions.

Yet, Essential Drug Programs are not the full answer to pharmaceutical problems. In Angola an EDP was launched in 1987, supported by the Swedish International Development Agency (SIDA), in cooperation with UNICEF. An evaluation of Angola's EDP by SIDA and the Ministry of Health in 1990 reveals problems common to a number of African countries:

- The EDP is a vertical program with very little coordination with other programs.

- The EDP does not have a serious training program for health care providers.

- The information and feedback system on EDP performance is complicated and is of little practical use, partially because the responsibilities and tasks of the National Pharmaceutical Directorate and the National Directorate of Public Health have been poorly coordinated.

- The country does not have a well-defined pharmaceutical policy, although a National Drug Commission exists.

In Ethiopia an essential drug list was adopted in 1986. Two years later, however, a complete selection of essential drugs was found in only 7 percent of the country's health centers. A much more basic list of ten drugs was present in only 38 percent of the centers (Hodes and Kloos 1988).

Constraints and Opportunities

The performance of pharmaceutical markets is shaped by the interaction of a variety of demand and supply factors. Some present greater obstacles to resolving shortages of drugs than others, and require coordinated action on several fronts to overcome them. In most African countries, private expenditures dominate pharmaceutical markets, as in Burkina Faso, Côte d'Ivoire, Ethiopia, Kenya, Niger and the Sudan (see Table 1). A clear indication that private expenditures, consumer preferences, and ability to pay are important determining factors in the availability and distribution of medicines is apparent from Table 1. In six of nine countries for which data are available, private expenditures on drugs exceed public expenditures by a considerable margin. Supply factors, on the other hand, take on special significance because more than 90 percent of pharmaceuticals in Africa are imported.

A Demand-Side Perspective

From a demand-side perspective, the important factors are incomes, prices, disease patterns and educational levels:

• *Income*: Changes in total drug imports closely follow changes in per capita GNP. As a 'rule-of-thumb', a 10 percent increase in GNP per capita results in an 11-13 percent increase in per capita drug imports (Dunlop and Over 1988; Vogel and Stephens 1989; Gertler and Van der Gaag 1990). In Ethiopia where average per capita GNP was about $130 in 1987, pharmaceutical expenditures from all sources were about $.95 per capita during the mid-1980s. In Sudan and Kenya, with per capita GNP of about $330 in 1987, pharmaceutical expenditures were about $2.30 to $2.40 per capita. And in Côte d'Ivoire with a per capita GNP of about $740, expenditures on drugs were about $8.60 per capita in the mid-1980s.

Income takes on even greater significance when its effects are assessed across income groups within countries. Survey data on Ghana show that per capita household expenditures on medicines are several times more in the highest income quintile than the lowest quintile (see Table II). Each quintile contains 20 percent of households, the first being the lowest income group, the fifth being the highest income group. These orders of magnitude suggest that effective demand for drugs is likely to be relatively weak among the poorest groups in peri-urban and rural areas. As such groups tend to rely disproportionately on public health facilities, they will be most sensitive to disruptions in the supply of medicines in government facilities.

Just as an increase in income tends to raise consumption of pharmaceuticals by more than a proportionate amount, a decline in per capita income — attributable to slow economic growth combined with rapid population growth — can have the opposite effect. Per capita incomes and real purchasing power of African households generally declined during the 1980s, with the implication that falling incomes are at least partially responsible for shortfalls in drugs. Among seven countries for which time-trend data are available for at least four years, a drop in the share of pharmaceuticals in the recurrent

Table I. Expenditures on Pharmaceuticals in Selected African Countries, Mid-1980s

Country	*Year*	*Estimated public pharmaceutical expenditures million US$*	*Estimated private pharmaceutical expenditures million US$*	*Estimated total pharmaceutical expenditures million US$*	*Estimated per capita pharmaceutical expenditures US$*	*Estimated % share of GDP comprised by pharmaceutical expenditures*
Burkina Faso	1981	5.5	10.1	15.6	2.19	1.38
Côte d'Ivoire	1985	2.7	81.5	84.2	8.63	0.57
Ethiopia	1986	8.7	33.8	42.5	0.95	0.86
Kenya	1986	16.0	34.0	50.0	2.36	0.84
Mozambique	1985	5.6	1.3	6.9	0.50	0.21
Niger	1989	5.9	18.3	24.2	3.20	1.03
Sudan	1988	5.5	49.5	55.0	2.31	0.49
Tanzania	1987	19.9	10.7	30.7	1.32	1.00
Zimbabwe	1988	15.1	6.5	21.5	2.42	0.38
Weighted Average		-	-	-	2.10	0.76

Source: World Bank 1992d. TWP No. 4.

costs of health facilities is apparent in Botswana, Kenya, Ethiopia and Côte d'Ivoire. Making the best use of available resources for drugs, while simultaneously providing for the poor, therefore takes on immense importance.

• *Prices*: Available evidence suggests that the price elasticity of demand for medicines is relatively inelastic, meaning that the demand holds up in the face of price increases (World Bank 1992d). In Cameroon a pre-test/post-test experiment showed that use of public health facilities by poor households actually grew when price increases were accompanied by quality improvements in health services, including more reliable supplies of essential drugs. There is also evidence to show, however, that the price elasticity of demand is likely to be greater for the poor than for more affluent groups, as in Côte d'Ivoire (Bitran-Dicowsky 1991; Gertler and van der Gaag 1990; Mwabu 1984). Again, this suggests the need for administratively feasible approaches to provide the poor with access to essential drugs so that they will not be adversely affected (see Chapter 7 also).

• *Disease Patterns and Drug Treatment Costs*: Changing patterns of disease and mortality impact on the kinds of drugs demanded and, sometimes, costs of particular kinds of drugs as well. Mortality and morbidity in Sub-Saharan Africa are dominated by peri-natal, infectious and parasitic health problems with the implication that a rather standard package of essential drugs should be able to accommodate a sizable majority of health problems in Africa. The World Health Organization has quantified drug needs on the basis of available morbidity data and information on past consumption in several African countries, to evaluate the cost of treatments using basic drugs. Results, summarized in Table III, show that treatment using 30 to 40 drugs in a well-equipped health center costs about $.31, on average, per treatment episode. Treatment of more complex illnesses — and commensurate drug regimes — is estimated to cost about $.50 at a hospital outpatient department. WHO concluded that the range of costs is surprisingly low when compared with existing expenditure levels, though these cost estimates assume a degree of efficiency in all aspects of the drug supply system that is rare in most countries (WHO 1988c).

• *Education*: Education is an important determinant of self-medication and treatment, with more educated consumers using over-the-counter medications more appropriately and seeking care earlier in an illness episode (Dean 1981; Haynes and others 1976). This is consistent with the role of education as an efficiency parameter in household consumption of health care in general. In view of high levels of illiteracy in Africa, especially among females, this suggests that information, education, and communication programs could make a potentially immense contribution to more efficient drug use.

A Supply-Side Perspective

From a supply-side perspective, it is commonly argued that shortages of drugs can be attributed to limited prospects for domestic production on the one hand, as well as obstacles to importation on the other. It is argued that local production could lead to savings of scarce foreign exchange, produce drugs at less cost (assuming local labor is cheaper), and eliminate problems of paying for out-of-date drugs. However, this position is questionable. Though independent studies on costs of local production are difficult to obtain, especially by type of drug, expert opinion suggests that international sources typically realize full economies

Table II. Per Capita Household Expenditures on Medicines, Ghana (1987/88)

Household Income Quintile	Expenditures ($)
1	1.45
2	2.21
3	3.32
4	4.24
5	8.50
Average	3.93

Source: World Bank, Living Standard Measurement Surveys.

of scale at higher quality standards than would be possible in most African countries in the foreseeable future (World Bank 1992d).

Table III. Average Drug Costs per Treatment Episode by Level of Care, Selected African Countries, 1983-88

Country/Institution	Year	Health Center	Hospital Outpatient Department
Kenya Primary Care	1984	.20	
Kenya Hospital OPD	1985		.50
Sudan	1985	.32	.59
Burundi	1986	.37	
Gambia	1987	.35	.50
Guinea-Bissau	1987	.31	
Uganda	1988	.29	.29
Average:		.31	.47

Source: WHO 1988c.

Where there is no current local pharmaceutical production and manufacturing tradition, the extremely competitive world market for generic drugs makes it highly doubtful that production should now be instituted. Very simple products — where the transport costs of imported items are disproportionately high, as in some intravenous fluids — may constitute an exception. Where there is already a nucleus of local production, a phased approach is likely to show most promise, starting with packaging and tableting of widely used items such as aspirin and chloroquine. Intermediate phases involve increasingly complex production processes until ultimately, local industry is researching and producing pharmaceuticals (World Bank 1985c). This pattern has evolved in countries such as Ethiopia, Sudan, Kenya, Ghana, and Zimbabwe, and by 1992 local companies were producing a growing share of total domestic consumption. In Kenya, for example, the first of two essential drug kits, comprising 22-23 drugs for rural health facilities was imported; but the second, which containing 12 items, has been largely produced locally (Tropen 1989). Ethiopia produced a similar share of its essential drugs. Of the total demand for pharmaceuticals, about 30 percent is now met by domestic production using imported raw materials. Thus, while prospects are slim that economically competitive, large-scale domestic production can be relied upon to meet shortfalls in essential drugs, many countries should be able to expand production in key areas over the next decade or so.

Given Africa's reliance on pharmaceutical imports, the availability of foreign exchange constitutes another important supply-side constraint. Because supplies of foreign exchange are contingent on export earnings and terms of trade, which did not perform well during the 1980s in many countries, it is not surprising to find that external resources have helped to sustain pharmaceutical imports throughout the region. Major multilateral and bilateral donors include DANIDA, SIDA, ODA, USAID, the World Bank, and the Drug Action Program of WHO. Total known assistance is over US$160 million per year in current programs, though the actual amount may be higher.

Still, the level of international assistance for drugs is small when compared to the size of the market, which has been estimated to lie somewhere between $850 million and $1.5 billion for Sub-Saharan Africa in 1989 (World Bank 1992d). Moreover, foreign exchange can also be squandered if the private sector imports expensive specialty drugs that are no better than generics or have no value for health. Assuming that the willingness of donors to provide support cannot always be foreseen, the availability of foreign currency resources, as well as their use for public and private sector drug imports, needs to be evaluated critically.

Assessment

Because pharmaceutical markets in Africa are heavily influenced by private expenditures, income levels and prices, it would be temptingly simple to attribute drug shortages in low-income Africa to a lack of funding, particularly in periods of economic decline. And, because pharmaceutical markets will continue to rely heavily on imports, it is tempting to seek remedies in donations, loans and reallocation of public expenditure towards more drugs, especially in view of uncertainties over future capita income growth, trade balances, debt servicing, foreign exchange, and the short-term effects of macro-economic adjustment. Yet, studies published as far back as 1984/1985 claimed that full coverage of essential drugs for primary health care could be achieved for less than US$ 1 per person per year (Kasongo Project Team 1984; Steenstrup 1984; Jancloes and others 1985). These impressions are confirmed by the evidence marshalled by WHO in Table III.

World commodity prices have risen since 1985, but the $1 per capita figure still remains generally valid because international competition on the generic drugs market has intensified and drug prices have gone down rather than up. And $1 per capita is clearly below average per capita expenditures of about $2.10 computed for the nine countries in Table 1. This suggests that demand and supply constraints, as important as they may be, are **not** the main issue in drug shortages in Africa.

Quantifying Inefficiency and Waste

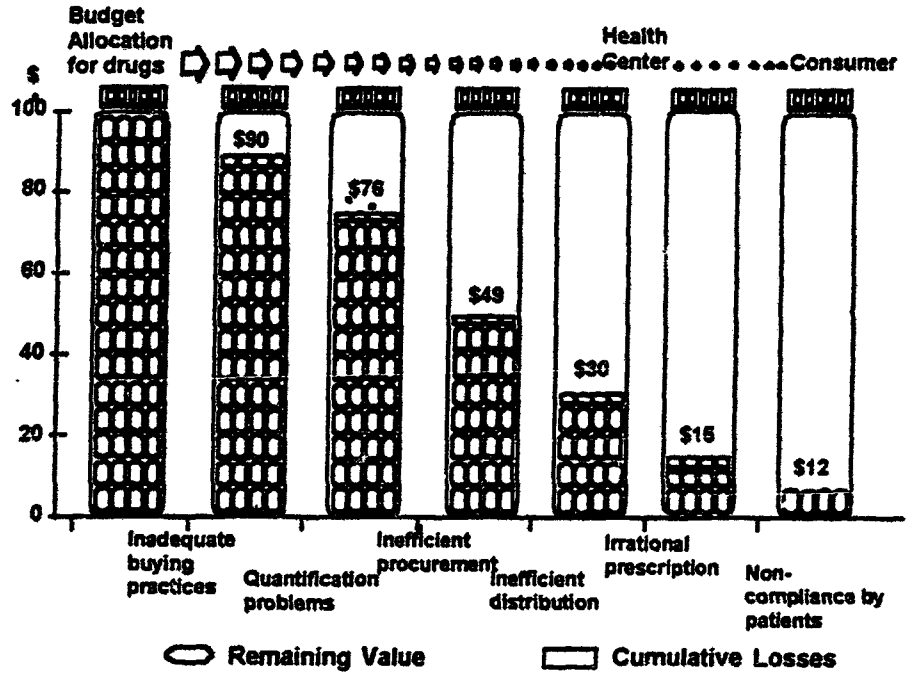
The looming problem in African drug markets is inefficiency and waste. In Nigeria, for example, technical reviews of public health facilities revealed that ineffectual and even dangerous drugs have been frequently procured; branded rather than less expensive generic drugs tend to be purchased; drugs are often purchased locally in small quantities instead of in bulk through open international tender, thus undermining cost-effective procurement; many drugs are damaged after purchase by faulty storage practices or disappear due to inadequate stock control procedures; and because of inadequate diagnostic capabilities, health staff prescribe an excessive number of drugs in an attempt to treat a number of possible diseases simultaneously (World Bank 1991c).

Inefficiencies and waste appear to be sufficiently widespread in many African countries that patients of public sector health facilities may be effectively using only $12 worth of quality drugs for each $100 of tax money spent. Six factors are largely responsible.

First, selection of drugs tends not to be based on cost-effectiveness criteria. Prices for different drugs *for the same condition* commonly vary by as much as five to ten times and, exceptionally, by as much as 130 to 150 times. Comparisons of drugs used in African countries in the 1980s, for example, reveal that more expensive drugs for urinary tract infection, arthritis and inflammation cost six, eight and twelve times, respectively, more than their low cost alternatives (Upanda and others 1983). Drawing on an assessment of drug practices in Africa during the 1980s by WHO, the absence of cost-effective selection can be estimated to be responsible for a loss of about ten percent, on average (WHO 1988c). As illustrated in Figure 1, this is equivalent to reducing $100 in the public budget allocation for drugs to $90.

Second, quantification of needed drugs over a given period (usually a year), is frequently absent as a basis for ordering drugs. Once drug needs have been quantified on the basis of morbidity patterns, large quantities can be bought, with substanti vings in cost. In Gabon, for example, in 1986-87 a system to calculate essential drugs requirements could have reduced drug expenditures by up to 45 percent (Soeters and Bannenberg 1988). On average, failure to order on this basis can result in a loss of 13

Figure 1



Source: Foster 1990.

percent of every $100 spent. In Figure 1, $76 now remains of the original $100 for drugs.

Third, procurement is rarely based on competitive bidding for generic drugs. Direct imports tend to be arranged from "high-priced sources". Astute buying on the world market has sometimes reduced the average cost of drugs imported to African countries by up to 40 percent (Marzagao and Segall 1983; Hogerzeil and Moore 1987; Yudkin 1980). In a Nigerian state a WHO study found that by further shifting from brand name to generic drugs, costs could be reduced by another 25 percent (World Bank 1989b). Commercial imports of tetracycline in Ethiopia were nearly three times the price paid by a drug purchasing agency. On average, losses from inefficient procurement have been estimated to amount to about 27 percent of every $100 spent. In Figure 1 the balance is now $49.

Fourth, poor storage and inventory management, expiration of drugs before use, theft and pilferage contribute to further losses. In some countries, 15-25 percent of drugs remain in the system until they are life-expired and thus useless (WHO 1986; MSH 1984). In Cameroon a study revealed that 35 percent of the medicines were lost from central medical stores due to poor storage conditions and expiration resulting from poor inventory control (Van der Geest 1982). Theft and corruption of pharmaceuticals pose special problems because drugs can be easily disposed of through private sale. In Uganda a third of all drugs are thought to be lost to theft and corruption. In Cameroon, 30 to 40 percent may be "withdrawn for private use" by staff. In Guinea in 1984 an estimated 70 percent of the government's drugs disappeared (Foster 1988). In Tanzania the rate of pilferage is estimated at about

30 percent for drugs outside the essential drugs program (World Bank 1989g). On average, losses from poor storage and distribution have been estimated to amount to about 19 percent of every $100 spent. In Figure 1 the balance is now $30.

Fifth, irrational drug prescription, as in poly-pharmacy, contributes further to inefficiencies. In the Kivu Region of Zaire, a study found that a typical prescription filled by a private pharmacy for treatment of bronchitis in young children encompassed five to six drugs including an antibiotic, cough syrup, a tranquilizer, vitamins, aspirin, and, if fever was present, antimalarials, for an average cost equal to approximately one month's per capita income (World Bank 1989h). Studies in 1992 of health care facilities in Nigeria and Tanzania found, on average, 3.8 and 2.2 drugs, respectively, per prescription (WHO 1993). On average, losses from irrational drug prescription have been estimated to account for about 15 percent of every $100 spent. In Figure 1 the balance is now $15.

Sixth, problems of patient compliance reduce the proportion of public drug expenditures that are used effectively, often the result of communication failures between health workers and patients. In Zimbabwe researchers concluded that self-medication with chloroquine for malaria prophylaxis was common, but that it was often wrongly used, and that if the useful life of this low-cost drug was to be prolonged and injury avoided, better public information was needed (Stein and others 1988). Even essential drugs are often poorly used because inadequate information leads to poor compliance with prescribed regimens (Foster 1990). On average, losses from inadequate patient compliance are responsible for another 3 percent of every $100 spent. The remaining amount in Figure 1 is only $12.

What is Missing?

The reality in many African countries is that the present performance of pharmaceutical markets is at odds with efficient, equitable and sustainable systems of health care. Symbolic commitments to primary health care are weakened because reliable supplies of medicines are not available to the majority of African households in peri-urban and rural areas. This contributes to a lack of public confidence and prompts residents at the community level to seek medicines from traders, and from intermediate-level facilities and hospitals, thus undermining the referral system.

Cost-effective care is compromised because recurring health conditions in Africa are not treated by relatively simple regiments of essential drugs. Recurring illnesses associated with malaria, hypertension, diarrhoea, diabetes, respiratory infections, measles, asthma, polio, sexually transmitted diseases, and malnutrition can be effectively combatted by a relatively small number of "essential" drugs selected from the many thousands marketed worldwide. They can be procured in bulk at low cost to the consumer with confidence that the medicines purchased are well-suited to the health problems of the majority of the population.

Inefficiencies and waste in procurement, storage, prescription, and use prevail to the extent that far more is being spent than is necessary. Issues in prescription and use are particularly important. These problems erroneously reinforce the impression that the answer to drug shortages in Africa is more money, when greater headway is likely to be achieved by more effective use of existing resources. To do so, improved management is required of all links in the chain, beginning with selection, procurement, storage, prescription, and use of drugs, right down to the community level.

Finally, because regular supplies of medicines are such a vitally important component of cost-effective health services, ways must be found to sustain revenues for drug supplies, particularly among public health providers, and to insure that foreign exchange reserves are available for imports.

Overcoming Obstacles

Some, though not all, of the problems documented are being resolved in the context of well-functioning health centers, together with the support of a first referral hospital. Most important, the cost of drugs tends to be low in such contexts. This means that prices need not be high in relation to the ability and willingness of people to pay, even the poor.

In a well-functioning health center, the annual per capita cost of essential drugs has been estimated to range from $.10 to $.25 (Yusuf 1993a). When drug needs at the district hospital level are added, costs are about $1 per person per year. This is enough for a "package" of generic essential drugs, sufficient to treat 85 percent of illnesses — as determined by priority diseases in the coverage area such as malaria, diarrhoea, diabetes, respiratory infections, measles, pertussis, asthma, polio, sexually transmitted diseases, malnutrition, hypertension, etc.. Provisions for expanded diagnosis and treatment of sexually transmitted diseases, made so important by the AIDS epidemic, could reasonably be expected to raise the $1 figure to about $1.00 per person (see Chapter 8). This amount is less than per capita expenditures on drugs in six of the nine African countries in Table 1. It is also within reach of the lowest income quintiles, as reported for Ghana in Table 2.

Distribution of essential drugs within the context of well-functioning health centers and first referral hospitals can also extend essential drugs into rural areas where private pharmacies tend not to be profitable, especially in places of low population density. To improve on distribution, many countries, such as Kenya, Tanzania, Uganda, Sierra Leone, and Zambia, favor pre-packaged, standardized drug kits which are assembled by the wholesaler and bypass the managerial problems of more centralized government distribution systems. The contents of the kits are tailored to the average pattern of use. This reduces cost, waste, and theft, as compared with systems where each drug is ordered and handled separately. This approach can therefore be effective as a means of assuring that drugs actually reach the lowest levels of the health care system. Some care is needed to make sure that pre-packaged drug kits take into account differential patterns of morbidity by location, and that the kit system does not generate its own forms of waste.

Problems of selecting, quantifying, ordering, and prescribing drugs can be reduced by establishing needs at different levels of the referral system. For example, only 20 to 40 items are needed for primary care at health centers (Brudon-Jakobowicz 1987). Quantification of requirements is easier at this level because the demographic and epidemiological profile of communities served can be more readily determined, and actual practice of health centers versus district hospitals can be assessed. The limited range of products needed also increases the likelihood of sound prescription practices when used in tandem with standard treatment protocols, as in Zaire, Benin, and Guinea.

In well-functioning health centers, one-on-one provision of information to consumers has been shown to improve compliance with recommended drug therapies. As part of this process, prescribers at health centers can be held accountable by a regularly served community clientele who have recourse and provide feed-back on the effectiveness of drugs, undesirable side-effects and so on. This process is reinforced because personal links tend to be established between providers and clients at the community level.

Finally, in response to declining public resources for financing pharmaceuticals and other recurrent costs, growing numbers of communities have adopted cost recovery and self-financing schemes in local health centers and dispensaries. Many such schemes have evolved under what has come to be known as the Bamako Initiative. In Benin, for example, the ever-diminishing public funds for drug

supplies led to an experimental scheme under which patients would pay for the essential drugs they received. The price was set at three times the actual cost of the medications used; 85 percent of local operating costs, excluding salaries, were covered by user fees, and helped to expand outreach of health services to communities. Over a three year period, receipts progressively increased as the public increasingly accepted the system and the generic products which it supplied. Eighty-five percent of local operating costs for the health service, excluding salaries, were by that time covered by drug income, and the proceeds helped expand outreach of health services to additional communities in the area.

A popular form of community financing is the so-called "drug revolving fund". The main features include (i) an initial stock donated by the community, government or other donor, (ii) sale of drugs to community members, (iii) pricing for full recovery of drug supply costs, and (iv) use of sales revenue to replace stock and finance other operating and distribution costs. Drug revolving funds can be operated on a public, private-voluntary, or private-for-profit basis. In Africa such funds have been introduced in Benin, Cameroon, the Central African Republic, Chad, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Tanzania, and Zaire. *Far from depriving the population of drugs, a successful revolving fund actually leads to extended coverage and better compliance with treatment.* Lessons learned in the design and implementation of cost recovery and revolving drug schemes include:

- Sharp price increases should be avoided, especially in areas where the population is not accustomed to paying for services or drugs in the public sector (Blakney and others 1989). Gradual price increases over time, accompanied by service improvements, are more acceptable to the population, which then have the time to observe and appreciate improved service delivery. A phased approach in the poorest areas might well require declining subsidies over a period of years instead of an immediate switch to full-cost recovery. In Nigeria, for example, states participating in a nationally-sponsored essential drugs program are being given five years to put full cost recovery into effect.

- A few experiments with revolving drug funds, for example in Senegal, Niger and Mali, have run into problems because patient contributions received have been insufficient to maintain momentum (Cross and others 1986; World Bank 1992d). These problems reflect failure to establish an effective scheme for the collection of payments or to provide realistically for the indigent, or they may result from an overambitious, national approach introduced without experimentation on a smaller, pilot scale.

- Cost recovery programs based directly on the amount of drugs sold may create incentives for over-prescription and inappropriate use of drugs. Standard treatment protocols, external supervision, and payment by illness episode can help reduce incentives for excessive prescriptions (McPake and others 1992).

Role of National Governments

Improving the impact of medicines on health in Africa requires a facilitating environment in which public officials, suppliers and distributors of drugs, and providers of health care act together to promote widespread availability, accessibility and effective use of drugs. Governments have an especially important leadership role to play in instituting and maintaining quality controls, disseminating information on the proper use of drugs to both prescribers and consumers, and monitoring drug reform (see Box 1). Governments should also take the lead by establishing a *national drug policy*, overseeing the planning, programming and budgeting of national capacity in the pharmaceuticals area, identifying suitably trained personnel to implement financial management and drug information systems. Establishing a national drugs policy, based on the essential drugs concept, is an important first step.

Box 1. Improving Pharmaceutical Markets Through Government Action

Instituting and maintaining quality controls is a widely neglected public role in drugs. Life-expired and poor-quality pharmaceuticals represent a waste of resources as well as a threat to health. Some countries are recipients of majors flows of false or spurious drugs. In the Adamaoua province of Cameroon, for example, it is reported that most market drugs sold have been smuggled into the country from Nigeria; many are fakes. Quality control can be undertaken jointly by countries, involving the exchange of information on suspect sources or products and the establishment of joint quality control centers. A precedent for this type of collaboration is a regional quality control laboratory for countries of southern Africa, situated in Zimbabwe (Huff-Roussell 1990).

Information on the proper use of drugs, for both prescribers and consumers, is a public good meriting far more attention from African governments than in the past. Initiatives to address poor use of drugs include promoting better teaching to medical students and others on drugs. For example, a model problem-solving course in prescribing has been developed and tested in Europe, and is being implemented and evaluated in 15 other universities, including two in Nigeria and Tanzania (De Vries 1992). Publications can be issued on the proper use of widely prescribed drugs. Successful approaches include a pocket-sized national formulary, recommended treatment schemes for common conditions, and regular drug information bulletins such as the Zimbabwe and Cameroon Drugs Bulletins. Model texts, either for physicians or for field workers, are readily available, from WHO, Health Action International, and the International Society of Drug Bulletins. Information can be promoted through TV and other media, and governments can take steps to counter misleading information. International standards for ethical advertising have been established by both the pharmaceuticals industry and by WHO.

Governments also have a critical role to play in *monitoring drug reforms*. Monitoring of reforms can be guided by:

- Plans for drug reform, detailing anticipated improvements in efficiency, mobilization of the private sector, establishment of improved training and drug information for medical personnel, and provision of drug information to the public.

- The proportion of drugs on an agreed national essential drug list which are accessible, without unreasonable constraints imposed by distance, irregular distribution, or financial barriers, to not less than 80 percent of the population.

- The efficiency with which resources are used in procurement, to determine (i) whether expensive specialty drugs are being imported in cases where a high-quality generic drug is much cheaper, and if so, why; and (ii) the price paid for a standard mixed drug sample as compared with that paid elsewhere.

- Efficiency of prescribing. Sample drug utilization studies can be carried out using well-established methods, as in Zimbabwe (van der Geest and Hardon 1988; Dukes 1993, and Nhachi and others 1991)) The African "Drug Utilization Research Group" sponsored by WHO provides guidance in this area.

- Assessments of the ability and willingness of consumers to pay for drugs, analyzed for various socio-economic groups.

National drug policies also need a *firm legal basis and structure* for their execution. Existing laws and regulations tend to be concerned largely with quality control or new drug approval. A small but efficient drug authority, with a degree of autonomy and close links to governmental and non-governmental bodies involved with drugs, is likely to result in a more coordinated and consistent multi-sectoral effort. Much can be accomplished through information, persuasion and incentives for all parties, coupled with a modicum of effective control to counter abuses. Least effective is to base policies on prohibition and repression. Unhealthy practices in the drug field are most effectively countered by offering acceptable alternatives. The case of drug peddlers in Kenya is typical. They largely lost their disreputable trade in malaria remedies once village health workers were adequately supplied with antimalarials (Mburu and others 1987; Whyte 1990).

Ongoing estimates of drug needs are required to assure that the vast majority of the population has access to cost-effective medicines. Purchasing too much, or importing the wrong drugs, is obviously wasteful, but inadequate purchasing will result in shortages which in turn can lead to emergency buying on the private market at inflated prices. Need estimates are best made by a joint group of health professionals and resource managers convened by a drug authority (see Box 2). The estimates can be published, as there is no need for secrecy, and comment by both providers and users at national, regional, and community level can be constructive. Guidance on prices and sources of good quality drugs is available from regularly updated drug price lists issued by the WHO Essential Drugs Programme, UNICEF, Management Sciences for Health (MSH), and the International Dispensary Association — a non-profit wholesale procurement organization for drugs and medical equipment intended for non-commercial health care projects.

Box 2. Evaluation of Drug Needs in Africa Need Not be Difficult

In Bobo-Dioulasso (Burkina Faso) officials used the WHO prescriptive method to evaluate drugs need, based on morbidity figures at three dispensaries, examined over a 6-12 month period. It was assumed that standardized schemes of treatment would be used. Results were expressed per 1,000 inhabitants per year. Results proved to be reproducible. The method is so simple that after brief training it could easily be used by trained nurses. It resulted in important corrections of preconceived ideas about what was needed. For example, the need for injectable products proved to have been overestimated (Malkin and others 1987).

Encouraging development of the private non-commercial sector, including the religious missions and such humanitarian bodies as Médecins sans Frontières and the Red Cross Pharmacies in Ethiopia is another means of expanding coverage of essential drugs. Various religious missions in Africa are increasingly considering entering into collaboration with one another to establish their own organizations for purchasing, warehousing and distributing drugs, primarily to mission hospitals. In Zaire, concrete proposals were made in the early 1980s, and were widely endorsed in church circles, to establish a non-profit, pharmaceuticals purchasing group (World Bank 1989h, Annex III, p.2). These are often efficient operations, reflecting both idealism and pragmatism. In several instances they have been guided into the essential drugs approach and use of generics in order to make better use of their resources (Hogerzeil and Lamberts 1984; Hogerzeil and Moore 1987).

Governments can also foster *development of the private commercial and non-commercial sectors* by authorizing health services and hospitals to make their drug purchases from private firms where terms are more attractive, and supplies more consistent than in central medical stores. The private sector has the same access to the world generic market as does the public sector, but is often capable of obtaining better prices through its international commercial contacts and profit-making incentives. The expansion of social marketing of essential pharmaceutical products, such as contraceptives, can further stimulate development of the private commercial sector.

Where there is no viable non-governmental alternative, African governments will need to continue to correct the principal defects of public sector pharmaceutical entities, while providing incentives for private sector bodies to compete effectively with them. The ultimate balance between the public and private sectors cannot be predicted, and will probably vary from country to country. In some, the private sector may well develop to the point where it entirely supplants public mechanisms. Clearly, however, a public system for purchase and distribution of drugs should not simply be replaced by an unregulated private monopoly or cartel. In some cases, efforts may be justified to increase the efficiency of public sector pharmaceutical entities as part of a program to prepare parastatal bodies for sale to the private sector.

Finally, assuming that the willingness of donors to provide support cannot always be foreseen, governments need to critically evaluate the availability of foreign currency resources, as well as their use of public and private sector drug imports. In the absence of an open trade and exchange regime, a first step could be to consider clear inter-ministerial agreements on reservation of guaranteed foreign exchange for drug purchases, a practice followed by Zimbabwe. A commitment to concentrate use of foreign exchange on drugs used at health centers and district hospitals may help. A small but firm agreement is far preferable to more substantial promises that cannot be met. Long-term agreements can sometimes be negotiated with donors. This is far more likely to be attained, however, once donors are satisfied that coverage is increasing at the periphery and waste is being reduced. This subject is revisited in the financing and costing of basic health services in Chapters 8 and 9.

Conclusion

Drugs are a central part of the challenge of better health in Africa. Africans are willing to, and do, make substantial out-of-pocket expenditures for drugs. Yet, drug markets in Africa contain imperfections driven by informational asymmetries, the separation of financiers from decision-makers at the consumption level, and by waste and other problems that plague public interventions in drug markets. At the same time, African countries have great potential for increasing coverage and reducing the cost of drugs used by the population. Actions to reduce waste are required at all stages of the chain, from drug selection and purchasing through domestic distribution policies and practices, to prescription and use of drugs by patients. Locally based drug revolving funds have been successful in a number of African countries, and have the marked advantage of community control. Monitoring of drug reform, and periodic assessment of progress and results, are essential.

There is promising evidence that essential drugs can be provided for around $1.60 per capita annually for clients of well-functioning health centers and district hospitals and that community-managed drug revolving funds can help assure sustainability of supplies (see also Chapter 8). Indeed, widespread coverage with affordable, essential drugs is a critical component of the cost-effective packages of health care services discussed in Chapter 3.

While essential drugs lists are an important component of a comprehensive package of reforms that governments, the private sector, and donors can promote, clear assignment of public policy responsibility to a national drug authority is needed. Consensus-building among the many actors, from suppliers through prescribers and users, should be its style. Operational responsibilities for wholesale drug purchase and distribution need to be increasingly assigned to the non-governmental sector. To help facilitate this process, governments are encouraged to be leaders of activities that increase efficiency in the operation of drug markets by fostering development of the private commercial and non-commercial sectors; reinvigorating public sector distribution capacity and efficiency; and promoting cost-effective means of supplying essential drugs on a sustainable and affordable basis to the poorest groups in society.

CHAPTER 5: MANAGING HUMAN RESOURCES

Introduction

Health systems cannot perform efficiently without well trained, motivated, and appropriately compensated personnel. Indeed, the quantity and quality of health services provided by doctors, pharmacists, nurses, public health specialists, health administrators, and related workers are critically dependent on such conditions. They can make or break otherwise cost-effective approaches to health care.

Personnel constitute the largest single item in Ministry of Health budgets. On average, more than 60 percent of public funds for health go to wages and salaries at the central level, to Ministry of Health managed hospitals and health centers, for administrators at the provincial and district level, and so on. As most of these personnel have been trained at public expense, and many of the services are expected to benefit society widely, sound personnel management is a priority for public action. The current situation is extraordinarily unsatisfactory, however. This chapter begins by documenting utilization and supply problems that plague health personnel in Africa today. Causes and consequences of these phenomena are then assessed. How improvements might be made, including complementary government roles and supporting activities, are taken up in the balance of the chapter.

Under-Utilization and Under-Supply

Problems facing personnel management in the health sector can be summarized in terms of the *under-utilization* of already trained staff on the one hand, and the *under-supply* of sufficiently trained personnel on the other. When trained personnel are utilized in ways that do not make full use of their skills, productivity falls. This is a pervasive problem throughout Africa, at all levels of the health care system. To illustrate:

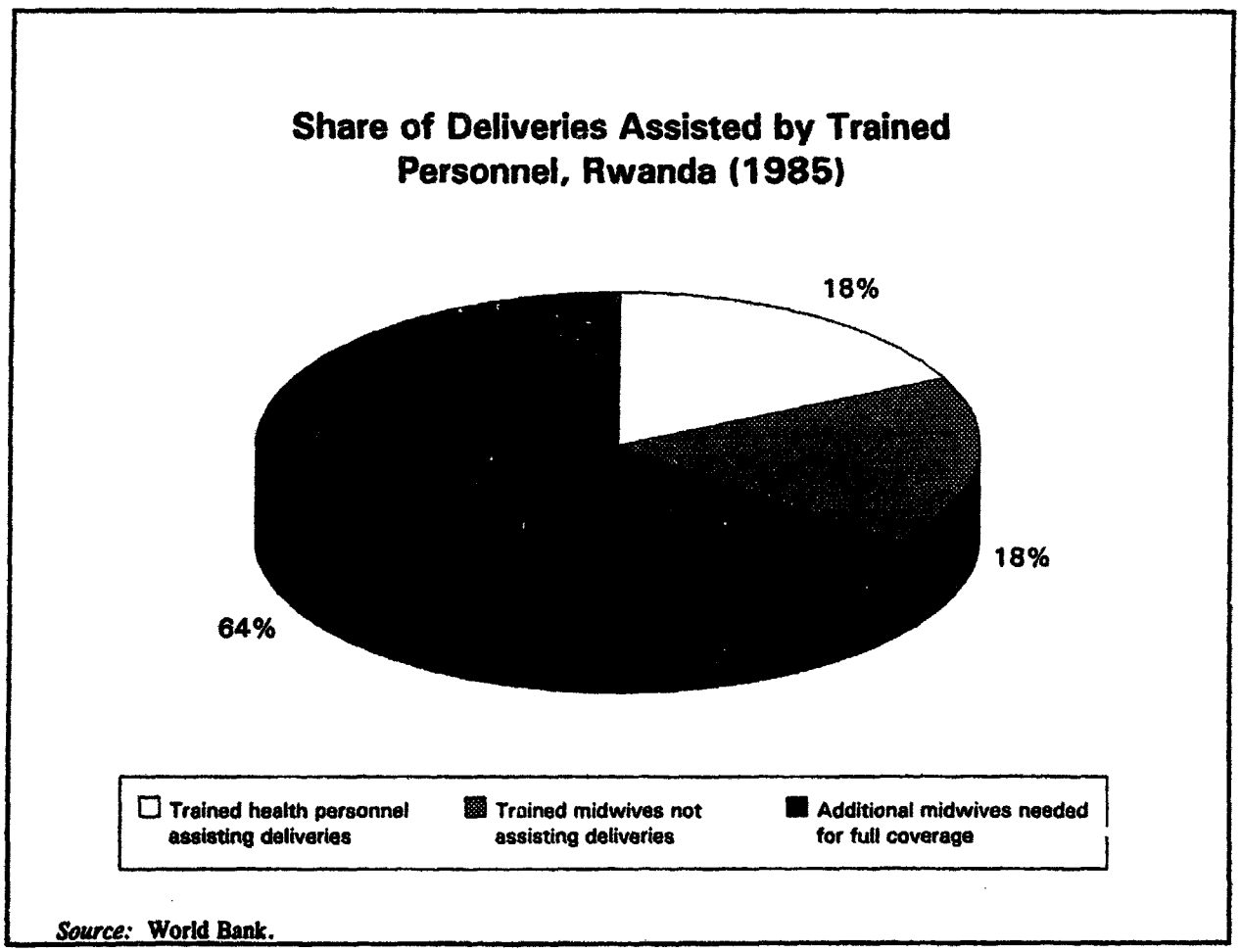
• High level administrative positions in ministries of health tend to be filled by medical doctors rather than by health professionals trained in management, planning and budgeting skills. In Ghana, for example, officials have insisted that almost all of the top management positions in the Ministry of Health be held by physicians (World Bank 1989c). In Niger in 1984, 19 out of 52 doctors employed by the Ministry of Health acted also as full-time or part-time administrators (World Bank 1986). The effect of such practices is to reduce efficiency by using many of the relatively few physicians in the country in roles for which they have neither the inclination nor the training, and to undermine performance in administration and management in the process.

• In Uganda in 1990, doctors in Ministry of Health hospitals saw far fewer patients per day than doctors in private voluntary hospitals saw (1.3 versus 6.7 per day) Under-utilization was such that Uganda was reported to be able to reduce health personnel by 30 percent without affecting the quantity or quality of services (Republic of Uganda, Ministry of Health 1991). Similarly, low productivity levels have been reported among public sector health personnel in Mali (World Bank 1991g, p. 7). Low productivity is frequently associated with lack of supplies and equipment, or absence from duty in public facilities, due to the need for supplemental income.

• Were Rwanda's 500 midwives fully utilized — meaning each would attend around 300 births per year in urban areas and about 200 in rural areas — about 36 percent of all deliveries could be assisted by a midwife. In fact, only 18 percent of all deliveries are attended by trained personnel, implying that the equivalent of around half of Rwanda's midwives are being under-utilized (see Figure 1).

Under-utilization of health care personnel is also reflected in attrition of experienced personnel. This is particularly damaging to the public sector when public funds are used to train

Figure 1. Under-Utilization and Under-Supply of Health Human Resources



Source: World Bank.

personnel who then move out of the health sector, if not the country. While not all personnel who leave the civil service leave the health sector, many do. In Zimbabwe it was projected that between 1991 and 1995, 1500 registered nurses would leave the public service, an annual attrition rate of 7.1 percent. In Uganda, as many as 40 percent of the nurses and 50 percent of the medical assistants left the public service in 1986. Another group with high attrition is female health workers who leave employment to marry and raise children (Vaughan 1991).

The emigration of large numbers of health personnel has been lamented throughout Africa. Emigration affects mainly highly trained staff such as physicians, nurses, pharmacists, and senior laboratory technicians. Factors motivating emigration include better salaries and amenities, improved working conditions, and political and social problems in the home country. In Nigeria, based on 1988 exchange rates, losses have been estimated at about $30,000 for each emigrant Nigerian physician (Ojo 1990). Furthermore, since emigration is usually concentrated among the more senior personnel, it also tends to undermine future medical training and the development of research and institutional capacity.

The second major human resource problem in Africa is under-supply of trained staff. Table 1 shows that the population to doctor ratio in Africa is five times that of all developing countries. In 1970 there were 19,000 persons per physician, and 3,000 persons per nurse in Africa. According to the latest available data, the ratios have improved to 9,000 persons per physician and 2,000 persons per nurse. Despite major efforts to close gaps over the past generation, the supply of trained personnel remains woefully inadequate, however. Africa-wide, the supply of trained personnel is so weak that less than 40 percent of African mothers had assistance from a doctor, nurse, or midwife in childbirth over the period 1988 to 1992.

There are also great variations in health personnel per capita among African countries. In the late 1980s the number of people per doctor was 3,000 in Gabon but 29,000 in Ethiopia. In Botswana there was one nurse/midwife for each 500 people, but only one for each 20,000 people in Rwanda. Despite the improvements in the 1960s and 1970s, the supply situation has deteriorated in recent years, compounded by rapid population growth. Between 1980 and 1986 Africa was the only region of the world where the number of doctors for each 10,000 people fell.

Table I. Health Human Resources Ratios, 1985-1990

	Sub-Saharan Africa	*All Developing Countries*	*Industrial Countries*	*World*
Population per doctor	9,000	1,500	350	900
Population per nurse*	2,000	1,700	180	570
Nurses per doctor	5	0.8	2	1.5

Source: Statistical Appendix.

Notes: Doctors include medical school graduates; nurses are registered nurses and registered midwives only.
* Includes midwives.

In view of the above, it is ironic that many African countries are beginning to experience the paradox of unemployed health care staff. As the number of health personnel completing education and training has risen, the demand for new staff in the public sector has fallen. In Tanzania 1,500 doctors and other health school graduates used to be absorbed into public employment service annually. This is no longer the case. Mozambique also guaranteed public sector employment to graduates of health institutions in the past, but has had to scale back the number of trainees in recent years.

Countries such as Benin, Madagascar, Mali, and Zaire can now absorb only a fraction of the health school graduates in public employment. In Mali in 1987, the public service recruited only 4 out of 60 new physicians, one out of 35 pharmacy graduates and 19 out of 85 nurses. Projections made in the late 1980s showed that at prevailing rates of absorption in the public sector, Madagascar could have a cumulative surplus of 2,600 to 3,200 physicians over ten years (World Bank 1987c, Annex 5, p. 1).

Causes and Consequences

Under-utilization and under-supply of health personnel can be partially traced to compensation problems, especially in the public sector. Wages and salaries tend to be so low that morale and motivation to perform designated tasks are affected adversely. A study of 15 African countries showed that, from 1975 to 1985 the index of real basic civil service salaries for the lowest grades fell from 100 to an average of 53, and, for the highest grades, to an average of 41 (ILO 1989, Table 4.1, p. 84). In Tanzania, salaries declined, between 1981 and 1987, by 56 percent for the lowest grade workers, and 75 percent for those in the highest levels (World Bank 1989g). In Madagascar entry level salaries in 1988 were only 20 to 25 percent of 1975 levels — insufficient to support even a small family near subsistence. Professionally trained personnel in the public service find themselves forced to work - informally or officially - in private practice, or seek other income-earning opportunities.

Poor managerial controls, weak supervision, and unsatisfactory training are also to blame. Poor managerial controls are reflected in numerous categories of health personnel whose functions overlap or are ill-defined. A 1991 study in Uganda found 57 different categories of personnel in the health sector, 50 of which were clinically oriented (Republic of Uganda, Ministry of Health 1991, pp. 4-6). While Mozambique has reduced the number of categories somewhat, in the late 1980s there were still around 20, creating inefficiencies in curriculum development and health system staffing (World Bank 1990c, p. 53). The persistence of large numbers of categories makes effective personnel management difficult, and the continuous addition of new categories, often under the impetus of donor-funded projects, compounds the problem.

Large numbers of low level and often excess functionaries further reflect the problem of managerial controls, and add to the expenditure burden in African Ministries of Health. In Ghana prior to restructuring in 1987, there were 38,000 employees in the Ministry of Health. Twenty-two thousand were non-technical, especially lower level staff, consuming 53 percent of the recurrent budget. It was estimated that the non-technical staff could be reduced by 8,000, thus saving 19 percent of the budget. In 1991 Uganda's Ministry of Health found that around

4,000 of its 18,000 employees were so-called "ghost workers", meaning persons on the payroll who were not on the job. It concluded that up to ten percent of total personnel expenditures may have been lost through poor management controls (Republic of Uganda, Ministry of Health 1991, pp. 134-135).

Weak supervision reinforces the under-utilization of public sector health personnel. Clear and specific job descriptions, performance criteria and appropriate formats for supervision are frequently missing. Practical training to acquire supervisory skills is lacking. In addition, budgetary restrictions in many countries have all but eliminated transportation, two-way radio and telephone contact among ministry of health officials responsible for supervising subordinates in distant places. To mention but a few indicative examples of weak supervision:

- In Niger, nurses are supposed to visit a village once every three months, but interviews revealed that eighteen of twenty-seven nurses had made only one round in the previous six months.

- In Senegal, two-thirds of ninety-two supervisors interviewed had cancelled planned supervision visits within the previous six months.

- In Zaire, only 21 percent of fifty-seven village health workers reported receiving a supervisory visit within the previous three months (Nicholas and others 1991).

Unsatisfactory training is manifested in several important ways, not least of which is a mismatch between the content of training and priority health needs and problems. In Benin, Togo (World Bank 1991j), and Zaire, to mention but three countries, training remains oriented to clinical work and hospital practice, in spite of government policies supporting primary care. In Ethiopia many training facilities are in a poor state of repair and are poorly designed for their function (World Bank 1988, p. 6). In Guinea health training quality has been poor due to the low level of secondary education, inadequate teaching staff and facilities, inappropriate curricula, and excessively large enrollments (World Bank 1987b, p. 4). In Zaire the overall quality of medical training declined during the entire decade of the 1980s, with deterioration of training facilities, equipment, and systems (World Bank 1989h, p. 43).

An inappropriate *mix* of skills among health sector personnel in most African countries further contributes to poor utilization of available human resources. Managing the thousands of personnel who work in the health sector in Africa requires professional managers yet, as noted previously, human resource matters are currently the responsibility of physicians or other health care workers in ministries of health with little training in management. Ministries of Health and other public health institutions also face serious shortages of planning and evaluation specialists, policy analysts, financial analysts and economists, maintenance and sanitary engineers, architects, statisticians, demographers, legal and above all management and administrative professionals, including personnel specialists. A review of the staffing situation in Zimbabwe (World Bank 1991k) found critical vacancies for equipment maintenance personnel, physiotherapists, dental therapists, pharmacists and X-ray operators.

The human resources programs in the health sector in a number of African countries are plagued by excessive medical specialization. In Côte d'Ivoire, for example, over 40 percent of physicians are specialists. Governments can address this issue by eliminating subsidies for specialist training and practice, and by reviewing curricula.

Dependence on expatriate health care personnel completes the vicious circle of under-utilization, attrition, emigration of staff, and imbalances in the composition of the health sector workforce in African countries. Large numbers of foreign personnel work in the health sector in virtually every African country, many under technical assistance projects in operational positions and some at the national or regional level. When they work in the public sector, they often act as district medical officers of health, as in Swaziland, Lesotho, Malawi, and Botswana. Or, they may work as technical assistance experts or advisors in ministries or externally supported projects (World Bank 1987a). In Rwanda 60 out of 247 doctors and 130 out of 337 high ranking nurses were foreigners in 1985. In Zaire, one-third of the 2,500 physicians were non-nationals; in Mozambique it was estimated in late 1986 that over half of the physicians were expatriates (World Bank 1990c, p. 51); in Burundi an estimated 40 percent of physicians serving in health facilities were expatriates in the late 1980s (World Bank 1987a, p. 11). As qualified and committed as such individuals may be, their employment can be at odds with sustainable human resources for health when they are associated with vertical programs administered by donors, receive higher salaries than their national counterparts, and contribute to high rates of turnover.

What is Missing?

Since the Alma Ata Conference in 1978, only a handful of countries, including Botswana, Congo, Nigeria, and Zimbabwe have formulated comprehensive health sector personnel policies. Tanzania has been among the most successful in this respect (see Box 1). Clearly, this is the first step to coming to grips with the kinds of problems reviewed thus far. Equally important is to consider how morale, motivation, compensation and supervision might be addressed through decentralization to the district level.

Box 1. Planning Human Resources for Health in Tanzania.

Tanzania is among the African countries that have been relatively successful in the preparation and implementation of plans for health personnel. The Arusha Declaration of 1967 resulted in the preparation of a plan with explicit targets for various categories of health human resources for the period 1972 to 1980. 13,000 new health workers were trained, with a heavy emphasis on the training and utilization of 10,900 health auxiliaries and 2,100 health professionals. These targets were met and even exceeded in some categories, especially rural medical aides, health assistants, medical assistants and MCH aides. Tanzania's work on the development of career streams and upgrading courses for health care personnel has been particularly important.

Despite past successes, however, personnel planning has been based on excessively simple assumptions concerning staffing standards for various types of health care facilities, without reference to variations in workload or disease patterns or to the resources available to finance associated salary costs or support complementary inputs to make health care personnel able to work effectively. Thus, the staffing standards of 1987, which doubled those previously in effect, are beyond the resource capacity of the health sector (World Bank 1990b, pp. 13-14).

Without suitably trained health workers in appropriately located health care facilities, the basic health care services so central to this report cannot be provided. Resolving training problems will not be enough, however, as compensation must be increased and competent supervision provided to assure that staff motivation is not dissipated on the job. Ministries of Health need also to engage themselves in the long-term struggle for civil service reform, decentralization of personnel management, and especially career management decisions. Effective personnel management calls for true leadership, both locally and at the national level (see Chapter 7).

Opportunities at the Primary Care Level

Well-functioning health centers, first referral hospitals, and district health management teams — as described in Chapter 3 and 7 — have successfully addressed a number of the problems that plague health sector personnel management. Incentive payments in well-functioning health centers have become a feature of systems of community financing of health care in a number of African countries, including Congo, Kenya, Guinea and Nigeria. With 64 health centers covering over 900,000 people, Guinea appears to have the most widespread practice of local incentive payments (UNICEF 1992c, p. 6). Resources mobilized by the community to pay incentives have ranged from around ten to nearly fifty percent of normal salary levels. Successful health districts have also applied a variety of techniques to recognize the best performers. In Ghana the Ministry of Health has established a prize fund to provide incentives for superior performance by individual health workers and health teams. In Mali health districts are required to meet a set of specific performance criteria in order to receive full government and donor support for the implementation of their district health plans.

A number of African countries have demonstrated the feasibility of improving local personnel management and supervision. Under the health decentralization program in Guinea, supported by the World Bank, UNICEF and other agencies, advances have been made in the development of tools for supervision, monitoring, and evaluation. Projects in Benin, Kenya, Nigeria, Lesotho, and Ghana are improving district health information and supervision functions. An integrated system of in-service training is being introduced at the district level in Mali; in-service training in management at the district level is being provided to senior district health workers in Lesotho (World Bank 1989d); similar programs exist in Senegal (Unger 1991) and Ethiopia.

Successful health districts have information and management systems that allow both providers and clients to identify performance problems, to analyze them, and to take immediate corrective action on their own authority. Providers utilizing these systems have been able to acquire a sense of control and personal growth which is a powerful source of motivation. In Kinshasa, Zaire, such a system was established in the mid-1980s, covering 60 health centers and representing less than two percent of health care costs (Projet Santé pour Tous 1987). In Guinea and Benin, the entire management information system has been revised under the Bamako Initiative, working bottom up. Although a considerable amount of time has been spent on registering patients, children, drugs and receipts, most health center staff consider this an important part of their functions (Knippenberg and others 1990, MSP Benin 1990, MSPAS Guinea 1990).

Box 2. Demonstrated Leadership at the District Level in Ghana

African countries can provide an environment which encourages social entrepreneurship for health, as in this example from Tema, an industrial city and seaport in Ghana. The Tema Health District is served by a network of health centers, health posts and industrial clinics which are backed by a district hospital, the Tema General Hospital. After an acute deterioration of services with attendant low staff morale in the mid 1970s, a senior medical officer with demonstrated leadership skills was assigned. The problems identified by the district medical officer were (i) low staff morale and lack of discipline among hospital staff; (ii) poor management in the various sections of the hospital; (iii) absence of liaison between the hospital and the industrial community - one presumed beneficiary of hospital services; and (iv) lack of supervision of health facilities (health centers, health posts, and clinics) in both the urban/industrial and rural parts of the district, by the medical staff.

To address these problems, the district medical officer established the following agenda:

- visit all the factories in Tema to learn about their health problems;
- familiarize institutions visited with the needs and problems of the hospital;
- convene monthly meetings of an Ad-hoc Management Advisory Group of Tema residents with management expertise;
- visit all the health posts and health centers in the district to establish active working relationships of staff, especially of government clinics, with the hospital;
- organize monthly meetings of senior clinical and management staff to discuss issues affecting the care of patients, concerns of staff and efficient running of health services within the hospital and the district as a whole and to find solutions to them;
- conduct daily administrative rounds to ancillary hospital departments, such as catering and maintenance, to learn about operational problems.

Within six months, a discernable improvement was observed by staff of the hospital, the Regional Director of Health Services, the headquarters of the Ministry of Health and generally from persons seeking care at health facilities in the District. Services offered free to the hospital, thanks to the initiative of the local health leader, included: a) the loan of a tractor for the hospital garden; b) the sale of essential provisions to staff at concessionary prices on the hospital premises; and c) the donation of material to make bedsheets, bed-spreads and pajamas for patients. By working directly with institutions in his area, the district medical officer was able to tap resources normally not available to the Ministry of Health for local use.

Source: Amonoo-Lartsen 1990.

Deployment of a substantial share of health care personnel to the periphery in rural and peri-urban areas, is further assured in district-based health care systems. Priority is given to staffing health centers and first referral hospitals. The concentration of health care at health centers and first referral hospitals discourages medical specialization and concentration of staff in urban areas. Furthermore, health centers, first-level referral hospitals and district health management teams are better situated than central-level institutions to bridge the gap between traditional and modern health care.

The final and most critical dimension of success in health centers and first referral hospitals is leadership (see Box 2). While much will depend on individual skills and personalities, district health management teams most effectively provide such leadership when they are given autonomy, training and support by national health policymakers. Leadership

skills should be an important criterion in the selection and performance evaluation of district health team managers.

The Facilitating Role of Government

Human resource planning for health is an essential public sector activity - a public good as defined in Chapter 1. It is needed by geographical area, by expertise, by category of worker, by gender, and by different time horizons, all reconciled with economic realities (see Box 3). Nearly every African country needs to strengthen its capacity for human resource planning, particularly staffing needs at health centers and district hospitals. Technical skills in preparing projections, determining norms, designing and managing systems of performance planning, review and deployment of public sector staff are needed. Estimates of cost and proposals for financing training are important parts of this work.

As health care systems become more diversified institutionally, it is important that public sector planning encompass the entirety of African countries' health personnel, including staff engaged in the private sector, in non-profit or charitable institutions such as religious missions, and other relevant programs. Particular attention is merited to training senior cadres for health leadership and research in the area of public health. The range of disciplines touching on health leadership is wide, from physicians and nurses trained in public health through pharmacists, economists, financial analysts and engineers, also with public health training, who can collaboratively define, design, and where necessary, deliver public goods and services in the health sector. Ministries of Health can further nurture the public health perspective by facilitating the establishment and strengthening of voluntary associations of public health personnel.

Box 3. Strengthening Human Resources Planning and Management in Lesotho's Ministry of Health

Lesotho is undertaking a systematic program to strengthen its health personnel management function (World Bank 1989d). Actions being taken include:

- development, implementation, and maintenance of human resource management information systems for personnel administration, planning, and training
- on-the-job training for the development of the personnel planning process in the Ministry of Health to provide senior managers with the information and planning framework necessary to make decisions on staffing and training priorities
- design and implementation of a system for selection, placement and monitoring of training activities
- development and use of a personnel manual
- design and implementation of a computerized personnel management information system (PMIS), in coordination with the Ministry of Public Service
- training of Ministry of Health staff in using computers and in running the PMIS.

Source: World Bank 1989d.

Box 4. Cooperation between Traditional Healers and Modern Health Care Providers.

The establishment of registered associations of traditional healers is an initial step towards collaboration between the informal sector and modern health care systems in Africa. Over 20 African countries have registered associations of traditional healers including Nigeria, Ghana, Senegal, Benin, Côte d'Ivoire, Zimbabwe and Zambia. The degree of cooperation between traditional and modern practices of care varies from country to country. However, a number of collaborative programs between biomedicine and African indigenous health practitioners exist, such as the Araromi program in Nigeria, the Mampong Center for Scientific Research into plant medicine, the "Alkaloid Unit" at the University of Science and Technology in Kumasi, and the Primary Health Training for Indigenous Healers (PRHETIH) at Techiman, all in Ghana. Research in plant medicine and traditional healing is also taking placing in Niger and Zimbabwe.

Much more needs to be done to promote the development of appropriate training for traditional providers, including especially traditional birth attendants. Research and dissemination of information on the strengths and limitations of traditional medicine is also needed to enable modern health workers to understand the social and psychological rationale behind traditional practices, to become sensitive to traditional beliefs concerning health and health care, and to collaborate with these practitioners. Studies have shown that traditional healers are skilled in helping people to cope with the psychological and social stress that often accompany rapid social and economic change. Policies need to build on the cultural norms and practices which facilitate this process in order to promote greater cooperation among practitioners in the informal sector and those in the modern sector.

African governments also need to take into account traditional healers in planning human resources for health. In Zambia there are approximately 10,000 traditional healers and over 3,000 traditional birth attendants who practice actively in the informal sector in all communities. The Ministry of Health has set up a unit to gain understanding of their roles and to weed out harmful practices. About 12,000 traditional healers are registered in Zimbabwe, out of a total of 20,000. A significant share of the rural population depends solely on them in Ghana, Benin, Nigeria, Senegal and Zambia, among other countries. While some modern health care givers systematically reject traditional healers, Nigeria's health policy makes room for retraining traditional practitioners so as to increase their skills and effectiveness, and to promote their integration into the existing national health system. In Ghana, Nigeria, and Zimbabwe, training programs make it possible for some traditional healers to use modern treatment modalities such as oral rehydration (see Box 4). Also, AIDS prevention and control programs are increasingly drawing upon traditional healers.

It would be unrealistic, however, to expect public sector health care workers to increase their workload significantly without additional compensation and reliable payment of wages and salaries. Because civil service salaries are unlikely to undergo significant improvements in the near future in most African countries, national authorities will need to exercise imagination and allow greater autonomy to local health managers to help resolve the problem. Cost recovery and retention of fees at place of collection is a means of fostering financial autonomy and more regular payment of salaries at well-functioning health centers (Chapter 8). Other possibilities include allowances and incentives for night duty and for working on holidays, or incentives including the provision of housing to enable critical staff to live near the health facilities they operate. Resources needed to finance such indirect increases in compensation must largely be found through budgetary savings in Ministries of Health, by reducing the numbers of unskilled support personnel and by purging from payroll those who have moved or died, as is being done in Guinea. Salary administration should also be decentralized, so that decisions on compensation and supervisory responsibility are brought together at the district level with involvement of the community, rather than run as two separate sets of actions.

Box 5. Developing Human Resources for Health Leadership and Research in Africa

Despite the evident need, senior level training institutions and opportunities for health leadership and research in Africa are scarce. There are few universities or other institutions that offer training to prepare people for these roles. In recognition of the unmet need, new and strengthened graduate programs have been established in some African countries with emphasis on field-oriented training, based on partnerships between universities and government departments responsible for public health programs. The development of such programs is responsive to the need to emphasize practically-oriented disease prevention and development programs at the district level.

In anglophone countries, the increasing emphasis on public health has been nurtured by training in community medicine. This has existed for many years in Ghana, Nigeria, Kenya and Uganda. New programs in public health have been created or are in development at the Universities of Ibadan, Accra and Nairobi. New public health training programs have been developed at the University of the Western Cape in Capetown and through the University of Zimbabwe.

Among francophone countries, several training programs have evolved from a WHO-sponsored school of public health in Cotonou. The University of Kinshasa opened a school of public health in 1986, and the Universities of Abidjan and Dakar have developed training programs at the diploma or masters level. A school of public health has been initiated at the University of Brazzaville (CIESPAC).

Building on these and other initiatives, governments and donors need to collaborate at both the national and inter-country level to prepare and finance plans to strengthen health leadership and research capacity. Fortunately, new programs which have evolved over the last five years are being increasingly recognized by donors as suitable alternatives to training outside Africa.

Source: Bertrand 1992.

Training curricula need to be adapted to the practical needs of health services at both the district and community level, and health training needs to be extended to staff in related sectors, especially to school teachers and agricultural extension workers. Much more attention is needed to the study of society, demography, and the community, as well of principles of health leadership, and training needs to be less oriented towards Western models of medical practice. Governments pursuing decentralization to district based systems also need to rationalize and consolidate health training schools, to make them multi-disciplinary, and to foster the development of the district health team concept and health leadership at all levels in its health training programs. Madagascar is moving in this direction with decentralization of training functions and linking them to supervision in the field (World Bank 1991a, p. 26).

Finally, as part of the long-term investment in capacity building, male and female teachers in health care training and education institutions need to have the opportunity to periodically improve their skills, and should at least have access to the basic journals in their field. The compensation and incentives provided to teachers at health training institutions should be part of the review and improvement of salaries and incentives for other health workers.

Conclusion

While their numbers have grown markedly since independence, health workers in Africa remain fewer on a per capita basis than those in other areas of the world. The composition of skills remains imbalanced in relation to needs in most countries, and deployment, compensation, and motivation are weak. Many more health leaders and managers are required to carry out critical policy analysis, planning and budgeting functions.

The situation calls for action at both the local and national levels, first to improve the utilization of available trained staff and second to increase the long-term supply of appropriately trained personnel. This chapter argues that district hospitals and district health management teams can successfully address a number of the problems that plague effective health sector personnel management. The most important area for action is supervision, with potential to improve motivation of health care personnel and increase productivity. A major responsibility for health sector personnel management will remain at the national level, however, so as to create an environment for effective management and supervision at the facility and district level. Personnel policies and planning including job descriptions and supervision norms are central to this work. They necessitate careful collaboration across units within Ministries of Health, with Ministries of Finance, Planning, and with Civil Service Commissions to ensure consistency, commitment, and capacity for implementation.

Change will not be easy. The agenda is a long-term one. It requires dealing with institutional rigidities, achieving effective inter-ministerial cooperation, and overcoming the conservatism of many health care professionals. Support for change will be found among public health personnel, in Ministries of Finance and Planning charged with using public resources more effectively, among beneficiaries of public providers of health care, and among donors.

CHAPTER 6: INFRASTRUCTURE AND EQUIPMENT

Introduction

Better health in Africa calls for the operation and maintenance of thousands of buildings with a wide range of sophisticated and largely imported equipment and vehicles. New buildings must be constructed as well, involving architectural and locational decisions that are compatible with health goals and resource constraints. If infrastructure and equipment are allocated inefficiently or inequitably, the delivery of health care services will be undermined. And without proper maintenance, existing facilities and equipment will fall into disrepair. This applies equally to facilities in the private and public sector.

Challenges facing the public sector are particularly immense because governments tend to be heavily involved in financing and operating health facilities. Many countries face high infrastructure costs, especially the poorer countries with lower population densities. In the Sahel countries, construction costs are estimated to be twice as high or even more than in other African countries. Public resources for health have also been concentrated on tertiary infrastructure and equipment, when greater health benefits could have been provided to the population as a whole through lower level facilities. In Cameroon, the Ministry of Health allocated only 22 percent of its investment budget to health centers in the early 1980s, while hospitals received 66 percent (World Bank 1984a, p. 48). Under-funding of recurrent resource needs for maintenance has been particularly problematic. In Ethiopia, for example, building maintenance budgets for health care facilities in the mid 1980s were only 10 to 20 percent of appropriate levels (World Bank 1985a, p. 28). With these patterns of expenditure, African commitments to primary care will necessarily remain symbolic.

This chapter begins with a review of the state of health infrastructure and equipment in Africa. Two problems dominate: *inappropriate and insufficient expansion*, and *poor planning*. Reviewing the present situation sets the stage for sizing up what is missing and what is needed to fill critical gaps in the planning and management of physical facilities.

Performance

High population growth rates have made it difficult for African countries to expand and, in some cases, even to maintain existing coverage with health facilities. For example, just to maintain current low levels of coverage, and assuming that one health center can serve about 5,000 people, Mali would need, in the 1990s, to increase the number of its health centers by 242. This is nearly five times the increase of 52 health centers achieved during the 1980s (see

Table I. The Growth of Health Centers in Selected African Countries and the Challenge Ahead

	Number of Health Centers			
	Actual Number		*Number Needed in Year 2000*	
	1980	*1990*	*To Maintain Current Coverage*	*To Reach 60% Coverage*
Burkina Faso	169	860	1,100	1,400
Mali	470	522	760	1,300
Niger	240	460	630	1,270
Senegal	470	690	900	1,200

Source: World Bank 1992a.

Table I). Other countries, including those beyond the Sahel, face similar challenges. In Tanzania, population growth has led to a gradual decrease in health service coverage (World Bank 1990d, p. 4).

Responding to the needs implied above, some countries have actively promoted expansion of facilities at lower levels in the health system. To illustrate:

- Botswana has given special attention to development of health infrastructure at the bottom of its health care system. Clinics grew from 40 in 1974 to 150 in 1986 and health posts from 22 in 1974 to 227 in 1986; over the same period, the number of referral and district hospitals increased by less than ten percent (World Bank 1989a, Annex 3.3, p. 1).

- In mainland Tanzania the number of lower level facilities known as dispensaries rose from 1,847 in 1976 to 2,600 in 1980 and 2,935 in 1988 (World Bank 1989g).

- In Mozambique the number of facilities equivalent to health centers rose from 326 in 1975 to 1195 in 1985; similarly, the number of district hospitals rose from 120 in 1975 to 221 in 1985 (World Bank 1990c, p. 37).[3]

For the most part, however, priority has been given to inappropriate tertiary and other inpatient facilities. In Ethiopia the number of people per hospital bed fell from 3,500 in 1970 to 3,400 in 1980, and in Rwanda from nearly 800 in 1970 to 650 in 1980. Sao Tome and Principe enjoys one of the highest hospital bed ratios in the developing world. In 1990 there was roughly one hospital bed for every 190 people, twice as high as in Nigeria and nearly three

3. In Mozambique these facilities are known as "health posts" and "health centers" respectively; however, they are approximately the same types of buildings as the health centers and district hospitals discussed in Chapter 3.

times as high as in Colombia (World Bank 1991b, p. 10). These accomplishments have come at a high price, tend to be concentrated in urban areas, and are of disproportionate benefit to relatively well-to-do households (see Chapters 3 and 8).

Poor planning is visible in an inappropriate location of facilities within rural and peri-urban areas, uncoordinated community initiatives for facility expansion, and weaknesses in project design and execution. In Guinea-Bissau, for example, one region has more than five times the number of hospital beds per person than another, more populated area (World Bank 1991d, Annex I-3, p. 17). In Burundi the population served by health centers varies from 870 to over 17,000, with a mean of around 2,500 people per center (World Bank 1987a). Even in Tanzania, where a special effort has been made for health equity, a sample of primary care facilities in 1984 revealed that some dispensaries served only about 1,500 people compared to the target of 6,500, while others were expected to serve populations many times larger than the target (World Bank 1990d, p. 4.).

Poor locational planning is particularly apparent in imbalances between urban and rural areas. A study of health stations in Ethiopia in 1985-1986 found they served only 16 patients per day, many fewer than the 90 to 100 anticipated, and concluded improper location of facilities was responsible for low coverage and patient referral. In rural Nigeria more optimal location of maternal and child health facilities was estimated to be able to increase coverage by 20 percent (Kloos 1990). In fourteen African countries for which data are available, less than 50 percent of the rural population are reported to have had access to health care facilities in six countries, whereas 90 percent or more of the urban population in eight of the countries had access to facilities in the same period (see Table II).

Lack of coordination between the public sector and non-governmental providers has complicated matters. Decisions on the location of public sector facilities need to take into account planning of non-governmental providers. In some countries such as Uganda, private voluntary organizations (church missions) are visibly active, endeavoring to meet the needs of the underserved in rural areas. Governments can build on, or complement such networks, with appropriately planned public facilities.

Lack of coordination between government providers and community initiatives is another manifestation of weak planning. In a number of countries, health centers have been built by communities with the understanding that the public authorities would take them over and operate them, but adequate resources have

Table II. Access to Health Care Facilities, Selected African Countries, Late 1980s, and the Need for Location Planning

Country	Urban Access	Rural Access
Botswana	90	85
Burkina Faso	51	48
Congo	97	70
Côte d'Ivoire	92	45
Kenya	80	53
Liberia	50	30
Madagascar	90	30
Malawi	90	69
Mauritius	99	99
Nigeria	87	62
Rwanda	60	25
Somalia	50	15
Tanzania	94	73
Togo	60	20
Zimbabwe	90	80

Source: Statistical Appendix.

seldom been set aside for this purpose. In Mauritania, with the official encouragement of community participation, health posts have been built by local communities following no particular coverage plan. In some regions, the proliferation of health posts has resulted in excessive demand on personnel and other material resources (World Bank 1991e, p. 5). Financial and other constraints have frequently inhibited the assumption of responsibility for operations by public authorities and de-motivated the communities concerned.

Poor project design and execution are a final manifestation of weak health infrastructure planning in Africa. The range of construction standards and execution methodologies and the lack of norms for health facilities and other social infrastructure leads to over-sized facilities, substandard construction, and high unit costs. Unit costs for almost identical health center buildings in Mali, for example, varied by a factor of four in the late 1980s (World Bank 1992a, p. 9). In the Sahel countries construction costs range from US$750 to $1,200 per square meter for construction of primary care facilities, compared with more reasonable costs of US$350-450 per square meter in other African countries (Porter 1992). In the absence of norms for determining catchment areas, those responsible for planning construction programs at the central level have often been unable to identify the type and size of infrastructure needed to accommodate health care services.

The Decline of Health Infrastructure and Equipment

Over the past decade, *existing* health facilities have suffered greatly in most African countries. A 1985 study in Tanzania found that only 660 out of 1,800 rural government dispensaries were in good condition, while 810 were fair and 330 in bad condition (World Bank 1989g, p. 54). A survey of 15 Kenya Ministry of Health hospitals in 1990-1991 found that 40 percent of the buildings were in poor or unsatisfactory condition (Porter 1992). Some hospitals, such as the Tres de Agosto Hospital in Guinea-Bissau, have declined beyond the point of repair (World Bank 1991d, Vol II, Annex I-3, p. 4). In Equatorial Guinea there is an extensive network of health facilities in most cites and small towns, but they require major repairs to make them usable (World Bank 1992f). And in countries such as Angola, Mozambique, Somalia, and Sudan, damage inflicted by civil war has exacted an immense toll on health structures.

Deterioration applies to health equipment as well as to buildings. In Nigeria, for example, one study found that close to one-third of the equipment in health care institutions was not in service (Erinosho 1991) (see Table III). Studies of secondary hospitals in Nigeria carried out in 1992 suggest that around $47 million of total equipment assets of $150 million would require repairs and that another $35 million would be needed for re-investment in essential items (Porter 1992). Studies of thirteen Ministry of Health hospitals in Kenya found 40 percent of total equipment out of order and 40 percent of operating room equipment in need of repair (Porter 1992). A 1987 survey of seventeen hospitals in Uganda found that only 20 percent of inventoried equipment was in working order, while only 30 of the remaining 80 percent was worth repairing (Porter 1992).

The use of vehicles in health services has been greatly impeded due to a lack of fuel, maintenance, and repairs. In Ghana a 1987 inventory of Ministry of Health vehicles found that only 167 out of 660 were road-worthy, 230 needed extensive repair, and 263 were worthless

Table III. Health Care Equipment Not in Service in Nigeria, 1987

A study in Nigeria found a significant share of the equipment in health care facilities not in use. In general, the more sophisticated the health care facility, the more equipment was out of use and the longer it was out of service.

	University Teaching Hospitals	*State-Owned Hospitals*	*Nongovernmental Hospitals*	*Primary Health Centers*	*Total*
	Pieces of Equipment Not in Service Compared with Those in Use				
Pieces in use (%)	69	57	78	90	70
Pieces out of order (%)	31	43	23	10	30
	Duration that Equipment Was Out of Service				
Duration					
< 2 years (%)	19	22	33	40	20
2-4 years (%)	40	24	67	60	38
> 4 years (%)	41	54	-	-	42

Source: Erinosho 1991.

(World Bank 1989c, p. 41). In Guinea-Bissau during 1990, 42 percent of the Ministry of Health vehicles were inoperable, needing repairs and spare parts. The Ministry has had no vehicle maintenance program since 1986 (World Bank 1991d, pp. 28-29). Yet, mobility is essential for effective health care, for staff involved in preventive and community outreach programs, for personnel responsible for supervision, and for an effective referral system.

Africa's tertiary hospitals, though disproportionately favored in Ministry of Health expenditures, have not escaped decline. This is typified by a report on Queen Elizabeth II Hospital in Lesotho, which found buildings in poor physical condition, shortages of basic equipment, lack of maintenance capability, uneven distribution of workloads, weak planning, little staff development and supervision, and poor financial management (World Bank 1989d, p. 10.).

Under-financing of maintenance and repairs — virtually universal in African health care systems — is particularly apparent in public sector facilities. In Nigeria, a study of one state found that *public* hospitals and maternities spent only 5 to 8 percent of their budgets on non-personnel items such as maintenance, transport, and supplies compared with only 17 to 18 percent in *private* sector facilities (World Bank 1991c, p. 62). In Dar es Salaam, Tanzania, the budget for preventive maintenance of health facilities in the late 1980s was less than one percent of requirements (World Bank 1990d, p. 5). In Guinea-Bissau, the budget of the Ministry of Health for preventive and routine maintenance in 1989 was only $5,000 for the entire country (World Bank 1991d, p. 11). A study of six district hospitals in Malawi found that an average of only 1.5 percent of recurrent expenditures were devoted to building maintenance and 0.2 percent devoted to equipment maintenance in 1987-1988 (Mills 1991, Table IV). The problem

is frequently complicated by division of responsibility: building maintenance is often the responsibility of ministries of works.

The low priority given to developing skills for maintenance and repairs further exacerbates the deterioration of physical infrastructure. In some cases, such as Senegal, civil service personnel assigned to maintenance do not perform adequately because suitable skills and appropriate supervision are lacking. In Zimbabwe, equipment maintenance personnel are in desperately short supply; of all categories of workers in the Ministry of Health, the highest vacancy rate in 1990 was for medical equipment technicians (World Bank 1991k, p. 12).

What is Missing?

Physical proximity to health care facilities is only the beginning of effective health care coverage at the community level. It does no good to have a health facility, even within a short distance of one's home, if the necessary equipment and services are unavailable or inoperable. In many African countries this problem has arisen partly because plans to construct new facilities failed to take into account financial capacities to operate them. Some of these problems can be addressed by cost recovery and improvements in the quality of care at lower level facilities, as discussed in Chapter 8. What remains critical, however, is to improve on the planning of infrastructure, equipment choice and operation, and the financial and human resources that underpin health facilities.

Efficiency gains are possible in many areas, at health centers, district hospitals and tertiary facilities. The challenge facing health facility planners is to come to grips with a lack of investment in facilities and equipment; lack of recurrent expenditure budgets to operate them; over-sized or otherwise inadequate buildings; inappropriate plant or equipment; defective facilities and equipment; and poor maintenance. Effective management of facilities and equipment at the health center level, for example, requires far less technical knowledge than for tertiary care. The balance of this chapter provides rough guidelines on how management infrastructure and equipment might be improved, based on lessons learned in a number of African countries.

Steps to Greater Efficiency

Cost-effective allocations of financial resources for infrastructure and equipment tend to be those that give priority to rehabilitation over new investment, and to health centers and district hospitals over tertiary facilities. Rehabilitation needs are widespread. Rehabilitation planning requires careful analysis of existing investments and a clear ranking of priorities compatible with policy commitments to preventive and primary health care. Mali, for example, has begun to establish a foundation for this kind of analysis with a data bank on existing infrastructure, equipment, and associated health care services, to be published periodically by local health authorities in a *carte sanitaire* (World Bank 1991g, Annex 3-8).

Norms, skills and procedures for the location of health facilities and for the maintenance of buildings, equipment, and vehicles also need to be established and carefully monitored. Norms should cover physical maintenance and financial resources for maintenance and should

apply to non-governmental as well as public sector facilities. As a general rule, African countries should expect to spend between 2 and 3 percent annually of the replacement cost of health centers and hospital buildings on maintenance. A detailed study of Kenya, for example, led to an estimate of 2.6 percent (Porter 1992). Specific standards for equipment maintenance, repair, and replacement are also needed. As a rule-of-thumb, devoting annual expenditure to maintain and replace equipment equivalent to 20 percent of the value of the stock of equipment has been suggested (Bloom and Temple-Bird 1988). Another way to look at the same issue is in terms of the recurrent cost of operations. As a general rule, around 10 to 15 percent of recurrent costs will likely be required to maintain a first referral hospital (Barnum and Kutzin 1991).

Standardized equipment lists for various types of health care facilities are also needed, along with norms for maintenance and repair. WHO has prepared global norms in a number of related areas, such as the estimated annual cost of maintaining specific types of medical equipment as a percentage of capital cost (Kleczkowski and Pipbouleau 1983). Ghana is planning to go beyond this in a Hospital Equipment Maintenance Service. The Service will have defined functions at different levels of the system, workshops, equipment and tools, vehicles, spare parts and staff and training programs (World Bank 1990b). Mozambique is establishing a national network of health facility and equipment maintenance centers (World Bank 1989e, p. 27). The experience of non-governmental partners is often relevant (see Box 1).

Box 1. Successful Maintenance in Zambian Mine Hospitals

The public sector in Zambia is facing great difficulties in providing and sustaining medical equipment services. In public hospitals, about 20 percent of medical equipment is working at fault and 40 percent is completely out of operation. Zambia Consolidated Copper Mines (ZCCM) has established a health care system of its own, separate from the public sector and consisting of 11 hospitals and 58 health centers. It has developed a good maintenance system for its medical equipment, which is about the same age as that in the public sector. Its ability to do this has been due to the following factors:

- It has established an autonomous body, the Medical and Educational Trust, to operate all health care facilities and train health care and operational personnel.
- It has established work practices which encourage good staff performance, combined with strong supervision and incentives. It offers better conditions of service than the public sector and has higher staff retention rates.
- ZCCM has recognized the importance of maintenance in its operations and health care activities. Mine hospitals are significantly better financed than their public sector counterparts and therefore receive adequate maintenance budgets and foreign exchange.
- It has separated medical equipment maintenance and safety policies from its operational activities and wisely applied technical and human resources, maintenance, and management expertise from industrial instrumentation to medical applications.
- Initial training in management and maintenance for health care specialists has been conducted by mine operational staff. Some operational maintenance staff have been seconded to mine hospitals.

Source: Temple-Bird 1991.

When health center facilities and equipment are well managed, local communities tend to be involved. The basic principle underlying these arrangements is that facilities planned without the active participation of beneficiaries will, at best, be treated with indifference. If appropriately planned, partnerships constitute a powerful instrument for promoting local initiatives and strengthening management through a sense of ownership. As part of a World Bank-financed health and population project in Mali, for example, a cost-sharing formula — 50 percent government and 50 percent local communities — is supporting construction and planned maintenance of 120 community health centers over a five-year period.

The Special Problem of Tertiary Care Facilities

The management of tertiary level health facilities merits special attention in view of the drain they place on public expenditures (see Chapter 8). For the foreseeable future, the principal public policy concern with tertiary care infrastructure should be to increase efficiency without increasing budget allocations from government budgets in real and, if possible, even in nominal terms. Management audits can help this process. They should lead to the establishment of specific targets for efficiency gains, sponsored by ministries of health. At the Kenyatta National Hospital in Nairobi, for example, performance targets include: reducing the average length of inpatient stay from 8.6 days in 1989-90 to 7.1 days in 1995-96; a nearly 20 percent reduction in staff per 1,000 patient days, from 5.4 to 4.0; and an increase in the ratio of maintenance to recurrent expenditures from 2.2 percent to 6.0 percent. Malawi has prepared five-year efficiency plans for its three major hospitals, with proposals for cost reductions covering transport, utility systems, other expenditure items, and improved accounting and expenditure control capacity (World Bank 1991f, p. 41).

The designation of one hospital as a center of excellence, to help train staff of other hospitals and health facilities through a program of study visits, has particular appeal. Mozambique plans to move in this direction and is organizing special seminars and short training courses to this end (World Bank 1989e). Caution is needed, however, to ensure that centers of excellence avoid becoming sources of health care services that are not consistent with the distinct role they are intended to play.

Assessing Technology Choice

In many countries, even in the leading hospitals and medical schools, modern technology is rarely used properly (Free 1992). Technology is much more than equipment and machines. To be put to good use, it needs an environment in which every component interacts at the right place and at the right time. The more complex the technology, the greater the risk that some links in the chain will break down. Introduction of technology should therefore be seen as the transfer of a package with multiple components: equipment, training, maintenance, quality control, capacity to translate the results of quality control analyses into decisions, and human, financial, and other resources required to implement the decisions.

New technologies are rapidly extending the scope and range of possible interventions throughout the health system, from the primary care level to the referral hospital and beyond.

• Computers now make possible the processing, retrieval, and presentation of large amounts of vital statistics and health data needed for planning, implementation, and evaluation of health programs, assessing risks, and conducting epidemiological surveillance at the district, regional, and national levels. Management of pharmaceutical supplies can be made more efficient through computerized updating of inventories, thus preventing waste and reducing costs. Computers are only helpful, however, to the extent that they support a management information system with adequate software and maintenance.

• Radio-communication has proved essential in mobilizing appropriate resources following threats of epidemics or natural disasters. Health activities in rural areas can be better integrated into district health care, using two-ways radios, particularly if transport is available for patient evacuation where necessary. Consultation for diagnosis and treatment improves the efficacy of services and reduces the cost of referral.

• New diagnostic tests for diseases with high prevalence such as dipsticks for HIV and other STDs, or tests using saliva, may bring diagnostic technologies to the community level which were previously restricted to high performance specialized laboratories.

• Non-invasive diagnostic techniques with both high sensitivity and high specificity such as ultrasound, have considerably improved the diagnostic potential at the district level. Less invasive treatment regimes, employing "key-hole" surgery technology, for example, can minimize trauma to patients and reduce average length of stay in hospitals. A shift to "day-surgery" with improved technologies and care practices, as is now being done in many industrial countries, could help to contain the demand for increasing numbers of hospital beds and facilities (Porter 1992).

• The development of drugs administered in a single oral dose has drastically modified the therapeutic approach to diseases such as helminthiasis and amoebiasis. Similarly, thermostable vaccines requiring a single oral dose have increased the hope for controlling children's diseases such as measles and polio. Drug kits and blister packs fall in the same category.

Notwithstanding commercial interests, the greatest challenge to improving the mix and use of technology in Africa is "technology philanthropy" — the unplanned and uncoordinated donation of equipment by foreign agencies and charities. This process leaves developing countries almost defenseless, as it is hard to refuse donations even though they are often ill-suited to the needs of recipient countries or break down for a lack of spare parts. One potential solution would be to devise "donation protocols" whereby the kinds of equipment and technology offered and accepted would follow a model, paralleling, for example, the selection of drugs using essential drugs lists (Porter 1992). Much of the work on technology assessment and choice lends itself to inter-country cooperation, since the cost of undertaking research and preparing appropriate recommendations is likely to exceed the capacities of most individual African countries. At the international level, some support for such work exists, including a joint Technology Introduction Panel inaugurated by UNICEF in 1988 with involvement of UNICEF, WHO, and other international agencies (Free 1992).

Box 2. Acquiring New Technologies

There is generally no established mechanism in African countries for planning the *acquisition* of new health technologies. Awareness of technologies per se is not a problem, since there is a sufficient pool of knowledge at universities, among staff returning from abroad, and among consultants and donors. It is the process of technology transfer that is problematic, usually made on an ad hoc basis, according to vested interests, pressures, and prejudices.

When there is some form of planning, the acquisition of new technologies is to a large extent controlled by physicians, and more likely than not by clinicians trained abroad. They are generally not the best persons to perform this task. While the medical profession can readily pinpoint a problem, it generally has little idea of the complexity and extent of the engineering problems and of the level of training associated with the technologies needed to solve them. Rather, a team is needed, including public and non-governmental health care providers, engineers, planners, and social scientists — to ensure that the broader cultural, social and economic dimensions are considered. Public, private voluntary and private commercial perspectives are all useful to this end.

Because health technologies are the fundamental units of resource allocation in health care, African governments need to support operationally-oriented research that will facilitate decisions on whether to introduce new tests, treatments, and their associated technologies into their countries' health care systems. Factors to be considered include the appropriateness of the intervention, the ease of its use and maintenance, its training requirements, and its life-time cost. A cautious attitude towards uncontrolled diffusion of medical technology is emerging increasingly in the industrial countries, and African policy-makers would do well to exercise prudence in the face of quite understandable pressures for investment. Selection of appropriate equipment, and arrangements to limit the number of suppliers, to ensure maintenance, are appropriate ministry of health roles. Training of personnel for health technology assessment and for maintenance and repair of physical assets is critical.

Conclusion

Strengthening the management of infrastructure, equipment, and technology is a requisite to achieving health goals in Africa. The successful delivery of a basic, cost-effective set of health care services to the vast majority of Africans requires it. One concrete step would be for governments to assign a senior Ministry of Health official to assume responsibility for health facilities, equipment, and technology. Another would be to establish norms for designing and equipping health facilities at different levels in the referral system and to support research on the most cost-effective technologies available. Budgetary provisions for maintenance and operating costs need to be established, particularly in public health facilities. And, since the financial resources required to provide basic health care services are so intimately linked with cost overruns and inefficiencies at the tertiary level, more efficient use of technologies, equipment, and facilities in hospitals should be a priority concern. A WHO global action plan for the management, maintenance, and repair of health care equipment may assist in this area.

CHAPTER 7: MANAGEMENT CAPACITY AND INSTITUTIONAL REFORM

Introduction

Effective institutions and integrated systems of health care are products of an evolutionary process. Most countries in Africa inherited health systems from colonial regimes with management practices and administrative structures that were highly centralized, both geographically and hierarchically. Since then, they have been gradually evolving in reaction to performance problems, learning-by-doing, financial and human resource constraints, and experimentation with different forms of health care delivery. Yet, systemic problems remain deeply entrenched. Restructuring and reform must be accelerated if national capacities and institutional effectiveness are to speak more directly to the health needs of households and communities.

Perhaps the most visible problem is that Ministries of Health tend to be preoccupied with activities for which they are ill-equipped and have little comparative advantage, rather than being fully engaged in managing public health goods and services. Management of central or tertiary level hospitals is a classic example. Hospital management is increasingly recognized as a specialized discipline in industrial countries, and only a few African countries, such as Zimbabwe, have begun to develop and utilize hospital management expertise. Such entities require administrative and management skills suitable to running large corporations, and involve decisions about exceedingly expensive medical technologies. Ministries of Health were neither designed, nor staffed with the expertise to manage such facilities, with the result that governments are frequently indicted for poor hospital performance and cost overruns. In the process, financial and human resources required to manage the financing and provision of public health services tend to be depleted.

A second, and related problem, is that institutional arrangements conducive to an intersectoral approach to health are seldom in place. This applies particularly to the planning, budgeting and coordination of financial requirements, involving Ministries of Planning and Ministries of Finance. As discussed in previous chapters, Ministries of Health cannot achieve better health in Africa alone. Sustainable outcomes require provisions for safe drinking water, sanitation, nutrition, and health education which are outside the traditional purview of the medical profession. Without coordinating mechanisms and incentives, particularly at the regional, district, and community levels, the planning and implementation of inter-sectoral interventions will remain haphazard.

A third problem is that health systems continue to be fragmented by programs and projects that have been "tacked on" as addenda in the service of particular interest groups, and shifting goals and priorities. Many such initiatives originate from the donor community, in the form of special programs and resolutions. In Ghana one study observed that donors compound management problems by preparing programs according to their own priorities and perceptions (World Bank 1990a, p. 5). They often by-pass or explicitly avoid addressing systemic issues with staff, goals, and budgets that are almost independent of existing health systems. Failure to integrate such activities as part of a comprehensive national policy results in problems of duplication, overlap, lack of consistency in standards and procedures, and inconsistent or disjointed policy recommendations.

Fourth, symbolic commitments to preventive and primary care continue to be undermined by overly centralized administrations which have failed to provide appropriate organizational frameworks, managerial processes, financial and human resources, incentives, and support to lower levels. In Benin the organizational structure of the Ministry of Health has been characterized as over-centralized and managerially weak (World Bank 1989f, p. 10); in Burundi, the planning process has been described as overly-centralized and too rigid to respond to the specific needs of communities (World Bank 1987a, p. 16); and in Côte d'Ivoire the health care system has been observed to be highly centralized, with decision-making the exclusive responsibility of the state. Various modes of health service decentralization have been attempted in African countries, but success has been undermined by ambiguous linkages between various levels of government and inadequate expenditure authority at the local level.

Fifth, advantages of community involvement are only beginning to be realized as a linchpin of better health in Africa. If hundreds of thousands of communities in rural and peri-urban areas are to be more than just objects of health care delivery, they must take their proper place as participants in shaping and managing local health services, thus counterbalancing weaknesses in capacity at the national level. Yet, the prerequisites and conditions for community involvement are lacking in many countries despite symbolic commitments and international conferences on the subject. The most critical requisites are sustained political commitment and, where necessary, retraining of staff (WHO 1988a, p. 56). Medical officers at the local level often fail to appreciate the value of community participation, nor are they sufficiently trained or motivated to facilitate community involvement. Receptivity of the political environment is yet another issue. In Senegal studies of health facilities in the Dakar metropolitan region revealed a low level of confidence in community management committees, on the suspicion they were dominated by politicians (African Population Advisory Committee 1993).

Sixth, the potential benefits of information, education, and communication programs for change in health-related behavior at the household level are hardly being exploited in many African countries. In this sense, over-concentration of health policies and programs on health care *systems* is at the expense of micro-level improvements. To prevent this from happening, new efforts to disseminate beneficial health information need to be directed to behavior change at the individual and household level (see Box 1).

Box 1. Information, Education, and Communication and the Health Behavior of Individuals and Households

Information, education, and communication (IEC) programs for health have begun to assume increasing attention in Africa as a means of improving knowledge about self-care and best practices. This is a two-way street however. Effective IEC programs aim to establish what sorts of health activities will engage the cooperation, or lack of it, of households. The importance of changing behavior also has gained greater attention in health circles as a result of the HIV pandemic. A few examples of success:

- The Happy Baby lottery campaign in The Gambia taught mothers the proper mixing and administration of oral rehydration salts (ORS), to reduce child mortality caused by dehydration from diarrheal disease. An independent evaluation after two years showed that, in diarrhea cases treated at home, the share treated with ORS increased by 22 to 94 percent.

- The Man is Health program to educate villagers in Tanzania on disease control led to the construction of hundreds of thousands of latrines and to significant increases in sales of mosquito nets. Approximately 2 million adults followed the Man is Health radio program.

- Social marketing, using commercial marketing techniques to sell socially desirable products and services below their full cost, shows promise for expansion beyond population, family planning and condom promotion for AIDS prevention, into other health areas. A pilot project to demonstrate its feasibility to treat and prevent sexually transmitted diseases has been underway in Cameroon since 1991.

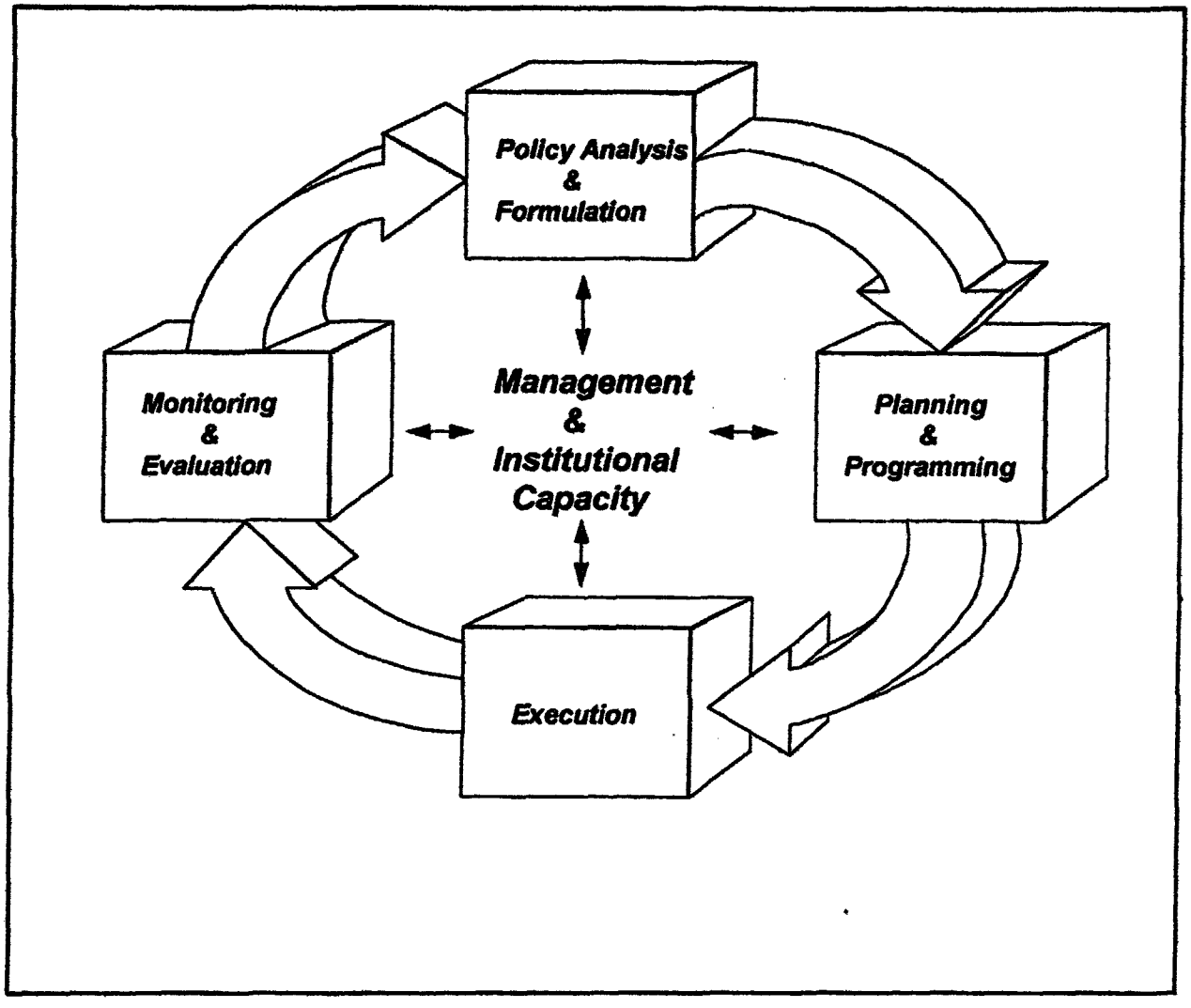
Consulting beneficiaries and taking their views into account is an especially important aspect of efforts to promote changes in health-related behavior. Program planners too often operate within their own paradigms and make unrealistic assumptions about the values and desires of people whom they intend to help. Contrary to the frequent desire of health professionals to keep the modern and traditional systems of care separate, a beneficiary assessment in Lesotho led to decisions to bring traditional healers into the national health system, to give them basic health courses, and to provide village health workers with aspirin and other simple remedies to facilitate their interactions with beneficiaries. (Hall and Malesha 1991)

Analysis is needed to formulate and test effective IEC strategies and messages. Essential tools for changing behavior include organized inter-personal communication programs and media-disseminated information — as distinct from formal classroom learning - provided in ways that are comprehensible and acceptable to the varied audiences in Africa, and backed by social science research on different messages. And, despite the evident importance of reaching people in their own language, a survey of twelve countries in eastern and southern Africa revealed that none possessed sub-national or regionally-based, local language radio stations that were geared to community programming (Johnston and Zeeuw 1990).

And finally, institutional capacities for research on multiple determinants of health are extra-ordinarily limited in Africa. An Independent Commission on Health Research for Development found there were 62 researchers per million people and a total of over 8,500 researchers in Brazil compared with only 7 researchers per million people and a total of 300 researchers in Ethiopia, 14 and 125, respectively, in Zimbabwe, and only 1 and 10, respectively, in Mali. More generally, the Commission found that research capacities suffer from limited opportunities for professional development and career advancement, weak and unstable institutional environments, insufficient and erratic funding, and lack of appreciation for research (Commission on Health Research for Development 1990, p. 51).

Reform and restructuring require a systematic approach involving careful assessment of country-specific conditions, planning, and a timetable for change. As the experience of many African countries shows, deeply entrenched problems cannot be resolved over-night.

Figure 1. Dimensions of Capacity Building for Health



Commitment to the reform process and measurable steps on the transition path are, however, essential. Nor is a single recipe likely to be appropriate for all countries. This chapter begins by summarizing lessons learned about forms and processes of public administration and management that are compatible with carrying out the functions described in Figure 1. It then takes a closer look at management practices associated with district health systems, and community involvement in their operation. This draws on the experience of growing numbers of African countries that are promoting decentralization to district-based health systems, and is consistent with the approach featured in this report.

Initiating Reform

To strengthen management and institutional capacities at the central, regional, district, and especially the community level, studies by African governments, the World Bank, and other donor agencies suggest that reforms need to be initiated on at least six major dimensions (Vaillancourt and others 1992; North 1992).

Optimizing Performance of Existing Institutions

The process of strengthening management and institutional capacity should start with a situational assessment of existing structures. Institutional performance is often undermined due to unforeseen bottlenecks. Weak links can be strengthened through internal reorganization, management changes, and if need be, changes in legal status affecting decision-making and institutional coordination. The challenge is to replace piece-meal assessments of various components of the health system or single institutions, with more comprehensive assessments by those involved in its daily operation.

Comprehensive assessments can be informed by internally driven diagnosis of current versus desired structures, functions, and skills. A situational analysis has been launched in Guinea, Benin, and Togo, informed by a strategic vision of the future (World Bank 1993c). Three groups of "stakeholders" have been involved, working together on common problems in a seminar environment. One group consists of community representatives who speak in the interests of clients of health services. A second group consists of health personnel, who often feel helpless in modifying the system at large yet seek to improve their credibility in the functions they perform, by working together for change. A third group consists of policymakers and planners at the regional and central level.

Workshops have been convened to develop a paradigm of how systems are currently perceived to operate, gaps in their performance, and what is needed to fill the gaps. In the workshop consisting of higher level officials, for example, the diagnostic process begins with an assessment of needs as reflected by data on the epidemiological situation, human resources, and financing. It then assesses the sectoral programs and financing to meet those needs. Finally, participants deliberate on strategies to close gaps. The procedure typically follows the six steps described in Box 2, and is responsive to the overall cycle set out in Figure 1.

The benefits of this approach are unambiguous:

- The workshops have enjoyed wide and enthusiastic participation, including high-level officials and heads of departments in Ministries of Health, Finance, and Planning.

- A situational assessment of systemic problems is yielding a critical mass of sector managers who agree on terms, speak the same language, and generate consensus on major bottlenecks.

- The tendency to attribute long-standing problems, such as high infant and maternal mortality, to a lack of financial resources is being replaced by a more detailed diagnosis of what is required to resolve those problems — in terms of structures, logistics, management skills, personnel, facilities, and financing.

- Detailed ledgers of objectives, strategies, and programs — products of the workshops — are accumulating, generating a blueprint of important components of the health system, how they are perceived to function, and how they might be improved.

Box 2. Diagnosing Health System Performance in Guinea, Benin and Togo

STEPS		*SITUATIONAL ANALYSIS*
Step 1 Analyze Current Performance and Major Conditions Affecting Sector	→→→	Review of policies, strategies, and contents of actual programs; Identification of strengths & weaknesses in the system; Review of health services, their location and distribution; Analysis of systems of financing and resource allocation; Assessment of formation and deployment of personnel.
Step 2 Identify and Prioritize Problems and Constraints Meriting Attention	→→→	Inadequacies in current menu of policies and strategies; Management, evaluation, coordination problems in programs; Resource allocation and budget management problems; Operational problems at various levels of service provision; Personnel management problems.
Step 3 Reflect on Appropriate Strategies and Sectoral Programs	→→→	Improved management and coordination systems Decentralization and mechanisms of community participation; Resource mobilization through cost recovery; Improving standards and norms in health care delivery; Training and redeployment schemes for personnel.
Step 4 Prioritize and Define Target Groups	→→→	Women of reproductive ages; pregnant women; Mothers and infants aged 0-5 years; Young adults, the old and infirm; Groups susceptible to particular maladies.
Step 5 Determine Indicators of Performance for Monitoring and Evaluating Progress	→→→	Total number of sick needing health care; Disadvantaged groups; Measures of reforms undertaken; Management information systems used for project evaluation; Health statistics; rates of coverage; Monitoring and evaluation of decentralization practices.

Source: World Bank 1992c.

Developing Policy and Planning Skills

Institutions cannot be run effectively unless managers are skilled, not only in policy analysis but also in planning, programming, and budgeting. Such skills are required to translate policy into implementable projects and programs, to ensure the availability, distribution, and management of human and financial resources, and to make available sound project and program management for implementation.

In Ghana a review of the health sector in 1990 found an almost complete absence of planning capacities in the Ministry of Health, almost no rational management procedures used in the day-to-day running of the Ministry, and a lack of records of decisions taken. It went on to conclude that without a radical restructuring of the system of administration and management, including the appointment of a core group of qualified managers to key positions, no significant improvement could be expected in the delivery of health care services (World Bank 1990a). Following this assessment, the Ministry of Health decided to create new planning units with

clearly identified work programs, staffing and recruitment needs, and a management information system to monitor performance.

In Nigeria, following the civil service reform of 1988, Ministries of Health at both the state and federal levels have established departments of planning. Qualified people have been hard to find, however. To help to fill this gap, three federal universities — Benin, Ilorin, and Maiduguri — are collaborating to run an accelerated three month program in health planning and management. Curriculum and training manuals for the program were jointly developed with the Universities of York, Leeds, and Keele in the United Kingdom, and the Johns Hopkins University in the United States. Nigeria's Federal Ministry of Health has been intent on conducting the program outside the faculty of health or medical sciences in the three institutions, so as to insure a multi-disciplinary approach, with teaching staff from management, social, and health sciences. Between 1990 and 1992, close to 400 medical and non-medical staff from the local, state, and federal governments have been trained in the three institutions.

Institutional effectiveness cannot be assessed or investment allocations be determined unless managers have the capacity to collect, compile and analyze demographic, epidemiological, and financial information. In Ghana like many other African countries, the monitoring of primary care has been stalled partially because of poorly functioning statistical and data systems. Ghana's Center for Health Statistics is currently responsible for collecting only limited data from hospitals and health centers. Reporting is substantially incomplete; and institutions outside the public sector are only partly included. Most available data has neither been analyzed, disseminated, or used systemically for policymaking (World Bank 1990a).

Skills and methodologies in public finance and information collection and management are particularly important, so as to develop the following:

- Health expenditure data. Expenditures on health need to be compiled by use and especially source — household and other private expenditures, public expenditures, and donor funds. Information on source of expenditures is particularly important to enable policymakers to assess the potential for private financing and cost recovery and the capacity of government to finance public health activities and provide subsidies. Time series data of this type were available for this report for only about one-third of African countries (see Chapter 8).

- Comprehensive health sector financial plans. Such plans need to encompass both public and non-governmental outlays. While such plans are gradually becoming more widespread, such as in Senegal and Zimbabwe, they remain non-existent in many African countries, thus rendering analysis of planned versus realized expenditures piece-meal and incomplete. They need to encompass recurrent and capital expenditures, as well as cost estimates for future programs and targets. In this way, shortfalls can be anticipated and plans to fill gaps formulated. A particularly important area is information on both present and future recurrent expenditure requirements of existing investments (see Chapters 5 and 6).

- Management information systems (MIS). To facilitate health planning, information on both the cost of services and health outcomes is required to determine cost-effectiveness of basic health services. MIS should also cover revenue collection and monitor the cost of medical

contacts by provider or institution. In Chad, for example, the Ministry of Health and Social Affairs has designed a health information system that has been operating successfully for several years. Annual reports are prepared with national-level information on health status, health services, and health facilities functioning. Information from the system is being used in planning at the national and provincial level, as well as in some districts (République du Tchad 1992).

Encouraging Institutional Pluralism and Inter-Sectoral Cooperation

Prior chapters have argued that governments have a mandate, as well as a comparative advantage to finance and ensure provision of public health services such as demographic and epidemiological data collection, health education and information, policy analysis and evaluation, monitoring and evaluation of targets, and setting of norms, standards, and regulations (see Chapter 1). Yet the tasks involved, being exceptionally demanding, can hardly be undertaken by governments alone and can benefit immensely from the activities of private voluntary and other non-governmental organizations (NGOs). The same applies to the important role that NGOs play in bringing health care to underserved populations. Inter-sectoral cooperation is an equally important dimension, since public services for health require interventions that go beyond the reach of the health sector alone.

The encouragement of institutional pluralism — and the willingness of governments to accept non-governmental bodies outside of direct state control — needs to be seen in the wider context of broadening civil society. The health sector can make important contributions in this respect. A first step is simply to refrain from harassing professional and private voluntary associations by means of unnecessary regulations (Landell-Mills 1992).

Benefits of institutional pluralism are apparent from the following examples:

- A Coordinating Assembly of NGOs for primary health care has been established in collaboration with the Ministry of Health in Swaziland, and a Primary Health Care Forum has been established for collaboration among the government and NGOs in Zimbabwe. These bodies include task forces on health education, water and sanitation, and health orientation and training. Partnerships of this nature help public and non-governmental bodies to share objectives and identify common targets. They can also facilitate the removal of barriers to the formulation and operation of private voluntary organizations, such as legal restrictions.

- National associations of public health professionals have been formed in Botswana, Kenya, Lesotho, Mozambique, Tanzania, Uganda, Zambia, Zaire, and Zimbabwe, in some cases in cooperation with the Canadian Public Health Association. The formation of such bodies facilitates consensus-building among health care providers on future health policies and strategies. Gaining their support and participation in the development, monitoring, and evaluation of health policies can go a long way toward improving effectiveness, especially in view of the multi-disciplinary nature of public health activities. These associations are members of the World Federation of Public Health Associations, an international NGO working to improve the health of people throughout the world. Regional public health associations are also evolving, including an East and Central African Association serving anglophone countries with headquarters in Arusha, and a Francophone Sub-Regional Association based in Kalimba.

• Collaboration between governments and religious missions has been particularly important to developing health partnerships in Africa. At the district level in Zaire, for example, 50 percent of 306 health zones established by the Five Year Health Plan of 1982-86 are managed by NGOs, or are in close collaboration with NGO assistance. At the national level the SANRU Basic Rural Health Project has combined the efforts of the Protestant Church of Zaire and USAID to develop 100 health zones throughout Zaire, 75 percent of which are being managed in collaboration with diverse local NGO groups. At the international level, upwards of 100 different international NGOs assist medical work in Zaire, largely by channeling assistance directly to hospitals or health zones. About half of the 65 member "denominations" of the Protestant Church are receiving assistance for their medical work from sister churches overseas (Sambe and Baer).

• Women's groups in Africa are striving to ensure that women's health issues receive adequate attention and support, and to encourage governments, international agencies, and religious organizations to take women's perspectives into account in designing health programs. In Uganda, for example, a group of women's NGOs formed a consortium in 1989 and are implementing a community-level program to reduce maternal mortality and morbidity, with funding from the World Bank and other agencies. Women's groups in Tanzania, Ethiopia, Uganda, Kenya, and other countries have taken the lead role in combatting harmful traditional practices such as female genital mutilation, through public information and advocacy targeted at national policy-makers as well as local decision-makers. In Ghana, the Ghana Registered Midwives Association provides a significant proportion of maternal health and family planning services, and is a key member of a task force that is advising the government on ways to improve the quality of maternal health services.

Lack of intersectoral collaboration is one of the most widely lamented features of prevailing health systems. Comprehensive health policies need to be formulated at the national level, and inter-ministerial committees need to be established to translate their inter-sectoral aspects, regarding water and sanitation, for example, into country-wide strategies and targets. The organizational framework for structural adjustment programs can help facilitate inter-sectoral cooperation for health. In Benin, for example, an inter-ministerial subcommittee for the structural adjustment program overseas sectoral reforms to ensure coherence with macroeconomic policies. Another interministerial committee coordinates and monitors the health sector reform program. This committee is chaired by the Minister of Public Health, and includes the Ministers of Planning and Finance as vice-chairmen, and representatives of the Ministries of Justice, Defense, Transport and Equipment, Labor, and Rural Development (World Bank 1989f, p. 17). Similar arrangements are in place in Togo.

To encourage action on as many fronts as possible, central and regional authorities can further act as catalysts to facilitate inter-sectoral collaboration at the local government, district, and community level. Here, too, the cooperation of core agencies responsible for planning and finance is essential. District development committees, comprising public sector representatives in health, education, nutrition, and public works (water, sanitation, and roads) can be mandated to assess the health implications of "non-health" investments and to prepare district-level plans for complementary health, water, sanitation, nutrition, and other investments.

Promoting Decentralization

The decentralization of decision-making and management authority is viewed by many, if not most developing countries, as a viable means of achieving greater efficiency and equity in health. Some countries have pursued decentralization aggressively and have redefined roles and responsibilities which, in principle, should fill gaps. The pace at which countries pursue decentralization, and their understanding of its content, however, are conditional on the interaction of many factors, some pushing hard for decentralization, others resisting it. Among these are (North 1992):

- Changing attitudes towards governance and international trends favoring decentralization in support of primary care, but countered by bureaucratic resistance to shifts in decision-making power by the political and medical establishment.

- Increased demands for control of budgetary resources at provincial and local levels in view of poor delivery of publicly financed and provided health services, with inertia and bureaucratic resistance from central governments that have traditionally controlled the purse strings for health.

- Motivation to attune health programs to local cultures and traditional health practices in reaction to top-down programs that have sought to change behaviors with insufficient regard for socio-cultural concerns.

- Desire to move away from donor driven agendas and investment programs associated with donors, to nationally determined priorities with inputs from participants and beneficiaries right down to the community level.

Decentralization to the district level, as discussed throughout this report, can be expected to bring major changes in institutional roles and management responsibilities. A clear distinction needs to be make between administrative supervision, technical supervision, and advisory and guidance roles, all within a context of hierarchical responsibility. Functions typically performed at various levels of decentralization are summarized in Box 3. Most important is to establish the level to which power and authority are to be decentralized; the policy instruments to be used to effect decentralization; and the types of activity to be decentralized (Conyers and others 1992, p.6). Even if discretionary authority is legally assigned to local authorities, the de facto structure of financial incentives and responsibilities for salaries and careers may continue to remain with central ministries. In Tanzania, despite formal decisions on decentralization, vertical programs tend to set national objectives before district health teams fix theirs, leading to distortions in resource allocation (World Bank 1989g, pp. 61 and 105).

Experience gained thus far strongly indicates that successful decentralization requires definition of the specific objectives sought, a clear delineation of functions at each level, mechanisms for communication and coordination among the various levels, and sufficient training to enable full assumption of decentralized responsibilities (Vaillancourt and others 1992). In district-based health systems, for example, central and regional staff will have to re-orient their work, skills profiles, and attitudes from exercising control as direct supervisors to

Box 3. Roles and Responsibilities Under Decentralization of Ministries of Health

Decentralization necessitates clear and specific delineation of responsibilities at each level of the health care system. While there is inevitably variation among countries, Ministries of Health tend to be responsible for:

- health policy formulation
- production of national health plans and regional and local health planning guidelines
- advice on allocation of resources, particularly capital funds
- public health budget analysis and formulation
- high level technical advice for specific programs
- monitoring of pharmaceutical policies, drug quality, availability, and distribution
- planning, training and regulation of health personnel
- regulation of private profit and non-profit health care providers
- oversight of health care organizations and health research institutes with a national mandate
- norms and standards concerning health infrastructure, equipment and technology
- liaison with international health organizations and aid agencies

Regions and/or Provinces tend to be responsible for:

- regional health planning and program monitoring
- coordination of public and non-governmental regional health activities
- monitoring and, in some cases, employment of public sector health manpower
- compilation of health expenditure budgets
- approval of large scale capital projects outside the public sector
- supervision of district health teams
- provision of logistical support to district health teams

Districts tend to be responsible for:

- management of all public sector health facilities with local responsibilities
- monitoring and, often, implementation of community-based health programs
- management and control over local health budgets
- coordination and supervision of all government, NGO and private health services
- promotion of active links with local government departments
- promotion of community participation in local health services planning, implementation, and monitoring
- preparation of annual health plans and reports
- raising additional local funds
- in-service training, especially on-the-job support, of health workers
- supervision and control of community health workers
- collecting and forwarding routine health information to regional and central offices
- dialogue with beneficiaries of health services and their representatives

Source: Adapted from WHO 1988a.

emphasizing policy formulation, strategy development, resource allocation, and technical backstopping. Such functions are in keeping with the mandate of Ministries of Health to provide public goods and services, as reviewed in Chapter 1. They are also among the weakest links in district-based systems today. In Ethiopia, for example, an evaluation of decentralization to the district level found that progress has been undermined by a Ministry of Health that was not conceptually, technically, and managerially strong enough to support a district-based system. District Health Committees received insufficient guidance from the regional administrative and health offices regarding the range of problems they should address, and the Ministry of Health

failed to sufficiently to pave the way for intersectoral collaboration at the district level (Ethiopia 1991).

Encouraging and Strengthening Community Organizations

Since the Alma Ata Declaration and the promotion of "Health for All by the Year 2000", the concept of community involvement in health has been proclaimed as an antidote to problems plaguing the health sector. Predominant among them are the following (WHO 1988a, p. 56):

- Health strategies often fail to encourage people to think or act for themselves and do not foster self-reliance.

- Inadequate training at the community level undermines effectiveness of services because they cannot be sustained by local knowledge and resources.

- Community contributions in terms of resources and personnel are seldom accompanied by active involvement in the design, implementation, and supervision of projects and programs.

The evidence is overwhelming that the participation of local community groups in the design and implementation of health sector activities has an important impact on success and sustainability (Vaillancourt, Nassim, and Brown 1992; Mburu and Boerma 1989). In Senegal, for example, the problems noted above are manifested in difficulties with the legal status of community health organizations, problems of ensuring suitable representation in their management, and the need for changes in the design of systems, permitting co-management of revenues from cost-sharing (World Bank 1991h, p. 13). The participation of community groups in Benin, on the other hand, has led to increasing awareness of health problems among target populations, and this increased the likelihood that people would turn to health centers for support when ill (Grimaud 1992, p. 60).

As caretakers of their own health, community members can be mobilized to participate in a wide range of basic health care and inter-sectoral activities for health, including needs identification, project design, and adaptation of project activities and technologies to local needs. To illustrate:

- In Ethiopia community groups played an important role in mobilizing people for immunization, in tracing defaulters, in providing transport for immunization sessions, and in educating people about the importance of immunization (District Health Development Study Core Group 1991).

- In Guinea and Lesotho community representatives have formed health management committees to participate in the development of programs to strengthen nutrition and maternal and child health in health centers, and to define the role of cost recovery in meeting financing needs (World Bank 1985b and 1987b).

• In Benin a village management committee made decisions about the ability of people to pay, writing off costs of indigents even though exoneration mechanisms do not officially exist.

Community groups can also participate in information collection, monitoring and evaluation, promotion and management of local-level services, and maintenance of infrastructure. In Iringa, Tanzania, communities have participated in monitoring and assessing their children's growth pattern, thus encouraging them to take action to reduce malnutrition. In Benin communities took responsibility for preparing appropriate storage conditions for essential drugs supplied by the government. Within three Yoruba villages in western Nigeria, at least 28 small and non-bureaucratic local organizations were available to mobilize community involvement in health center activities (Mebrahtu 1991). And in Zaire community management committees gradually assumed full responsibility for the operation of health centers (Lamboray and Laing 1984).

Finally, community groups can play a vital role in monitoring environmental problems and mobilizing resources in support of inter-sectoral interventions. Among the hundreds of thousands of communities in Africa that are not served by public works, such as piped water and sewer systems, community initiatives to install hand pumps and pit latrines could have a decisive effect on the sustainability of health outcomes. In Ghana community groups made viable recommendations for improving environmental sanitation, the most striking of which was to establish community-level environment tribunals to enforce public compliance. In Guinea and Benin the role of local health management committees has already been extended beyond preventive health interventions to environmental health, water supply, and other matters (World Bank 1992b).

Managing Health Services at the District Level

In over a hundred countries throughout the world, and in thousands of districts, the concept and practice of the district health system is in force, or in process, as a proven vehicle for primary care. A review conducted by the United Nations Development Program claims that the district health system — as a widespread management movement — captures much of what is central to contemporary development thinking. "It lies squarely in the area of basic human development. It touches the life of all: in the cities and the countryside. It vaults over the metropolitan barrier that confines most external cooperation within central ministries of government. It is lodged in a sensible level of decentralization; it is small enough in most instances to be a practical management unit; its targets are modest enough so that achieving self-sustaining growth can be a real possibility." (Joseph and others 1992).

In Africa, district based health care — as described in Chapter 3 — is practiced widely in countries like Botswana, Tanzania, and Zimbabwe, partially in countries like Benin, Guinea, Mali, and Nigeria, and on a experimental basis in countries like Burundi and Senegal. Day-to-day management of health services is carried out by a District Health Team (DHT), whereas inter-sectoral collaboration is facilitated by a District Management Committee — comprising the heads of local departments representing, for example, health, education, and public works.

In Zimbabwe, DHTs are comprised of a representative of each health center or hospital, the district administrator and his staff or representatives, district council representatives, a representative of village health workers, a resettlement officer, community and women's affairs representatives, nutrition coordinators, the family planning group leader, a psychiatry nurse, and a community nurse. Prior to the development of the district system in Zimbabwe, functions were performed by a provincial team which had up to seven districts to look after. It is widely agreed that the introduction of the district system has improved services and achieved higher levels of coverage (World Bank 1993c).

Backed by the authority of the Ministry of Health, DHTs have a particularly important role to play in assuring a *basic service package*. This can be done by influencing decision-making, setting local standards, and monitoring performance. Within a framework of national policies and norms, DHTs can be authorized to take decisions on the location of new public sector and non-governmental health care facilities, determine the profile of basic health care services to be provided by health centers and the district hospital, set standards for the personnel mix in local health care facilities, define standards for financial management to ensure accountability, fix fee schedules and perhaps minimum salary levels, and determine management norms. The approach of DHTs should be to encourage the maximum engagement in provision of basic services by all potential health care providers, whether public, private voluntary or private-for-profit. Competition among providers can stimulate quality improvements as well as the responsiveness to clients.

Box 4. Training and Development of Health District Teams in Ghana

In Ghana District Health Teams (DHTs) have existed for some time, but with increasing decentralization of the country's health system, skill requirements for planning and managing have expanded. To increase the capacity of DHTs to undertake problem analysis and strategy management, the government initiated a training program in 1988, with the assistance of the UK Overseas Development Administration, the Finnish International Development Agency, the Ministry of Public Health of Austria, and the United Nations Development Program.

Within a period of three years, 65 of 110 districts covering over 75 percent of the country's population, were involved in the program. It consists essentially of three stages:

- A "start-up workshop", including sessions on problem identification, problem analysis, strategy development, and formulation of action plans. During the next three to four months these plans are actually implemented.

- A "review workshop" to assess the experience of participants in trying to implement their plans, analyzing achievements and constraints. Lessons learned for effective planning and implementation are reviewed, problem statements reformulated, and strategies reviewed and revised. The relationship between management strengthening and the implementation of technical programs is also analyzed at this stage. Participants then draw up revised or new action plans to be implemented over the next six to seven months.

- An "advanced review workshop" takes participants through another review and reformulation process and introduces them to a more comprehensive format for action planning. The new format requires that teams give greater emphasis to developing indicators for monitoring their achievements. A final review meeting is held at the end of the six to seven months implementation period.

Assessments of this program — now fully documented in a handbook for the World Health Organization (Cassels and others 1991) — suggest it is having several positive effects. First, it builds a sense of ownership as participants analyze and tackle problems they themselves perceive to be important. Second, it fosters teamwork, as responsibilities for implementation are shared by different team members rather than just District Medical Officers. Third, it fosters incremental learning as the workshops are structured so that teams build on initial achievements and new ideas are introduced as they become relevant (Ghana, MOH, 1992). And fourth, management and planning skills tend to be ingrained through repetition, practice with strategy development, and reviews of performance.

Experience suggests that the performance of district health teams will either be facilitated or constrained depending on whether (i) rationalization and integration of different health services and support programs has taken place at the central level — particularly in respect to vertical programs, (ii) sufficient decentralization has been achieved, allowing the district to manage human and financial resources independently, and (iii) community control structures have been established. The latter point is particularly important to promoting equity and beneficiary confidence and utilization of the health care system: in Mali, for example, democratic procedures were introduced to elect community representatives to district health teams, thus preventing domination by local elites (World Bank 1993c).

Expertise in carrying out the administrative, planning, and managerial functions of District Health Teams (DHTs) cannot be created overnight, however. A number of governments in Africa are currently involved in a step-wise process, first educating planners and policymakers at central, regional, and district levels about what is involved, then reaching consensus on roles and responsibilities, then commencing training in skills required to carry out needed functions. This evolutionary process is being assisted by international organizations and donors. And, because donors tend to be novices in this area as well, successes in building national capacities are products of an evolving partnership between African governments and the international community (see Box 4).

District Health Teams also have an important role to play in coordinating different public and non-governmental service providers at the district level, so as to assure basic services of minimum quality for all. Experience in countries such as Zaire, Togo, Ghana, Zambia, and Kenya reveals significant variability in the performance of private voluntary organizations such as religious missions, and private-for-profit providers such as private practitioners or drug shops. Problems arise over different concepts of service provision, often resulting in patchy coverage and weak support services; poor accountability to local communities; failure to mobilize communities for health promotion; and weaknesses in management systems (World Bank 1992e). To address this type of problem in Swaziland, DHTs include both government officials at the district level, and representatives of missions within the district. Through planning workshops and regular meetings, the DHTs set priorities for the combination of government and mission services, coordinating use of both sets of resources and identifying district budget needs for submission to the central level. In the Kigoma region of Tanzania, and the Bungoma district of Kenya, district planning workshops brought together DHTs and NGOs for joint analysis of health needs, as well as the strengths, weaknesses and potential of each of the providers. This stimulated interest and commitment among the missions to re-orient their services to be more supportive of district priorities (World Bank 1992i).

Consultations on the performance of district-based health systems suggest that, once the incentives are sound, formal agreements, conventions, and contracts are likely to help DHTs to perform their coordinating functions. Conventions can be used to define the obligations of the public sector towards private voluntary and private-for-profit providers of health care (for example, if buildings, equipment, personnel, or training are to be provided, and according to what standards), as well as the obligations of the health providers towards governments (for example, upkeep of buildings, reporting, and ensuring continuation of public services). Contracts can be used to define mutual obligations of public and private providers regarding

implementation of government programs, such as vaccination and TB control. A number of countries, such as Malawi, have long had such agreements, and Ghana has recently concluded one (World Bank 1990b, p. 13).

Community Participation

In many African countries, community involvement in the management of health facilities is emerging as an important aspect of district-based health systems. Placing greater decision-making in the hands of community representatives tends to be associated with more rapid and comprehensive identification of health needs and expectations; more reliable identification of the poorest households in the community; easier adaptation to cultural and religious preferences; unbureaucratic employment of local or community staff; greater flexibility in executing activities outside normal work hours (for example, nights, weekends); use of non-conventional and creative methods to promote education and information (for example, theater, animation, dances, and film production); and practical development of technologies that can be adapted to local conditions (for example, locally produced ceramic water-reservoir with simple tap to avoid secondary household contamination) (World Bank 1992e).

In a district-based system, with central, regional and district-level functions as described in Box 3, complementary community management functions commonly include the following (WHO 1988a):

- recruitment, payment, and supervision of community health workers and trained traditional birth attendants

Box 5. Accountability and Transparency in the Use of Community Resources

When health centers use cost-sharing or drug revolving funds with community resources, transparency is vital for establishing accountability and trust between health providers and clients. Transparency can be facilitated by posting fee schedules and statements of receipts and expenditures for all to see. When persons are treated, the diagnosis can be entered in his/her individual treatment booklet, along with a receipt of the fee paid. Literate members of the household or community, as well as supervisors can then verify whether what was paid corresponds to what is noted, as well as posted. Community participation in the management of funds generated through user fees also means that both supervisors and community members can compare the balance in accounts with receipts registered at the health facility.

Recent studies of community financing of health centers in Rwanda, Zaire, Guinea, Benin and Mali reveal that a great many collaborative management mechanisms are evolving. These include community control of money through accounts with double signatures, and double locks on drug stocks with the community committee and the health staff each holding the keys to only one, and stamps or photos on registration cards to identify households that have paid local insurance fees. Efficiency indicators associated with these measures further show that, so far, there has been little "leakage" in these systems.

In Botswana, District Councils, agencies of local government rather than of the Ministry of Health, assure oversight over local health care providers, prevent stakeholders from capturing the services, and ensure local accountability. Arrangements such as this give beneficiaries "voice" in management of the care on which they rely. The option of "exit" to non-governmental health care providers — an element of competition — contributes transparency by making clear which providers are most favorably perceived by patients and their families.

Source of Country Studies: Galland 1990; Bitran 1986; Miller 1987; Knippenberg 1990; Gbedenou 1991; MOH, Mali 1990; Shepard and others 1990.

- provision of community financial support toward the cost of health services
- contribution of labor and materials for the construction of clinics and staff housing
- participation in local health planning initiatives
- organization and promotion of preventive health care, particularly activities concerned with maternal and child health, immunization, and oral rehydration.

As noted in other chapters, such functions are typically performed by community management committees in the operation of community-based health centers (Chapter 3), drug revolving funds (Chapter 4), and insurance schemes (Chapter 8).

From a broader perspective, community management committees mirror the strengths of District Health Teams, and can be expected to improve the performance of health systems for at least four reasons. First, they can play a major role in holding health care providers accountable to their clients. Indeed, accountability and transparency, based on a continuous dialogue and interaction between service providers and communities are criteria of a well-functioning health center (see Box 5). Second, involvement of community management committees helps contribute to good governance in the sense that diverse kin, ethnic, social, and cultural groups have an opportunity to present their grievances and can collaborate in overcoming them. Third, participatory decision-making develops a sense of ownership. When community management committees participate in adopting a particular approach to resolving problems, such as nutritional monitoring, they are more likely to become engaged in the activities involved, assessing results, and monitoring progress. And finally, when communities are involved in managing health facilities, relationships of empathy and trust are more likely to evolve between health care providers and clients.

Building on community strengths is not only a matter of inviting communities to participate in management. Part of the challenge is to attune health care providers and the medical professions to the advantages of getting community representatives involved. In some countries this challenge is being met by re-orienting formal medical training to include practice and research in community settings. Medical students are being exposed to community-based research at the University Centre for Health Sciences in Cameroon, the University of Nairobi, Kenya, the University of Dar es Salaam, Tanzania, the University of Zambia, and the University of Zimbabwe. To earn the degree of Doctor of Medicine in Cameroon, students must produce a report based on an internship in "integrated community medicine" (Aleta 1992).

Monitoring and Evaluating District Level Services

As District Health Teams and Community Management Committees progressively work together to improve the quantity and quality of health services, parallel processes need to be established to facilitate day-to-day problem identification and resolution of bottlenecks. Even the best designed structures — on paper — can default due to unforeseen problems at times of operationalization. Processes of monitoring and evaluation are critical, therefore, especially at the local or health center level. Criteria may vary, but usually include some combination of availability of services (for example, essential drugs and vaccines); measures of access (linked for example to community access); actual utilization of services; and overall quality standards (Tanahashi 1978 and Knippenberg 1990) (see Box 6).

Box 6. Monitoring the Provision of Health Care Services at the District Level in Guinea

In Guinea, local monitoring of health care services has helped health care providers to identify specific problems and bottlenecks, and to determine the actions required to address them.

As shown in the figure, health center staff monitored the following variables:

Availability: the percentage of time during which the resources required to implement an intervention are physically available at the health center.

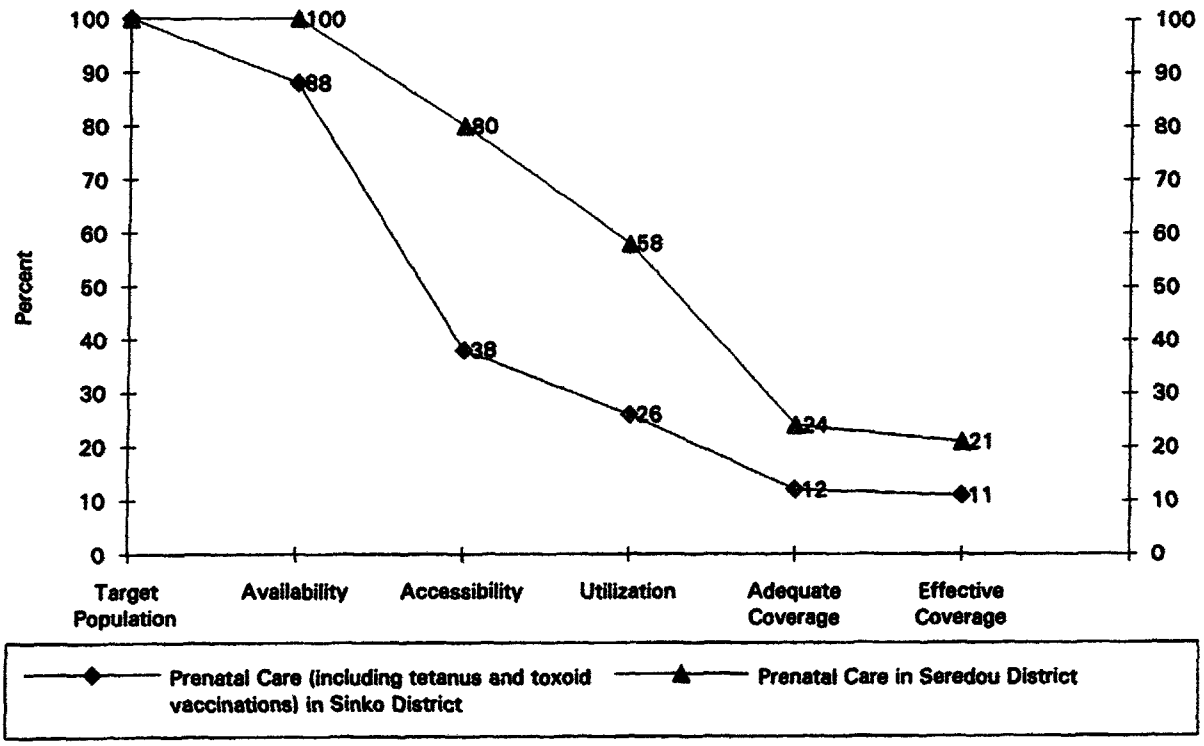
Accessibility: the percentage of the target population living sufficiently close to have easy access to service delivery points.

Utilization: the percentage of the target population coming into contact with the service, as measured by use at least once.

Adequate coverage: the percentage of the population receiving a complete intervention, such as the total number of vaccinations required.

Effective coverage: the percentage of the population receiving services of standardized and verified quality, reflecting, in the case of vaccinations, adherence to the cold chain and use of unexpired vaccines.

The figure reveals that nearly 60 percent of pregnant women utilized some prenatal care in Seredou District, over the period covered, but that only one quarter received adequate care, as measured in this case by the standard of three consultations. This suggests that active follow-up in the community on the quality of patient-provider interactions might merit examination. In contrast, in Sinko District problems in ensuring effective coverage of pregnant women with tetanus toxoid vaccinations were principally attributable to low geographical accessibility to health care. As less than 40 percent of the population are within easy access of health care, there is a need to intensify outreach.



Source: Knippenberg 1990.

Local level monitoring and evaluation across health facilities has been widely practiced in Benin and Guinea with at least three positive results. They have helped to identify common problems which have required assistance at the district, regional or national level. They have contributed to an exchange of experiences concerning corrective actions. And, they have fostered competition between facilities in resolving common problems. Indeed, the motivational benefits of such monitoring and evaluation cannot be overstated, especially when the identification and resolution of problems yields a sense of empowerment that change is possible at the local level.

Developing Research Capacities

Virtually all of the roles and responsibilities described thus far require supporting research and policy analysis. To improve on the dismal state of health research and policy analysis in Africa (and other developing regions), the Independent Commission on Health Research for Development recommended:

- Investing in long-term development of the research capacity of individuals and institutions, especially in neglected fields such as epidemiology and management research

- Setting national priorities for research, for using both domestic and external resources

- Giving professional recognition to good research and building career paths to attract and retain able researchers

- Developing reliable and continuing links between researchers and research users at national, district, as well as community level

- Investing at least 2 percent of national health expenditures and 5 percent of externally funded programs in essential national health research.

Without such commitments, prospects that African countries will be able to establish their own policy agenda, target households most in need, improve management of decentralized systems, and monitor and evaluate progress will remain slim. Botswana has strongly encouraged development of health research capacity for precisely such reasons. A Health Research and Development Committee, established in 1984, has played a crucial role in promoting and supporting health systems research. A Health Research Unit in the Ministry of Health, set up in 1985, serves as secretariat to the Committee. Factors contributing to the development of health research capacity in the country include personal commitment by senior officials, establishment of a clear focal point reporting directly to the Permanent Secretary, the motivational impact of using research findings to improve health, and recognition that time for research must be included in the annual work plans of district health teams (Owuor-Omondi 1988, p. 27).

A wide range of agencies and institutions, including private foundations as well as bilateral and multilateral donors, are available to support the development of health research

Box 7. A Health Research Unit Makes a Difference in Ghana

Often Ministries of Health in African are blamed for making decisions that are not scientifically informed. This is frequently due to failure to use available information, especially research information that exists in academic institutions and scientific journals. Ministries of Health often perceive themselves as service providers with little or no role in research, and research findings are often expressed in a way that is not digestible to decision makers.

To address this problem, as part of an on-going restructuring exercise, the Ministry of Health in Ghana created a Health Research Unit. It is responsible for creating awareness for the need and usefulness of research information at all levels of the health system and articulating the research needs of the Ministry of Health to professional researchers. It is also involved in building capacity for operations research in the Ministry, conducting health systems research and ensuring that health research information is disseminated and utilized.

Within two years of its establishment, the Research Unit had determined a research agenda and circulated it to all university departments and research institutions concerned. It had developed a research policy for the Ministry and supported over 20 completed research projects. It also conducted workshops on research proposal writing and analysis for regional and district health teams.

To ensure utilization of research findings, the Research Unit has supported consultation meetings at the national level on topics like safe motherhood, decentralization of health services, and community health worker programs, at which research findings are presented. Program guidelines have been prepared for implementors following such consultations.

The Research Unit works with an eighteen member Advisory Committee made of staff from the Ministry of Health, the Ghana statistical services, academic institutions, research bodies, local government authorities, non-governmental organizations, and the National Council of Women and Development.

Source: Adjei 1993.

capacity in Africa. In 14 countries in southern Africa, health workers from national, provincial, and district levels have been trained in the development and implementation of health systems research proposals, with the participation of WHO, the Dutch Government Technical Cooperation, and the Royal Tropical Institute of Amsterdam. Over fifty research proposals have been supported with small grants, and a technical advisory committee has been established from focal points on health systems research from each of the participating countries (Aleta 1992). Subsequently, universities in Tanzania, Zambia, and Zimbabwe, are engaged in developing and implementing proposals through their Faculties of Medicine. The Rockefeller Foundation has provided grants for such activities for decades, and is currently supporting the establishment of national epidemiological advisory boards in Cameroon, Mexico, and Thailand.

The International Health Policy Program (IHPP), supported by the Pew Charitable Trust and the Carnegie Corporation of New York in cooperation with WHO and the World Bank is noteworthy for its support of a network of interested developing country researchers seeking ways to use resources more effectively to improve the health of the disadvantaged. The IHPP supports researchers in a number of African and Asian countries. World Bank and International Development Association commitments to population, health and nutrition projects in Africa have almost always contained provisions for research, amounting to roughly 2 percent of total commitments of $1.2 billion through 1992.

The research agenda for better health will undoubtedly vary from country to country. In most African countries it is likely to include work to gain a better understanding of the lowest levels of the health care pyramid — self care, the intra-household dynamics of health, and community-based actions for health improvement. The endeavors of international, national, and local NGOs are particularly relevant to understanding health behavior at this level. As but one example, a women's health research project in South Africa is promoting gender awareness and encouraging women's input and participation in health policy making. The project involves participative research, development of a national network of over 600 individuals and organizations, production of a newsletter, and running health information workshops (Tumwine 1993). A women's time allocation study is attempting to inform policy and enable women to demand creche facilities, access to land and agricultural training. It is also examining the impact of the domestic division of labor, especially fetching water and fuel, on women's health.

Conclusion

Realizing the benefits of health investments in Africa requires more than simply improving the quantity and quality of inputs such as pharmaceuticals, personnel, infrastructure, equipment, and technology. How those inputs are planned, allocated, organized, and managed can determine whether the services are cost-effective and make the difference between sustainable and unsustainable outcomes. How institutions rationalize functions and devolve decision-making authority to various administrative levels can mean the difference between integrated, well-functioning systems and piece-meal approaches confounded by duplication, overlap, and lack of intersectoral coordination. How health and related personnel see their roles at central, regional, district, and community levels can make the difference between a structure featuring clear incentives and teamwork, and a structure immobilized by frustration, apathy, and pursuit of cross-purposes. And, how communities are involved in local management decisions can make the difference between health systems that treat people as objects and those built on community partnerships and ownership. The challenge facing African governments is to accelerate the process of institutional and management reforms affecting health services. Specific responsibility for capacity building and monitoring institutional reforms might be assigned to a senior Ministry of Health official. Clarification of managerial and decision-making roles and responsibilities at the central, regional, district, and community level would be an important part of this work.

CHAPTER 8: COSTING AND PAYING FOR THE BASIC PACKAGE

Introduction

Commitments to expand preventive and primary care to a greater number of people in Africa raise fundamental questions about the resources required to do so. Providers of health care might well extrapolate resource needs on the basis of past expenditure levels, but this would clearly be inferior to determining resource requirements for more cost-effective approaches. There is a great demand for indicative costs of a basic package of health services — based on real experiences — especially when some countries in Africa have participated in those experiences and others wish to learn about them.

This chapter provides a perspective on the likely *unit costs* involved in providing a basic package of health care at the district level, as well as complementary multi-sectoral inputs such as safe drinking water and sanitation (as described in Chapters 3-8). Two sets of costs are presented. One set pertains to low-income countries in Africa, hereafter "low-income Africa". They have been derived from the cost of basic health care and intersectoral interventions in rural and peri-urban areas in several countries. The other set pertains to a "higher income country", showing how costs are likely to change with higher levels of income, wages, and price structures. These costs are based on the experience of Zimbabwe.

The costing exercise performed here provides grounds for optimism that real progress can be made in extending quality health services to the majority of African households. Establishing a benchmark of $13 per capita for a basic package of health services in "low income Africa" is valuable as a means of prompting reflection on what households are getting now for the amount they pay; how resources might be reallocated to usher in a more cost-effective approach; and additional resource requirements to assure that the poorest countries and poorest groups within countries could afford such a package.

A Building Block Approach

Costs for a basic package of services — as described in this study — have been determined by pooling recurrent and annualized capital costs for health care as well as multi-sectoral inputs at the community level. It is at the community level where packages of basic health care and supporting services can best be determined, given the demographic and epidemiological profile of households to be served. The community, comprising hundreds of households, can also realize scale-economies by pooling resources for, say, safe drinking water

or sanitation. This is particularly important in most African countries where hundreds of thousands of communities dot the countryside, or make up peri-urban areas beyond the reach of other water and sanitation systems.

Annual per capita costs for "low-income Africa" have been extrapolated from data on well-functioning health centers, district hospitals, and intersectoral interventions in several African countries. Costs have been annualized by adding yearly costs for recurrent items, such as salaries and essential drugs, to amortized costs for capital investments such as buildings and equipment. Amortization is required to translate large initial outlays for buildings, equipment, and training into an annual amount, thus yielding information about yearly financing that would be required to pay off the outlays over time (presuming a loan were involved to finance them). Capital costs have been annualized on the basis of the economic life of the assets, at a 4 percent discount rate (World Bank 1993a).

Pooled recurrent and capital costs have then been divided by the resulting population served, to derive an average unit cost on a per capita basis. These per capita costs can then be aggregated to produce total costs for the combined population of several communities; a rural or peri-urban district (assuming its population is given); for a network of districts that comprise a region; or for all people nation-wide that live in districts comprised of rural or peri-urban populations. This is the approach adopted here.

Qualifications are in order. First, no pretense is made that the cost scenarios presented here are definitive or applicable to all African countries. Most important is to illustrate the process by which they are determined, and to encourage African countries to prepare their own estimates. For this reason, the methodology employed and data used in this chapter are fully documented in background studies to this report (World Bank 1993a). Second, the indicative costs presented here are most relevant to the large majority of Africans living in rural and peri-urban areas, rather than large urban areas or cities. Third, costs for particular services can be expected to change as patterns of disease, incomes, and health expenditures change over time — the so-called demographic-epidemiological transition — implying that relatively static approaches to estimating costs should give way to more dynamic approaches.

Low Income Africa

Indicative costs for "low-income Africa" are presented in Table 1. These derive from an "input" approach, or what goes into providing a basic package of services in terms of salaries, infrastructure, drugs, training, management and other materials necessary to provide the basic package efficiently. Health planners and budget officials find this approach useful because it provides cost estimates for line items that are similar in structure to traditional budget documents. The total per capita cost of $13.22 is comprised of three components; health care and facilities (about 60 percent); intersectoral interventions (about 30 percent); and institutional support (about 10 percent).

Health Care and Facilities: Based on arguments presented in Chapters 3 through 7, well-functioning health centers and a first referral hospital are capable of accommodating approximately 98 percent of preventive and curative health care needs in an average rural or

Table I. Annual Indicative Per Capita Costs for a District-Based Health Care System: Input Approach

[District Profile: 150,000 Inhabitants; 15 Health Centers (10,000 in Each Center]

	Low Income Africa ($)	Higher Income African Country ($)	Difference (%)
A: HEALTH CARE AND FACILITIES			
- Level I: Health Center (15 Health Centers)	4.60	6.72	46
- Operating Costs	3.78	4.84	28
- Capital Costs	0.73	1.75	140
- In-Service Training	0.09	0.13	44
- Level II: District Hospital	3.14	4.03	28
- Operating Costs	1.75	2.24	28
- Capital Costs	1.35	1.73	28
- In-Service Training	0.04	0.06	50
Sub-Total	7.74	10.75	39
B: INTERSECTORAL INTERVENTIONS			
Water	2.56	2.19	-15
Sanitation	1.42	1.36	4
Sub-Total	3.98	3.55	-11
C: INSTITUTIONAL SUPPORT			
- District Health Care Management Team	0.29	0.40	38
- Operating Costs	0.15	0.24	60
- Capital Costs	0.13	0.16	23
- In-Service Training	0.01	0.01	0
- National Management Structure (15 of % Total Health Care Costs)	0.82	1.15	40
- Initial Training (5% of Total Health Care Costs)	0.27	0.38	41
- Incremental Salary Bonus (15% of Total Salaries)	0.12	0.14	17
Sub-Total	1.50	2.07	39
TOTAL	13.22	16.37	24
Note: Total Operating Cost	7.86	9.50	25
Note: Total Capital Cost	5.36	6.87	23

Source: Adapted from World Bank 1993a.

peri-urban district. The sub-total for health care and facilities in Table 1 is $7.74, or about 60 percent of the total.

It is assumed that health care services are organized within administrative districts, each district comprising one district or referral hospital, 15 health centers on average, and serving an average population of 150,000. It is at this level that households typically make first contact with modern health providers and where equity can be most effectively promoted in access to services. Each of these facilities requires information on operating or recurrent costs, on capital costs, and on in-service training costs. In the case of health centers and a first referral hospital, this means determining the profile of staff, infrastructure, and equipment (as described in Chapter 3, Boxes 3 and 4), and assigning indicative costs to them. Details on the demographic composition of the population served and kinds of services rendered in the health center and first-referral hospital have been provided in Chapter 3.

Intersectoral Interventions: The costs for these reinforcing interventions are also presented on an annual per capita basis. Indicative costs are derived specific to communities, then averaged for a prototype district population of 150,000. They pertain to recurrent and capital costs of safe drinking water and sanitation. The sub-total for intersectoral interventions is $3.98, or 30 percent of the total package.

Determining costs for multi-sectoral interventions is extremely demanding of data. The estimates provided here combine available evidence for several African countries as well as expert opinion. Several important qualifications are in order.

- The cost of supplying water services in a rural area will vary considerably, depending on the technology selected, the community size, housing density, hydro-geological conditions, local drilling costs, water consumption, and pumping system (manual, electrical, diesel, or solar). The least cost alternative, and that used in this study, will generally be a hand pump in small communities of less than 1,000 people. It is assumed there are 250 persons per handpump and that costs involve the drilling of a borehole, borehole equipment and maintenance, with an annual life of about 20 years.

- The cost of providing adequate sanitation services in rural areas will vary considerably depending on the technology used, the type of building materials, construction costs, housing density, groundwater and soil conditions, and the size of the family being served by the facility. The technology chosen for the prototype community in this study is a ventilated improved pit (VIP) latrine made from local building materials. It is assumed that for a population of 10,000, each family of ten people on average, would have its own facility. Construction costs include labor and materials, as well as planning and mobilization at the end of the first four years when a new latrine will have to be constructed.

Institutional Support: Liaison of the health facilities with the Ministry of Health, as well as important local government support or administrative functions, would be provided by a District Health Management Team (DMT). This would include supervision and monitoring of the district health care system, in-service training to hospital and health center staff, logistical support to the hospital and health centers, and liaison on behalf of the district with local,

regional, and, as necessary, central authorities. As described in Chapter 7, the DMT would consist of a staff of seven, assumed to consist of one medical doctor, one pharmacist, one registered nurse, one management staff/accountant, one water and sanitation specialist, one sociologist or "information, education, and communication" specialist, and one driver; and infrastructure consisting of one building, two vehicles, and other equipment, including furniture.

The district system would also require overhead support from higher levels within the health system, including regional authorities and the Ministry of Health. Services at the higher levels would include health research, policy analysis and formulation, logistical support, administration, and coordination between the districts and information systems. Also included would be coordination with other governments and international agencies, and initial training of personnel. In turn, a national management structure would be required to coordinate functions of the DMTs, as would some provision for initial training of personnel — both health and administrative personnel — to contribute to a smoother running system.

It is assumed that these management overheads can be accommodated by a provision of 15 percent of total operating, capital and in-service training costs of all personnel and facilities at the district level. Initial training costs at the national level are treated in similar fashion. As initial training is considered to be a capital cost, a provision of 5 percent of total district costs has been included to provide for the annualized costs incurred. Finally, in view of the importance of monetary incentives for staff as well as lagging salary structures in most countries, an incremental salary bonus has been provided amounting to 15 percent of all salaries. The total cost for the various components of institutional support is $1.50, or 11 percent of the total package.

Complementary to the indicative costs for "inputs" provided in Table I, is the profile of "outputs" or services to be rendered to households (Table II). To illustrate, at the health center level, Table II informs us that maternal services comprising pre-delivery care, delivery care, post-delivery care, and nutrition for pregnant and lactating women are provided as part of the basic package. On average, the share of these maternal services in the total cost of the package for low-income Africa is about $.47, or 3.5 percent of $13.22.

Though not very useful for budgeting purposes, establishing costs by outputs is conducive to determining priorities and estimating the cost-effectiveness of interventions; is the community acquiring the optimum level of health benefits by spending X dollars on a certain intervention? The output approach allows for a more thorough analysis of costs and health-outcomes. For example, it is easier to relate the cost of providing well-baby services to improvements in the health status of babies than it is to relate the capital cost of the health center to the health status of babies.

Higher Income Country

Zimbabwe has been selected for comparative purposes because its per capita GNP is more than double the average of "low-income Africa"; health care in Zimbabwe shares some of the features of the cost-effective approach described in this study, and data are relatively abundant. Unit costs for Zimbabwe serve the purpose of illustrating what low-income countries

Table II. Annual Indicative Per Capita Costs for a District-Based Health Care System: Output Approach

[District Profile: 150,000 Inhabitants; 15 Health Centers (10,000 in Each Center)]	Low Income Africa ($)
A: INDIVIDUAL HEALTH CARE SERVICES	
LEVEL 1: HEALTH CENTER	
- Maternal Services	0.47
• Pre-delivery care	
• Delivery care	
• Post-delivery care	
• Nutrition: pregnant/lactating women	
- Well-Baby Services	1.52
• Expanded Program of Immunization (EPI)	
• Micronutrient Supplements	
• Nutrition: (0-5)	
• Supplementary feeding (0-2)	
- School Children Health Program	0.21
• Anti-helminthic services (5-14)	
• Vitamin A + iodine, as needed	
- Curative Care (especially children 0-5)	0.46
• Basic trauma	
• Malaria	
• Diarrhoea	
• Opportunistic infections (AIDS related)	
• Other local infections	
- Limited Chronic Care	0.11
• TB treatment	
• Other	
- STD Services (testing and treatment)	0.13
- Family Planning	0.87
• Provision of contraceptives	
• Incremental family planning	
- IEC (for nutrition, family planning, HIV/STD)	0.82
Sub-Total (Level 1: Health Center)	4.60
LEVEL 2: DISTRICT HOSPITAL	
- In-patient care	2.20
• Obstetrics and gynecology	
• Pediatrics	
• Medicine: Infectious diseases	
• Basic surgery	
- Out-patient care	0.94
• Emergencies	
• Referrals	
Sub-Total (Level 2: District Hospital)	3.14
SUB-TOTAL A: Individual Care Services	7.74
B: INTERSECTORAL INTERVENTIONS	
Water	2.56
Sanitation	1.42
SUB-TOTAL B: Intersectoral Interventions	3.98
C: INSTITUTIONAL SUPPORT	
- National Management Support includes:	0.82
• Surveillance, monitoring/evaluation	
• National capacity building	
- Initial Training	0.27
- District Health Management Team	0.29
- District-level Salary Bonus (15% of Total Salaries)	0.12
SUB-TOTAL C: Institutional Support	1.50
TOTAL COST OF BASIC PACKAGE	13.22

Source: Adapted from World Bank 1993a.

might expect to pay as they move along a development path in the future. Indicative costs for Zimbabwe are also presented in Table 1. The total per capita cost is $16.37, comprised of health care and facilities (66 percent), incremental interventions (22 percent), and institutional support (12 percent).

At $16.37 per capita, costs in Zimbabwe are only 24 percent higher than those estimated for "low income Africa". They are considerably higher for the health care component (39 percent higher), than for the intersectoral interventions (11 percent lower). Features that remain essentially the same in the two contexts include the menu of basic health care services offered at both the health center and first referral hospital, as well as the demographic composition and epidemiological profile of the communities served. What differs is the intensity by which people seek out or demand certain preventive (but not curative) services in "high-income Africa". This is influenced by higher levels of education and use of various services, reinforced by higher income levels and expectations that such services should be made available. Greater demand for preventive and primary health care translates into additional staff, expansion of facilities, higher drug costs per capita, and additional equipment. While Zimbabwe has begun to enter the health transition, its priorities remain the provision of a basic package of services to all. The future challenge for Zimbabwe will be to adapt its services to the needs of populations at various stages of the health transition while constraining costs by what the country can reasonably afford.

Features of health care that change most dramatically — judging from the Zimbabwe experience — are salary levels, additional funds to cover additional staff, and housing provisions for staff (a built-in expectation in Zimbabwe). For example, four staff members in a Zimbabwe health center would be paid about

US$10,500 per year, versus $5,700 for the same number in "low-income Africa". Salaries of doctors at the first referral hospital would be about $12,000 each per year, compared with about $4,300 per doctor in "low-income Africa". In Zimbabwe, access to two staff housing units would be provided to four people at the health center, with 18 units being available to 42 staff at the first referral hospital. Drug costs are about 30 percent higher in Zimbabwe than in "low income Africa". For these reasons per capita costs of health care and facilities, combined with institutional support are about 38 percent higher in the "high-income country" than in "low-income Africa".

In the case of multi-sectoral interventions, costs are 11 percent lower in Zimbabwe than in "low-income Africa". This is because the technologies for safe water (bore hole and pump) and sanitation (pit latrines) are widely available and scale economies of production have helped to keep prices down.

Who Should Pay for What

Unanswered as yet is the question, "who should pay for what" in the basic package of care. This is important because the basic package contains a combination of health goods and services. Some are of a public nature (institutional support), others a mixed public-private nature (preventive and individual curative services, especially for communicable diseases), and still others a more private nature (clinical care for chronic diseases, water supply). Moreover, governments will be inclined to concentrate public funds on services for the poor, and others will be required to pay part or even all of the cost.

Resolving this question is no easy task because alternate approaches, each having advantages and disadvantages, can be used to demarcate public versus private responsibilities. On the one hand, an "intervention approach" seeks to identify the inherent public versus private nature of each health intervention. For example, district management and health information and education costs could be assumed to be 100 percent public goods, while STD testing and treatment have both public and private benefit dimensions. A disadvantage of relying solely on the intervention approach to decide "who should pay" is that a huge variety of interventions must be identified, costs assigned, and public versus private aspects of each agreed upon.

On the other hand, a "targeting approach" concentrates on identifying appropriate target groups — such as core poor groups who, otherwise, might be excluded from benefits of the entire package. For example, target groups might consist of those living in low-income regions or neighborhoods, children participating in social action programs, or those seeking help for problems associated with poverty, such as chronic malnutrition. A disadvantage of relying solely on this approach is that allocating an entire basic package of services to target groups completely ignores the public externality/private benefit dimension of the interventions or services involved.

A compromise is to use a two-step process, drawing on each of the approaches above, so as to identify an appropriate financing mix. From the list of interventions/services in the basic package, the first step is to identify pure public goods. These would be financed 100 percent by public funds. All remaining interventions are relegated to an "other" category, and

Table III. Who Pays For What In The Basic Package: A Combined Intervention and Targeting Approach

TYPE OF SERVICE	Cost ($)	Type Of Service: Public or Other	Public Financing Share (%)	Public Financing Amount ($)	Private Financing Share (%)	Private Financing Amount ($)
A: Individual Care Services						
Level 1: Health Center (15 Centers)						
• Maternal Services	0.47	Other	80	0.38	20	0.09
• Well-Baby Services	1.52	Other	80	1.22	20	0.30
• Schoolchildren Health Program	0.21	Other	80	0.17	20	0.04
• Curative Care (especially children 0-5)	0.46	Other	60	0.28	40	0.18
• Limited Chronic Care	0.11	Other	60	0.07	40	0.04
• STD/HIV Services	0.13	Other	60	0.08	40	0.05
• Family Planning	0.87	Other	70	0.61	30	0.26
• IEC (for: nutrition, FP, HIV/STD)	0.82	Public	100	0.82	0	0.00
SUB-TOTAL (Level 1: Health Care Center)	4.60		79	3.69	21	0.96
Level 2: District Hospital						
• In-Patient Care	2.20	Other	50	1.10	50	1.10
• Out-Patient Care	0.94	Other	40	0.38	60	0.56
SUB-TOTAL (level 2: District Hospital)	3.14		47	1.48	53	1.66
SUB-TOTAL A	7.74		66	5.12	34	2.62
B: Intersectoral Interventions						
• Water	2.56	Other	30	0.77	70	1.79
• Sanitation	1.42	Other	30	0.43	70	0.99
SUB-TOTAL B	3.98		30	1.20	70	2.78
C: Institutional Support						
• National Management Support	0.82	Public	100	0.82	0	0.00
• Initial Training	0.27	Public	100	0.27	0	0.00
• District Health Management Team	0.29	Public	100	0.29	0	0.00
• District-Level Salary Bonus	0.12	Public	100	0.12	0	0.00
SUB-TOTAL C	1.50		100	1.50	0	0.00
TOTAL (Financing of Basic Package)	13.22		59	7.82	41	5.40

Source: Adapted from World Bank 1993a.

include most of the so-called mixed goods for which it is difficult to assign a public/private good component. The second step is to examine all of the "other" goods and services from the targeting perspective — what proportion of their cost should be covered by public resources so as to insure sufficient coverage of target groups, especially the poor.

Following this rationale, an indicative financing mix for the basic package of services for low-income Africa is provided in Table III. Services in parts A and B yield a mixture of private goods and public externalities. For this reason they are labelled "other" rather than "public" services. For example, at the level of the Health Center (Part A, Table III) it is estimated that about four-fifths of the basic package will be financed by the public sector, while about one-fifth will be paid for by households, in view of their low-incomes. Services such as water and sanitation are estimated, on this basis, to have a 30 percent public component and a 70 percent private component (Part B, Table III). Services included in Part C are deemed to be pure public goods, and as such would be financed primarily by the public sector.

The way in which public versus private responsibilities for financing have been apportioned in Table III is not intended to serve as a model that all countries or districts should follow. It is, rather, presented to illustrate a methodology that can help resolve a critical issue faced by financial planners in health. Each country and district will have to apportion its own public and private configurations, so as to identify an appropriate financing mix, within a framework that gives maximum attention to private demand, concentrates public resources on public goods and services, increases the mobilization of domestic resources for health, and protects the poor.

Affordability

First impressions are that costs to provide a basic package of health services in low-income Africa ($13 per capita), are within reach in most countries. This assessment is based on expenditure data in Table IV. Countries for which reliable data have been available over the last decade have been clustered into three groups according to their relative levels of per capita GDP and expenditures on health. Grouping countries in this way, though somewhat arbitrary, is conducive to analyzing differences in health expenditures among countries that differ in income levels.

Countries in the "low" group spend $8 per capita, on average, from all sources. This does not include public and private expenditures on water and sanitation. Private expenditures on health in this group are about

Table IV. Groupings of Selected African Countries by Relative Level of Expenditures on Health, 1990

Country Characteristics	Country Grouping			
	High	Medium	Low	Total
Population (Millions)	14.1	95.5	230.7	340.3
Average GDP/Capita	$757	$443	$248	$324
Expenditures Per Capita[1]				
- Private	$19	$7	$4	
- Government	$40	$6	$2	
- Donor	$9	$3	$2	
Total	$68	$16	$8	

High Countries: Botswana, Lesotho, Swaziland, Zimbabwe.
Medium Countries: Burundi, Cameroon, Gambia, Ghana, Kenya, Liberia, Malawi, Niger, Rwanda, Senegal, Zambia
Low Countries: Burkina Faso, Ethiopia, Mali, Nigeria, Somalia, Sierra Leone, Zaire, Uganda
Note: 1. Expenditures are in current US dollars.
Source: United Nations Development Programme and World Bank 1992; and World Bank 1993e.

$4 per capita. Assuming a sufficient level of private *demand*, and that private expenditures could be mobilized and reallocated, a major part — though far from all — of the costs of the basic package of health services could be met.

Governments and donors both spend another $2 in the "low" group. But most of this might not easily or quickly be freed up, given prior commitments to specific projects, public commitments to support central level and teaching hospitals, and past patterns and obligations to finance or provide services not included in a district-based package.

Part of the shortfall could be covered were governments in the "low" group to raise their financial commitments to health, to levels that are at least comparable to the average for all less developing countries. As set out in Table V, this would result in a doubling of health expenditures by governments, thus providing another $3 per capita. A similar amount might reasonably be solicited from donors, were governments to have sound health reform programs and demonstrated capacity and commitment to implementation. This would raise another $5 per capita. It should suffice to cover financial shortfalls, especially when private expenditures on water and sanitation are factored in. Making better use of the existing private expenditures would be an important part of the financial package.

The "medium" group spends $16 per capita, on average, from all sources. For this group the most important question may be, what are the prospects of reallocating funds from current uses to the approach costed here. Private expenditures in this group are $7, almost double those in the "low" group. As per capita income in this group is almost double that of the "low" group, however, it seems reasonable to expect that households may be able and willing to spend more, especially were a cost-effective package of basic health services offered. Further, were countries in this group to follow Malawi's example, and raise their government expenditure levels on health, as a share of total government expenditures, by a modest one-half to one percent per year, the $6 per capita that is now available for health could be doubled within ten years (assuming one-half of one percent increase per year). In this case and assuming that the other needed reforms were well-formulated with credible implementation plans, donors might also increase their participation. These countries should be able to close the gap without major difficulty.

The "high" group spends $68 per capita, on average. Reallocation of expenditures is the key issue in this case, and it is appropriate to ask whether countries are receiving the same level of benefits for $68 per capita that could be provided for around $16 per capita in a country like Zimbabwe. Private expenditures in this group are about $19, and are clearly sufficient to pay for the basic package of health services described here. Many of the countries in this group are now moving aggressively to apply user fees at all levels of health facilities, and are exploring ways of expanding insurance schemes to cover expensive curative care in hospitals. This should facilitate greater concentration of government and donor funds on public health goods and services.

Table V. Rough Estimates of Additional Revenue Effort for Health by Government and Donors in Low Income Africa

	Additional Funds (Millions/Year)
1. Governments more than double their expenditures on health as a percentage of total government expenditures, raising per capita expenditures from $2 to $5; - Additional funds = $3 X 328 million people =	$984
2. Donors double their aid for low-income Africa from $2 to $4, thus nearly matching the government effort; - Additional funds = $2 X 328 million people =	$656
Assumption: Just as the "low" group represents 68 percent of the total population of all countries in Table IV, it is assumed to represent 68 percent of all people in Sub-Sahara Africa in 1992 (502 million, and projected to increase to 634 million by 2000). This implies an average of 386 million people (68 percent times the average of 502 and 634 million). The total rural and peri-urban population is assumed to be 85 percent times 386 million, or 328 million.	
Total Additional Funds Per Year Over the Next Ten Years	$1,640

Financing Gap

Assuming the public sector — governments and donors — were willing to increase their resource commitments in the ways suggested above, what additional resources would be raised for better health in Africa? Based on the rough estimates in Table V about $1.6 billion annually needs to be mobilized to help meet the health needs of over 300 million Africans in the rural and peri-urban areas of all low income and low-health expenditure countries in Africa. Assuming concentration of donor resources in these countries, the donor share, comprising about $650 million per year, would raise external assistance by about 50 percent above the level of $1.2 billion attained in 1990.

Another way of assessing financial implications is to compare the per capita cost of a basic package of services, as a percentage share of per capita GDP, with what is being spent now as a share of per capita GDP. Among countries in the "low" group in Table IV, the basic package of services ($13 per capita) represents about 5.2 percent of average per capita GDP ($248). This compares with actual per capita health expenditures from all sources and for all purposes, of about 3.2 percent of per capita GDP in low income Africa. Closing the gap is not simply a matter of boosting expenditures by another 2.0 percent of GDP per capita. A major challenge involves reallocating expenditures from current patterns to more cost-effective ends, determining the share of public health goods and services, and apportioning responsibilities to the various stakeholders to fill gaps (see Chapter 9).

For countries in the "medium" group in Table IV, the per capita cost of the basic package of services amounts to about 2.9 percent of average per capita GDP ($443). This

compares with per capita expenditures on health from all sources of about 3.6 percent of per capita GDP. Again, reallocating expenditures to cover costs of the basic package of services will be a major challenge to countries in the "medium" group, but the task is not insurmountable. Countries in the "high" group have far greater prospects of reallocating funds; their current expenditures on health from all sources amount to nearly 9 percent of per capita GDP, compared with about 2 percent of GDP that would be required for the basic package.

Conclusion

The pace at which cost-effective packages of basic health services could be made more widely available in the three groups of countries above is, of course, a critical issue. There will undoubtedly be considerable variation among countries in their commitment to reform and capacity for implementation, and thus inevitably in the nature of the transition. In almost all cases, a phased-in approach makes the greatest sense. Some countries are already experimenting with a district-based system of health care, such as Benin, Guinea, and Nigeria, with the implication that part of the costs of providing a basic package of services are already in place. As lessons are learned, groundwork can be carefully planned for expansion into new areas, involving information campaigns about basic services to be provided, the rationale behind charging fees, community involvement in mobilizing resources and making provisions for the poor, and so on. Other countries are recovering from political upheaval such as Angola, Mozambique, and Uganda, and may wish to lay the groundwork for an approach favoring well-functioning health centers and first referral hospitals as part of the process of restoring and rehabilitating damaged health facilities. Still other countries may wish to bring public providers of health care progressively together with private voluntary providers in the pursuit of cost-effective approaches.

As each country determines its own particular development path, so too must resource requirements be assessed and attempts made to reconcile financial needs with prospects for domestic and international resource mobilization. Initially, expenditure requirements are likely to be most demanding when capital costs for new facilities require loans (and loan guarantees), or intersectoral services must be launched. It is in such contexts that donor financial support will play a critical role. Equally important will be to map out the pace and direction at which health expenditures might reasonably be reallocated towards more cost-effective basic services. Once a country has deliberated on a basic package of services to be offered through health centers and first referral hospitals, a first step in determining financing might be to convene an expert or consultative group, comprising officials of the public and private sectors. This group would assess the willingness of households to pay for each component of the agreed services, consider the extent to which external benefits extend beyond the immediate recipients, and review the public goods aspects. Weighting benefits in this fashion could be used to determine the relative roles of government, donors, and households in financing the gaps discussed here.

CHAPTER 9: OPTIONS FOR RESOURCE MOBILIZATION

Introduction

Financial resources for health are in jeopardy in many African countries. To combat shortfalls, and to mobilize resources for the basic package of care described in Chapter 8, action will be required on several fronts simultaneously. In the public sector, more revenue is clearly needed in most countries for public health goods and services. This can partially be achieved by mobilizing resources from tax and non-tax revenues and strengthening political commitments to public spending on health. It is equally important to make better use of public funds available by reallocating them from expensive interventions provided largely through tertiary care, to preventive and primary care. Prevailing inefficiencies in the use of public funds are partially to blame for insufficient coverage and the declining quality of public health services, as well as pressures for more resources to produce them. This places a premium on restructuring the financing and provision of health care so as to shift from crisis management today to more sustainable systems of cost-effective health care in the future.

There is convincing evidence that African households are willing to expend substantial out-of-pocket sums for quality health services, and that strategies to mobilize these resources can help alleviate budgetary shortfalls among public providers, stimulate private financing and provision of health care, and contribute to equity in the process. Cost-sharing strategies can help free up public resources for public ends, especially by recouping public expenditures at tertiary level hospitals. Private financing can also substitute for government involvement, such as when large, urban-based employers sponsor private health insurance or finance private health facilities. In addition, public-private collaboration can help diversify the way that basic packages of care are financed, thus providing a stimulus to private-for-profit providers and private voluntary organizations.

Prior to considering broad options for resource mobilization, the first part of this chapter describes expenditure levels and trends by governments, households (out-of-pocket), and donors. The evidence reveals that many governments in Africa lag behind other low-income developing countries in their budgetary commitments to health. Evidence is also provided to show that households spend substantial funds for health care, thus providing a sounder logic for cost-sharing to help finance basic packages of quality care. There also appears to be considerable scope for improving the impact of external assistance, especially if donors collaborate with governments to restructure systems of health care to feature more cost-effective approaches.

The second part of this chapter indicates broad options for resource mobilization that are likely to benefit households by rendering services more efficient, equitable, and sustainable. The evidence suggests that user fees and cost-sharing can be employed in public facilities to generate more revenue, augment the quality of services, and provide pricing signals for a more effective referral system. Prospects for raising revenues through public and private insurance programs are also explored, and the need for subsidies and exemptions for the poor is stressed. The chapter concludes by sketching out an incremental approach to resource mobilization and urges strong government leadership to bring it about.

Part I: Expenditure Levels and Trends

Government Expenditures

Because government has primacy in overall policy-making and strategic planning for health, it might be assumed that governments are the major actors in health expenditures and financing. Yet, government's share in total health expenditure varies widely throughout countries of the world. Among fifteen African countries for which data are available, in only three — Burundi, Kenya, and Zimbabwe — did government expenditures account for more than half of all health expenditures. Conversely, the private sector accounts for more than three-quarters of all health spending in the Sudan, Uganda, and Zaire. Donors also play an important role in several countries, accounting for 20 percent or more of health expenditures in Burundi, Somalia, and Botswana.

The reason why government expenditures are important to health in Africa and elsewhere, is that they can be pooled, controlled, and allocated by health policymakers, they can be used to support public health services with immense benefit to society, and they can be targeted to provide subsidies to the poor. For these reasons when public finance is unstable or public funds are used for non-public purposes, health outcomes suffer.

Table I summarizes central government expenditures on health for twenty-six African countries for which data are available from 1980 to 1990. These expenditures exclude foreign aid, loans, and contributions from international NGOs. Countries are clustered into three groups according to their relative level of per capita government expenditures on health and per capita GDP. Grouping countries in this way, though somewhat arbitrary, is conducive to analyzing changes in health expenditures among countries that differ in income levels.

There is a fifteen- to twenty-fold difference in central government health expenditures per capita between the "high" and "low" group during the 1980s. This is far out of proportion to the fourfold difference in average per capita incomes between the two groups. Expenditures by the "high" group also increased from one period to the next, 1980-85 to 1985-MR (MR meaning 'most recent year for which data are available), whereas those of the middle group declined slightly and those of the low group stayed the same.

Table I also reveals that central government expenditures on health, as a percent of GDP, are smaller in the "low" and "medium" groups than in the "high" group, and show little absolute change over the period 1980-85 to 1985-MR. Compared with the performance of all less

Table I. Groupings of Selected African Countries by Relative Level of Central Government Expenditures on Health, Population Weighted Averages, 1980s

Country Characteristics		Country Grouping		
		High	Medium	Low
Population (Millions)		21.4	94.7	218.3
Average GNP/Capita		$818	$395	$225
Central Government Health Expenditures Per Capita		(1987 Constant Dollars)		
	1980-85	$15.3	$5.4	$1.1
	1986-MR	$20.7	$4.9	$1.0
	% Change	+35.3%	-9.3%	-9.1%
Central Government Health Expenditures as a Percent of GDP		(% of GDP)		
	1980-85	2.3%	1.3%	.5%
	1986-MR	2.9%	1.3%	.6%
	% Change	+26.1%	0.0%	+20.0%
Central Government Health Expenditures as a Percent of Total Central Government Expenditures		(as % of Total Expenditures)		
	1980-85	5.9%	5.6%	2.8
	1980-MR	6.6%	5.4%	2.6
	% Change	+11.9	-3.7%	-7.1%

High Countries: Botswana, Lesotho, Mauritius, Swaziland, Zimbabwe.
Medium Countries: Burundi, Cameroon, Gambia, Ghana, Kenya, Liberia, Malawi, Niger, Rwanda, Senegal, Togo, Zambia.
Low Countries: Burkina Faso, Ethiopia, Mali, Nigeria, Sierra Leone, Somalia, Uganda, Zaire
Note: MR = most recent available. This table was designed to show change over time, and thus has information in constant 1987 dollars. For this reason the data are not fully comparable with the current dollar estimates for 1990 in Chapter 8, Table IV.
Source: United Nations Development Programme and World Bank 1992.

developed countries, world-wide, where the share of central government expenditures on health is about 1.5 percent of GDP, the "medium" group falls short by .2 percent, and the "low" group falls far behind by .9 percent. This means that in the "low" group expenditures on health as a share of GDP are only one-third the level in all developing countries.

Table I further reveals that central government expenditures on health as a share of **total** central government expenditures are between 6 and 7 percent in the "medium" and "high" groups, but less than 3 percent in the low group. Since all developing countries, world-wide, spent about 5 percent of their government budget on health, the performance of the "low" group is about one-half the norm. Furthermore, the health share in central government expenditure fell in the 1980s. Because central governments have full control over the proportion of public funds they devote to health, the relatively poor showing of the "low" income group on this measure is a clear indication of weak government commitment to maintaining spending on health.

Judging from these data, a major resource issue facing governments in Sub-Saharan Africa is to raise more funds for the health sector, in view of the large population represented by low income, low health expenditure countries. Though part of this goal can be achieved by allocating a greater share of total government expenditures to health, the crux of the challenge in the low-income countries is to raise absolute levels of spending, and thus revenues. The first step for the "low" and even "middle" expenditure countries is to arrest the decline in real per capita health expenditures by the central government revealed in Table I. Each country will need to examine its own individual performance in this respect. For the high-income countries and, to an extent, the middle-income countries in Table I, reallocation of existing expenditures is likely to be most relevant.

Explaining Shortfalls

Why some African governments have committed less to public expenditures on health than others is difficult to determine with precision. Three points are worth stressing however. First, economic conditions come into play because government expenditures on health derive largely from general tax revenues, including duties on imports and exports. Analysis of the performance of countries in the "high" group in Table 1 — in terms of average annual growth rates of GNP per capita over the period 1965 to 90 — reveals that all experienced positive rates of growth. The crude average for the group was 3.7 percent. For the "medium" expenditure group, more than 60 percent of the countries experienced positive rates of per capita growth, the group average being 0.5 percent. For the "low" group, however, 60 percent of the countries experienced negligible or negative growth, the group average being minus 0.5 percent. When these figures are combined with the differences in per capita income between groups, it is clear that economic conditions have major significance in public expenditure levels on health.

The second point concerns macro-economic disequilibria and the possible effects that structural adjustment programs (SAPs) may have had on health expenditures. Controversy surrounds this issue, one position being that SAPs are responsible for cut-backs in government expenditures on social services, such as health. A counter-argument is that SAPs aim to combat long term structural barriers to economic growth, and therefore present governments with an opportunity of restructuring their health systems towards greater efficiency, equity, and sustainability.

Several studies suggest that structural adjustment is not a principal cause of low or declining government expenditures on health in Africa (see Box 1). For example, central government expenditures on health as a share of GDP remained almost the same in "adjustment" years as in "non-adjustment" years in a sample of countries, though the mean value of health expenditures per capita was five to six percent lower in adjustment years than in non-adjustment years. Furthermore, central government expenditures on health as a share of total central government expenditure was seven to eight percent higher in the adjustment than in the non-adjustment years (Serageldin and others 1993). The latter finding is particularly significant because it implies that health expenditures were not reduced in the adjustment process to make way for substantial increases elsewhere. In Lesotho, for example, the government has shown a strong commitment to protect social services and has emphasized internal restructuring to improve efficiency — as part of structural adjustment, rather than in reaction to it. Health and

Box 1. Macroeconomic Change, Structural Adjustment, and Health

Following rapid deterioration in the macroeconomic and sectoral performance in Sub-Saharan Africa since the mid-1970s, reaching crisis proportions in the early 1980s, many countries started comprehensive economic reform programs with financial support from the IMF and the World Bank. Most of these countries started the adjustment process from a position of low and declining real income, sluggish or deteriorating growth rates, mounting external debt and debt service, very low saving and investment to GDP ratios, declining external competitiveness and growth in export volumes, mounting current account deficits, and rapidly declining agricultural output per capita (Elbadawi and others 1992).

Between 1980 and 1990, seventy percent, or thirty-two of forty-five Sub-Saharan African countries implemented structural adjustment programs. Some countries, such as Mauritius, Senegal, Côte d'Ivoire, Kenya, and Nigeria, were relatively more stable than others, such as Burundi, Central African Republic, Congo, Mali, Niger, Somalia, Zaire, Benin, Cameroon, and Ethiopia, and started the adjustment earlier with strong adjustment measures. Others abandoned their efforts towards adjustment after one or two initial loans, such as Burkina Faso, Equatorial Guinea, Sierra Leone, and Sudan. In sum, the adjustment process was rarely completed. For these reasons, as well as gaps in data required for statistical analysis, it is difficult to assess the effects of adjustment on development in African countries in the 1980s. Nonetheless, extensive reviews of available data and literature suggest that the empirical basis is weak for claims that adjustment policies have multiple negative effects on health (Preston 1986; Behrman 1990; Sahn 1992; World Bank 1992d).

In the health sector, consensus appears to be emerging on the following points:

- Analysis of public expenditure data from African and Latin American countries suggests that social expenditures, including health, have suffered less than expenditures on economic services, and that recurrent expenditures — the bulk of health outlays — have suffered relatively less than capital expenditures for infrastructure (Hicks 1991).

- Analysis of ten countries of Sub-Saharan Africa undergoing adjustment suggests that neither economic crisis nor resulting adjustment policies have had a major impact on critical health indicators. A study using household survey data on Côte d'Ivoire found no overall significant effect of either the pre- or post-adjustment periods on neonatal or post-neonatal mortality. In contrast, an adverse effect for the adjustment period on the post-neonatal morality of the urban non-poor was observed (Diop 1991). A study of Ghana found no significant time period effects on mortality risks in the neonatal or child age ranges, whereas for post-neonatal mortality, the protective effects of maternal education were reduced in both the economic crisis and adjustment periods (Saadah 1991).

- Those most vulnerable to negative, short-term effects of macro-economic adjustment policies are not necessarily the poorest groups in society. Most people in Africa live in relatively scattered rural communities which, unfortunately, have not benefitted greatly from public expenditures and subsidies, and therefore have been relatively insulated from changes in government expenditures. Rather, groups most vulnerable tend to reside in urban areas, and tend to be those who have benefitted disproportionately from public services and subsidies, often urban civil servants and other urban middle-income groups (Sirageldin and others 1992).

- Adjustment appears to be related to the decline in the real value of civil servant salaries and may sometimes have squeezed non-personnel expenditures — especially for pharmaceuticals. While this is a cause for concern, it is also prompting a reassessment, and is providing grounds for restructuring health care systems to tackle fundamental problems involved. Government surveys of civil service employment, for example, report overly heavy concentrations of employees at the center, redundancies, and the phenomenon of ghost workers, meaning salaries are collected by recipients not on the job. Inefficiencies in current procurement, prescription, and use of medicines appear to be far more significant than the effects of prices and incomes (see Chapter 4). Ministry of Health budgets are predominantly being eaten up by expensive curative care in hospitals, undermining government's capacity to finance recurrent expenditures in primary health services. And the preoccupation of donors in the past with financing capital development projects has not been accompanied by sustainable provisions to meet recurrent cost requirements.

- Governments should restructure their health sectors as part of, and not in response to, structural adjustment programs, taking measures to protect social priorities and operationalizing symbolic commitments to preventive and primary care with public health funds intended for such purposes. As the Minister of Health of Zimbabwe put it, "Recession (and) structural adjustment policies and plans have provided us with opportunities for creativity, innovation, and boldness" (Stamps 1993).

welfare received about 6 percent of total government expenditures in 1982/83, rising to about 10 percent in the early 1990s. Over the same period, education's share increased from about 15 percent to 20 percent. In contrast, commitments to less productive sectors, such as military spending, were reduced from about 24 percent of total government expenditures in 1982/83 to about 10 to 12 percent during the early 1990s.

Nor does the performance of the three groups of countries classified in Table 1 appear correlated with the presence of SAPs. Averaging the total number of years that SAPs were in place between 1980 and 1990 in countries in the "low" group results in an average of 2.6 years per country. Comparable figures for the "medium" and "high" group are 4.3 and 1.0 years, respectively. Further analysis, employing multi-variate analysis of countries in the three groups, reveals that structural adjustment is not significantly correlated with government expenditures on health (as a share of total government expenditures), or government expenditures as a share of GDP. This particular analysis not only controls for levels of per capita GNP, but assesses the lagged effects of SAPs between 1980 and 1985 on health expenditures between 1985 and 1990, again showing no significant correlation.

Third, most governments in Africa clearly do have the means at their disposal to make substantial improvements in public expenditures on health. This is apparent from the priority they give to public expenditures on defense. Juxtaposed to the mass of evidence revealing that investments in health are essential to development strategy, there is little evidence to suggest that defense expenditures contribute positively to economic growth or sustainable development. Governments of six out of seven countries in the "low" group in Table 1 allocate two to four times more public expenditures to defense than to health. In the "medium" group, eight out of thirteen countries for which data are available allocate more public funds to defense than to health, with three out of six countries in the "high" group doing so. Merely acknowledging these facts, as well as prospects for improvement (as in Lesotho and Ghana) casts a more realistic light on the "disabling" environment faced by many Ministries of Health. Core agencies of finance and planning can serve as allies of Ministries of Health in the search for possibilities for resource reallocation across sectors, especially away from military outlays.

Combatting Inefficiencies and Inequity

As has been argued throughout this report, scarce government resources for health must also be examined in terms of whether they are being allocated efficiently and equitably. Evidence from public expenditure surveys and health sector reports by the World Bank suggest that large shares of government resources for health are eaten up by relatively cost *ineffective* interventions, especially for tertiary care, that use of public funds for non-public ends undermines government's comparative advantage in financing public goods and services, and that such behavior is antithetical to symbolic commitments to primary health care.

In Kenya almost 70 percent of the public health budget went to curative care between 1985 and 1991, versus only 4.5 percent for disease prevention and health promotion. In Malawi between 72 and 82 percent of the public health budget went to curative care between 1983 and 1988, versus only 5 to 9 percent for preventive care. In Nigeria, inadequate emphasis on preventive and primary care has been decried in health policies since the mid-1970s.

Nonetheless, in eight states for which data are available, curative care increased from 72 percent to 81 percent of the public health budget during 1981 to 1985. Only in recent years has the government made a major effort to change the situation.

Other countries in which curative services account for 60 percent or more of public health expenditures include Tanzania and Uganda. In the case of Uganda, well over half of this spending was devoted to curative care of the ten major killers and causes of morbidity in the country, despite the fact that most of this spending could have been avoided had public resources been used on preventive care and community services.

The challenge is to translate symbolic commitments to primary and preventive care into action by wrestling away public resources from costly curative care and capturing the redistributive and equity benefits of spending funds on public goods and services. This is the shortest route to capturing large positive externalities. Otherwise, shortfalls in the supply of services or the realization of public policy targets for health may be spuriously attributed to a lack of funds, when the real culprit is misallocation and cost overruns associated with hospital-based curative care. Misallocation of public funds to non-public ends can be partially corrected by comprehensive financing strategies that clearly state how public funds for health are to be used. No pretense is made that government expenditures on publicly operated hospitals could be drastically cut back overnight. However, a clear vision can be established, and monitorable steps in this direction can be fixed. Progressive introduction of full cost recovery for curative care, including both direct and indirect costs at higher level facilities, as discussed shortly, is an important step forward, and promises to release public revenues for public health activities and district-level care.

Summing up, the fiscal capacity of governments in many African countries has clearly been undermined by poor economic performance, rapid population growth, and instabilities stemming from political upheaval. These factors do not, however, constitute a sufficient explanation for low or declining government expenditures on health as a share of total government expenditures. This is something governments can change as they have complete control over this dimension of health spending. Structural adjustment programs may well be correlated with austerity measures, but they cannot be invoked as a root cause of declining government commitments to health. Rather, adjustment lending has increasingly sought to protect social expenditures and promote their use for largely public health goods and services. If systems of health care are restructured as part of structural adjustment programs rather than in reaction to them — as in Lesotho and Ghana, for example — these positive dimensions might be pushed a good deal further. And as difficult as it may be to mobilize political will, governments do have the power to channel more resources to public health activities and the basic package of care featured in this report, especially were they willing to dip into their defense budgets.

Private Expenditures

Surveys of household expenditures, including direct payments to private practitioners, traditional healers, private pharmacists, and so on, leave little doubt that African households expend substantial out-of-pocket sums for health (Table II). In Côte d'Ivoire where per capita

GNP was about $900 in 1985, household expenditures on health averaged about $19 per capita, whereas central government expenditures averaged about $8.20 per capita. In Ghana with a considerably lower per capita GNP of $240 in 1987-88, per capita expenditures were also relatively high at about $7.30 in 1986, when compared with central government expenditures of about $4.20. In Nigeria where per capita GNP was $400 in 1985-86, average per capita expenditures were about $15, whereas central government expenditures are thought to lie somewhere in the vicinity of $1 to $2 per capita. At the very least, the public sector has a responsibility to make available information and to educate households to better allocate — and where necessary reallocate — these substantial out-of-pocket expenditures to cost-effective packages of health services.

Out-of-pocket expenditures vary considerably between the poor and non-poor within countries. For countries in Table II, each quintile contains 20 percent of the households, arrayed from lowest to highest expenditure levels. In Ghana household expenditures varied fivefold across quintiles, ranging from about $15 per capita in the highest quintile to $2.60 in the lowest quintile. In Côte d'Ivoire household expenditures varied eleven-fold across quintiles, ranging from about $46 per capita in the highest quintile to $3.99 in the lowest quintile. In Senegal, household expenditures varied fifteen-fold across quintiles, ranging from $62.00 in the highest quintile to $4.90 in the lowest.

Table II. Per Capita Household Expenditures on Health in Selected African Countries

Household Quintile	Ghana 1987-88[a]	Côte d'Ivoire 1985[a]	Guinea Bissau 1991[b]	Nigeria 1985-86[c]	Senegal 1991-92[d]
Lowest	$2.55	$3.99	$3.88	$2.58	$4.90
2nd Quintile	4.25	6.59	4.36	5.88	10.27
3rd Quintile	6.19	14.33	5.38	10.07	13.44
4th Quintile	8.54	17.04	7.44	14.08	25.34
5th Quintile	14.83	46.38	8.34	35.16	61.82
Average	7.27	18.88	4.74	15.05	23.14
Per Capita Income	239.00*	911.31**	196.00	400.00	393.00
Average as Share of Per Capita Income (%)	3.0	2.1	2.4	3 8	5.9

Note: Household expenditures include traditional and modern health services and medicines.

Sources:
(a) Serageldin and others 1993.
(b) 1991 Income and expenditure survey.
(c) 1985/86 Consumer expenditure survey.
(d) 1991/92 Priority Survey (Direction de la Prevision et de la Statistique).

* IMF Report.
** Grootaert. 1985-1988. *The Evolution of Welfare and Poverty During Structural Change and Economic Recession — The Case of Côte d'Ivoire.*

The evidence in Table II suggests considerable scope for cost-sharing of basic packages of care, especially in contexts where publicly provided services are currently provided "free", side-by-side with non-governmental providers. Furthermore, because per capita expenditures on health tend to be much higher among the more well-to-do groups than others, cost recovery would appear to be especially justified for more sophisticated and costly hospital-based care. In Ogun State in Nigeria, for example, 53 percent of the highest income group who seek medical help first go to public facilities, with 27 percent alone going to public hospitals. A lower share, 21 percent, of the lowest income group first seek care in public hospitals. In Côte d'Ivoire expenditures on health by urban households in the highest income quintile are about four times the highest quintile in rural areas. Stimulating higher income individuals to absorb a substantially greater share of the cost of the hospital services they use thus represents one way of increasing equity and freeing up public resources to finance primary care.

To conclude, there are clear indications that households and communities are able and willing to expend substantial out-of-pocket sums for health. This suggests an important role for public information and education on cost-effective packages of health services, and indicates that there is much that can be done to mobilize private resources for health, especially among higher income quintiles.It also underscores the important role that public subsidies are likely to play to assure access to basic packages of care by lower income households. As discussed shortly, exemptions and subsidies are merited for the poorest segments of the population.

International Aid

Donors have become important as financing agents, especially in African countries where governments have been unable to meet health needs due to shortfalls from domestic sources. Between 1981 and 1986, external assistance for health from official and private voluntary sources averaged more than $1.50 per capita, equivalent to more than 20 percent of average central government expenditures on health (Tchicaya 1989; UNDP 1981-86). By 1990 assistance had climbed to a total of over $1.2 billion, or almost $2.50 per capita. However, wide variations are apparent among countries, ranging from $0.60 in Nigeria to $7.00 in Benin (see Table III). Furthermore, the limited information available suggests that more aid *per capita* is going to countries in the high and medium groups than to the low group discussed in Table I.

During the late 1980s funding by bilateral donors amounted to 62 percent of total health assistance in Sub-Saharan Africa, while multilateral agencies provided 32 percent and non-governmental agencies provided 6 percent. On average, 44 percent of donor funds have been directed towards capital investment, 22 percent to technical assistance, 13 percent for operating costs, and 2.4 percent for training. Variations are wide however. In Lesotho, donor financing covered about 80 percent of the MOH capital budget between 1987 and 1992. In Uganda donors financed 87 percent of total public development expenditure in 1988-89 (PER 1991). In Mali the share of donor funding for development expenditures was 63 percent in 1990 (World Bank 1991g). Since, on average, each $100 of capital investment in the health sector generates annual operating costs of $30, international funds not only determine government health investment, they also shape how the health budget will be spent (Heller 1979).

In response to financial crisis, donor aid has also been meeting an increasing share of public recurrent expenditures, especially for essential inputs such as drugs and emergency and supervisory transport. Donors pay for virtually all drugs imported in Tanzania for dispensaries and health centers, for example. There are also a growing number of cases where donors are financing salaries for incremental health workers (in Malawi, for example), particularly community outreach workers and nurses in rural primary health care centers. Recurrent expenditure grew from about 13 percent of donor assistance for health in Africa at the beginning of the decade, to 35 percent at the end, while capital expenditure support declined from about 55 percent to 35 percent (McGrory 1993).

At the same time that donor assistance has played an invaluable role in shoring up public initiatives for health, so too have negative side effects emerged that are at odds with the central messages of this report. Prominent among these are the following:

- The Organization for Economic Cooperation and Development reports that "In spite of their stated commitment to primary health care, relatively large resources are devoted by donors ... to sophisticated urban-based facilities including hospitals and specialist clinics" (OECD 1989). This suggests the need for closer scrutiny of the impact of health aid flows, as well as greater use of external finance to establish and run projects in remote or underserved areas. Examples include the provision and distribution of essential drugs that are intended principally for consumption by less well served populations, as supplied, for example, by DANIDA in Tanzania and Medecins sans Frontieres in Mali.

Table III. External Assistance for the Health Sector, Selected African Countries, 1990

Country	High, Medium, or Low Expenditure Country[a]	Per Capita Aid (US$)
Benin	..	7.0
Burkina Faso	L	4.7
Burundi	M	2.8
Cameroon	M	.
Central African Republic	..	6.5
Chad	..	5.8
Cote d'Ivoire	..	0.9
Ethiopia	L	0.8
Ghana	M	1.9
Guinea	..	3.5
Kenya	M	3.5
Madagascar	..	1.5
Malawi	M	2.5
Mali	L	4.3
Mozambique	..	2.9
Niger	M	5.6
Nigeria	L	0.6
Rwanda	M	4.1
Senegal	M	4.9
Sierra Leone	L	1.7
Somalia	L	3.5
Sudan	..	1.5
Tanzania	..	2.1
Togo	M	3.9
Uganda	L	2.8
Zaire	L	1.3
Zambia	M	0.7
Zimbabwe	H	4.2
Population Weighted Average		2.5

Notes: a. Source of country classification: Table I, Chapter 9.
b. Estimates for development assistance for health are expressed in official exchange rate U.S. dollars. Total aid flows represent the sum of all health assistance for health to each country by bilateral and multilateral agencies and by international agencies and by international nongovernmental organizations (NGOs).
Source: World Bank 1993e, Table A.9.

- External financing has often worked against sustainability when it has been used for vertical programs or inappropriate capital or development expenditures, rather than recurrent costs of operations. Though such funding may have the goal of expanding coverage and quality

of services, the recurrent costs necessary to sustain the capital investments are often very high and beyond the government's ability to finance. Almost every African country has at least one big investment project, such as a large hospital, that is unlikely ever to function as originally planned due to lack of an adequate recurrent expenditure budget. Underutilized facilities include, for example, the Maidugeri and Ibadan teaching hospitals in Nigeria.

- While most donors have provided aid through specific projects without conditions for explicit policy reform, the priorities that are implicitly imbedded in the funding have virtually driven the selection of health strategies in Africa. In some cases heavy reliance on external assistance has led to virtual abdication of responsibility for health policy formulation. Furthermore, donor funding priorities are constantly shifting — tending to favor specific health themes at international conferences that detract attention from the need to strengthen basic health services. In Rwanda, for example, over 20 percent of donor financing for health has recently been earmarked for AIDS alone, out of proportion to total health needs (Over and Piot 1991). The push for universal childhood immunization between 1985 and 1990, which was "jump-started" largely with external financing from UNICEF, Italy, WHO, and Rotary in Africa, vastly improved vaccination coverage throughout the continent. Yet, declining rates of coverage more recently indicate that health systems are unable to maintain the momentum without continued injections of outside funds. African governments are increasingly recognizing this problem; and some, such as Nigeria, are calling for African governments to assume from donors responsibility for vaccine financing (WHO/AFRO 1993).

- Government information regarding large numbers of external assistance programs is often weak, with the result that coordination and monitoring of donor activities tends to be ineffective. External evaluations are often conducted without involving the recipient country (Engelkes 1993). Moreover, government and donor definitions of health programs and accounting requirements frequently differ, so that health planners and policymakers often do not know the overall purposes, locations, and amounts of external resources being used.

Summing up, external assistance for health can help to bridge financial gaps in Africa in ways that are far more efficient, equitable, and sustainable than in the past. Additional support for the basic package of care featured in this report is precisely one such avenue. External funding sources need to re-examine their activities and emphasize a longer time horizon, broader programs of intersectoral assistance, and national capacity building, rather than individual project-based support. In turn, governments should play a vital role in this process by developing comprehensive health policies, increasing their commitment to primary care, establishing overall health sector financial plans, and emphasizing cost-effective packages of basic services, rather than molding national strategies around available donor funding. It is precisely this kind of orientation that can bring more donors on board, with greater financial commitments to improve systems of health care. In Guinea and Benin, for example, national action plans and comprehensive financing plans are being drawn up by governments in

collaboration with donors so as to better determine both capital and recurrent cost requirements.

Governments can further reduce dependency-related problems by taking the lead in donor coordination. In Ghana, for example, the Ministry of Health has organized a Local Assistance Group on Health which functions as a quarterly forum with donor agencies to resolve health strategy issues. In Kinshasa coordination led to standards for health center activities and user fee schedules respected by all participating health care providers.

Part II: Resource Mobilization

To shore up lagging revenues, and to assure adequate financing of basic packages of care, a growing number of countries are moving to increase user charges for government health services, such as Lesotho and Zimbabwe, or to establish nationwide fee systems to replace free care, such as Uganda and Kenya. Other countries, such as Guinea, Benin, Nigeria, and Rwanda, are promoting the creation or strengthening of community-financing schemes for health services. On other fronts, alternative arrangements are filling gaps, such as community health insurance schemes. Lessons learned are that a wide variety of approaches are needed. Much more can be done to mobilize private and especially household financial resources for health, and interactions of the private sector and publicly-provided and financed services need to be clearly fleshed out in national financing strategies for health.

User Fees and Cost Recovery

Non-tax sources of revenue, such as user fees and cost recovery, are becoming increasingly commonplace in African countries as a means of tackling several problems simultaneously. Cost recovery directly addresses the problem of persistent under-funding of government health facilities. By charging user fees for services that primarily benefit the user, such as tertiary level curative care, governments can free up and reallocate tax-financed health expenditures to activities that extend benefits beyond the individual. These include public health services directed to community health, immunizations, and communicable diseases (see Chapter 2). User fees also represent a tool for reinforcing the referral system and managing health facility utilization. When prices are zero or uniformly low across a health care system, from the most expensive hospital services to the least expensive immunization, consumers have no reason to pay attention to costs when they use the health system. Their natural inclination might well be to use the most costly services because they weigh benefits against zero price (Griffen 1992, pp. 1-13) This is one reason why multi-tiered systems of care and referral systems have not worked well in many African countries (see Chapter 3).

User fees make sense on economic grounds. The demand for health care tends to be income elastic, meaning the more money people have, the more they are able and willing to pay for health. For any given level of prices, it is reasonable to expect that a disproportionate share of health care consultations will be made by higher income people, compared to the general population. Charging wealthier people for services they demand and can afford, and pooling revenues to subsidize those least able to afford care, is also an important means of promoting equity. And, when user fees become part of the process of upgrading quality of health services,

for example by helping to cover salaries and drug costs, they can actually work to reinforce demand (more on this later).

The demand for health care, especially curative care, also tends to be price inelastic meaning an increase in user fees will result in a less than proportionate drop in demand and an increase in revenue. An increase in the price of public health care may reduce demand, but most people will still seek care from some source, particularly if there are competing private providers of better quality. Moreover, when user fees charged by public sector facilities are modest, they tend to be a very small proportion of the total cost of using health care. Transportation costs for people living far away, and the cost of taking time off work to seek care, may be far more costly to the beneficiary than user fees.

Without user charges, many public and most private voluntary providers of health care would cease to exist. Yet, in public facilities, user charges have tended to be very low in the past. In two-thirds of African countries for which data are available, their contribution to total government recurrent expenditures on health has been less than 5 percent (see Table IV). This implies considerable scope for expansion. In Ghana, for example, a large upward adjustment in prices, adopted in 1985, increased cost recovery receipts as a share of Ministry of Health revenue from 5.2 percent to 12.1 percent by 1987.

User Fees in Hospitals

Prospects of recovering costs in public hospitals take on monumental importance if systems of health care are to be restructured to feature preventive and primary care services. High capital and recurrent costs of hospitals dictate that if curative services are financed by governments, then their health budgets will be skewed toward hospital services no matter what their stated priorities may be. Furthermore, if the typical residential and income characteristics of those receiving such care — predominantly urban, well-to-do families — are "superimposed" on the subsidy pattern implied above, then an equity problem is almost imminent. Urban residents will capture a disproportionate share of the government's health subsidy because they live near the hospitals and use them. It is hard to envision how governments can alter the status quo unless these problems are resolved (see Box 2).

Table IV. Revenue from User Charges as a Percent of Recurrent Government Expenditures on Health

Country	Percent of Recurrent Expenditure
Botswana, 1979	1.3
Burkina Faso, 1981	0.5
Burundi, 1982	4.0
Côte d'Ivoire, 1986	3.1
Ethiopia, 1982	12.0
Ghana, 1987	12.1
Kenya, 1984	2.0
Lesotho, 1984	5.7
Malawi, 1983	3.3
Mali, 1986	2.7
Mauritania, 1986	12.0
Mozambique, 1985	8.0
Rwanda, 1984	7.0
Senegal, 1986	4.7
Swaziland, 1984	2.1
Zimbabwe, 1986	2.2

Source: Vogel 1988 and 1989.

Acknowledging that limits on hospital spending are exceptionally difficult to impose, the application of user fees is a viable alternative to open-ended support from Ministry of Health budgets. Hospitals already have accountants, procedures for financial control, and access to the banking system, meaning they are in a relatively

Box 2. Three Stories of Cost Recovery in Hospitals and Other Facilities: Ghana, Senegal, and Malawi

GHANA: In 1983 the price structure for health services was judged to be too low in Ghana, resulting in a large upward adjustment in prices in 1985. By 1987, cost recovery receipts as a percent of the Ministry of Health recurrent budget had climbed from 5.2 percent to 12.1 percent. A key to Ghana's progress appears to be in the structure and application of prices, as well as in the administrative provisions of the cost recovery law. Prices are hierarchical and directly related to the sophistication and expense of the health care delivered. The price of curative care at the hospital level is a large multiple of curative care at the health center. This feature of the pricing structure gives a strong price signal and reinforcement to use the referral system. Yet, facilities are obliged to differentiate the poor from non-poor, and to give free care to the poor.

Another key to success in Ghana's cost recovery experience has been the administrative provision that a portion of the proceeds should remain at the site of collection, towards improving quality and stimulating incentives to collect fees. The general formula used is that 50 percent of user fee revenue goes to the Ministry of Finance, 25 percent to the Ministry of Health, and 25 percent is retained by the facility that collects the fee.

SENEGAL: In Senegal, there is no cost recovery at large national hospitals. Cost recovery is being introduced at some regional hospitals, and is mostly practiced at the primarily level of the health care system. A consequence of this policy is that it gives the wrong signals from a systemic point of view. To illustrate, people may be inclined not to seek care at a health center in a suburb of Dakar, where they must pay for that care, when they can easily take a bus into Dakar and receive free care from the Dantec Hospital.

Given this asymmetry in user charge policy, hospitals such as Dantec are operating at more than 100 percent of capacity, while local treatment facilities are underutilized. This, in turn, distorts public sector investment policy. Almost half of the project expenditures in Senegal's three-year investment plan are for renovations or additions to the Dantec Hospital.

MALAWI: The government has determined that cost sharing is an urgent, viable policy which can be used to acquire resources from users of medical services, then redeployed to extend and improve health care delivery to rural-based families in the periphery. A phased approach is being implemented over three years, commencing April 1992, to introduce the cost sharing system to central hospitals, then to general and district hospitals, and finally to health centers — all phases to be accompanied by improvements to strengthen quality.

Several concerns are behind the cost sharing strategy. One is to increase the efficiency and utilization of the central/general hospitals and district hospitals by introducing a system to discourage the population from using hospitals as their entry point to the health system. Another is to improve the referral system by encouraging the population to enter the appropriate level of services — health centers. A related concern is to strengthen primary care with trained manpower and continuous availability of essential drugs.

Source: World Bank.

better situation to deal with administrative tasks associated with cost recovery. The ability to price discriminate if necessary — to increase revenues and lower prices to the poor — is most feasible in hospitals, where many different services are offered. And, the most expensive hospitals tend to be located where people are most likely to have access to insurance and where employment-based risk sharing systems are most likely to exist.

The experience of private-for-profit and private voluntary hospitals provides an indication of the possible scope for user fees in public hospitals. Religious missions in Côte d'Ivoire, Ghana, Mali, and Senegal have been successful in covering a large percentage of their operating costs with user charges for a population that is similar to that served by public facilities. A survey of non-governmental facilities in Tanzania revealed that 57 percent of hospitals expected more than 50 percent of their revenue to come from user fees (Mujinja and Mabala 1992).

From 50 to 80 percent of their recurrent costs for drugs, salaries, repairs, and maintenance were financed by user fees. Even while public facilities provide "free" health care, groups visiting fee-charging NGO dispensaries and hospitals in greatest number were peasants, the employed, and traditional healers. Non-governmental hospitals in Uganda have long relied on the willingness of households to pay for services and have recovered anywhere from 75 to 95 percent of hospital costs (World Bank 1992g).

Even small fees in public hospitals can produce revenues that dwarf those generated by high fees at clinics. In Wad Medani, Sudan, a 0.25LS entrance fee at the main hospital generated gross revenues of 325,900LS in 1984, compared with 8,200LS generated by three evening clinics nearby that charged four to eight times the hospital entrance fee (Griffin 1988). In Mali one hospital increased its revenues by 7 percent over the previous year by demanding that a single government department pay its bill for services rendered to its civil employees (Vogel 1987a). In Senegal total funds recovered in the hospital sub-sector equalled only 6 percent of the Ministry of Health budget allocation to hospitals, yet they were sufficient to pay for 50 percent of hospital drug supplies, equivalent to one-third of total drug expenditures at the hospital level by the Ministry.

Introduction of user fees at hospitals can also contribute to efficiencies in the referral system, stimulation of the private sector, and greater use of public resources for the most needy (see Box 2). In Zimbabwe, for example, fees increase according to the hierarchy of facilities, so that consumers seek care where the services can be provided at lowest cost. The basic out-patient charge for adults is Z$5 at a central hospital, Z$3 in a provincial general hospital, and Z$1.50 in a district hospital. In Cameroon a desired by-product of introducing fees has been to motivate well-to-do patrons of public facilities (where fees were non-existent) to obtain private care, assuming they can better afford the travel and other costs involved in doing so. This met the social objective of making public resources more available to the poor. In Lesotho the government explicitly sought to induce patients to switch from public to private care as part of its higher user fee policy in 1988.

Another option is to turn hospitals into parastatals or entirely autonomous bodies that will have reduced access to government budgets, or to privatize selected services in national hospitals. In Burundi, for example, the Ministry of Health is pursuing an innovative approach in its endeavor to give full autonomy to hospitals. Beginning with a hospital with 120 beds, the Ministry first transferred a lump sum to cover the hospital's full operating costs. Each year thereafter, the Ministry is reducing its contribution by 20 percent. Based on the positive outcome of this experience, the Ministry is now applying the same procedure to its central hospital with 600 to 700 beds. Simultaneous action is also being taken to stimulate the expansion of insurance schemes, under the assumption that hospitals would not be able to recover full costs and remain viable without them. A similar approach is being planned in Rwanda. In both Rwanda and Burundi a fundamental premise is that ministries of health were never designed to manage hospitals and almost always do so poorly.

Privatization of selected hospital services is under way in Tanzania, where there are private pay beds in government hospitals. In Mozambique government medical staff run special hospital-based clinics outside normal working hours. The Kenyatta National Hospital (KNH)

in Kenya has taken a number of steps away from the traditional model of direct central hospital management by the Ministry of Health, towards a greater role for private sector models and activities. Its recently adopted Private Practice Plan calls for a private wing in KNH to generate a surplus and thus augment KNH's revenues. The real financial return on the Plan is estimated at 8 percent.

Cost-Sharing in Health Centers and Dispensaries

User fees or cost-sharing strategies in publicly operated health centers and dispensaries take on immense importance because it is at this level where the demand for preventive and primary care is most immediate, funds are relatively scarce, and quality improvements are desperately needed. It is also at this level where the community can become actively involved in mobilizing and managing resources for health. Recognizing this situation, the World Health Organization, in a meeting in Bamako in 1987, adopted a resolution to endorse community cost sharing mechanisms in support of primary care. Since that time UNICEF has spearheaded a "Bamako Initiative" involving from one to fifty districts in thirteen countries, some 1,800 health facilities, and about 20 million people. In almost all cases, regular supplies of essential drugs have been used as a mechanism of cost recovery.

Experience from the Bamako Initiative and related endeavors suggests that cost-sharing can pay significant dividends. In countries like Benin, Guinea, and Nigeria — where experience has been closely monitored — approximately 40 to 46 percent of local operating costs (including salaries) are being covered by fees. According to one study, up to 100 percent of local recurrent costs (excluding salaries) are being covered — for essential drugs, maintenance, equipment, other supplies, and services (Parker and Knippenberg 1991).

Cost-sharing in health centers and dispensaries has given rise to a number of principles, or lessons learned:

• Clients' willingness to pay fees, or higher fees, for publicly provided health services is strongly conditional on whether the higher prices are preceded or accompanied by improvements in quality.

In Cameroon utilization increased significantly across all economic groups at health centers that simultaneously initiated fees and quality improvements, compared to those that did not (see Box 3). Furthermore, utilization by poorer people rose proportionately more than by the wealthier (Litvack 1992). This perspective agrees with a comprehensive survey of public health facilities in Ogun state of Nigeria. If public sector prices are raised on a user fee basis, the probability of clients seeking public sector care changes only marginally — depending on the response of the private sector — but the revenue gains are large.

On the other hand, if price increases are not matched with quality improvements in services provided there is likely to be a loss of demand for such services that could overwhelm the revenue expectations (World Bank 1991c). The introduction in user fees precipitated a decline in user rates for public services in Swaziland, Mozambique, and Lesotho, largely

because the revenues raised were not immediately reinvested in the facilities towards improving services.

• Retention of a substantial portion of the revenues at the site of collection is an important incentive to collect fees and improve quality of services, particularly where community representatives monitor the collection, accounting and use made of these funds.

Enabling facilities to retain fees helps to supplement shortfalls in the public budget and allows facilities to tailor services to local needs. A World Bank study of cost recovery in Nigeria recommended that a significant portion of the fees collected (50 to 75 percent) could be made available to improve the quality of care at the facility, without any commensurate reduction in the government allocation that it received. The remaining 25 to 50 percent of fee revenues could be divided among health authorities to enable increased spending on preventive services and for improving quality at facilities that might not initially introduce fees because they were in poor areas.

Box 3. Use of Health Centers by the Poor in Cameroon after Introducing Cost recovery and Quality Improvements

A controlled experiment at five public health facilities in Cameroon demonstrated that the poor may benefit more than the relatively better-off population from concomitant introduction of cost recovery and quality improvements.

In a "pretest-posttest" experiment, three health centers introduced a user fee and quality improvement (for example, reliable drug supply), and were compared with two similar facilities without such changes. Two rounds of household surveys were conducted in 25 villages, each with about 800 households, to measure the percentage of ill people seeking care before and after the changes. The experiment was tightly controlled by conducting monthly observations at each study site.

Results indicate that the probability of using the health center increased significantly for people in the "treatment" areas compared to those in the "control" areas. Contrary to previous studies which have found that the poorest groups are most hurt by user fees, this study found that the probability of poorest groups seeking care increased at a rate proportionately greater than the rest of the population. Travel and time costs involved in seeking alternative sources of care are too high for the poorest people and thus they appear to benefit from local availability of drugs more than others.

Source: Litvack 1992.

In contrast, when little financial autonomy is permitted, efforts at administrative decentralization in the collection of fees and monitoring of cost recovery personnel appear to be hampered. The user charge systems of Côte d'Ivoire, Mali, and Senegal require that funds be almost entirely remitted to the Finance Ministry. From the perspective of health facility providers, this resembles a "tax" of 100 percent of cost recovery receipts, and thus discourages collection (Vogel 1988).

• Drug revolving funds are an appealing cost recovery mechanism because customers are satisfied by a more regular and sustainable supply of drugs, while health facilities may generate a surplus from drug sales.

Drug revolving funds tend to manifest several positive effects such as assuring continuity of supplies of essential drugs, increasing the population's confidence in the health facility to deliver drugs, and boosting revenues given the relatively large share of medicines in the recurrent expenditures of health facilities. In Benin, for example, a comparison of monthly utilization of health facilities one year before and after a revolving drug fund was established shows an increase in utilization of 129 percent. Increases in utilization following the start-up

or during the course of a cost recovery program for drugs are also seen in Niger and Liberia and in some cases in Guinea, Nigeria, Senegal, and Zaire (World Bank 1992d). An important lesson is to introduce price increases gradually over time, giving clients the opportunity to observe and appreciate service delivery improvements (Blakney and others 1989).

- Good administrative and managerial practices are important to successful cost recovery.

Though little is known about the additional costs of administering an expanded cost recovery system, conditions for successful collection at health centers and hospitals appear to include: (i) well-defined entrance points to the health service, whether they be at the entry gate of the health facility itself, or at the entry point for each service at larger institutions such as hospitals, (ii) a clear statement of the fee structure for services available, (iii) the issuance of some paper instrument, such as a ticket, with duplicate copies, that serves both as a proof of payment and as a management control device, (iv) a tightly controlled mechanism for ascertaining who are the truly poor and who are not, and the elimination of exemptions on any other basis, (v) careful training of the care-giving staff to ensure that treatment is not rendered unless a ticket or certificate of indigence is produced by the patient, (vi) spot checks by someone in an accounting or administrative capacity to ensure compliance, (vii) periodic audits of financial transactions, and (viii) a fairly high level of local retention of fees. One study concluded that the amounts of revenue raised appear to be a function of the vigor with which cost recovery is pursued at the national and local level, and of the competence and commitment of local health administrators (Vogel 1988).

Fee Structures and Provisions for the Poor

The joint issues of what services should be charged for, and how much should be charged are relevant largely to the public sector, as well as to private voluntary organizations and to private-for-profit providers that receive government subsidies. The majority of private-for-profit providers, on the other hand, levy fees determined by market forces of supply and demand.

In the public sector, a 'rule of thumb' can be applied to determine whether revenues should cover costs: Is the service provided largely a private or public good. Most curative health care is private and people are willing to pay for it, with the implication that full cost recovery is a reasonable goal over the long-run. In contrast, public health goods and services such as health education and prevention of communicable diseases are public goods or have strong positive externalities. Thus, they are often provided free or at reduced cost.

Improvements in social equity resulting from user fees will also be partially contingent on introducing differential charges based on income. On the one hand, policies that exempt certain privileged groups, such as civil servants and the military, from paying fees can contribute to inequity. In several West African countries, public employees are fully or partially exempt from paying fees. On the other hand, if user fees deter the utilization by low-income groups, then provisions may be needed to ensure access through subsidies, waivers, sliding fee systems, or other appropriate means.

The concerns above give rise to a number of broad principles that can help determine the general shape of a user fee policy. Zimbabwe is an illustrative case. First, to the extent possible, prices aim to reflect the type of service offered. Health services that largely provide private benefits, such as curative care, are to be priced at or near cost, whereas services with major externalities — such as immunizations and family planning — should be free or provided at reduced cost. Second, higher-income groups, especially the 5 percent of the population covered by health insurance, should pay a much larger share of the actual costs of health services provided to them. At the same time, very low-income households should be able to obtain basic health care at little or no cost. Third, prices in Ministry of Health facilities should be structured to encourage efficiency. The price differential between levels of the referral system could be established as a signal, but a stronger argument is that it should reflect differences in the costs of providing services, which will encourage clients to go to the lowest-cost level (Hecht and others 1992).

The main practical issue in applying sliding fee systems or exemptions for the poor is the administrative feasibility of assuring that those who need them receive them. Without strong political support, firm screening criteria, and retention of some portion of fees at the point of collection, health personnel will have little incentive to perform means tests, and exemption mechanisms may experience considerable slippage. Because there are no established rules to follow, a certain amount of "learning by doing" is inevitable. Exemplary approaches include:

- In countries participating in the Bamako Initiative, the philosophy of user fees in health centers is that "everyone should pay something", no matter what their income status. At the same time, however, the level and structure of fees reflects the fact that most clients tend to be low income and can afford little. Thus, for some primary care services, such as pre-natal consultations, prices are almost nil, whereas for drugs, cost recovery is common, but charges vary according to the cost and dosage of the prescriptions involved.

- The government of Malawi has recognized the need for low-income exemptions as it phases in cost recovery, first at central hospitals, then district hospitals, and finally health centers. The government of Malawi has recognized the need for low-income exemptions. It has determined that the "core poor" shall be exempt from the Ministry of Health cost sharing scheme, and has examined the structure of landholding to determine such households (Ferster and others 1991). Core poor are families farming less than 0.5 hectares and have been estimated to comprise 500,000 households, or 18 to 20 percent of all households in Malawi. Rather than working out a complicated sliding fee schedule in areas where people are predominantly poor, a lower and more affordable schedule of fees has been determined in collaboration with the communities served. Community involvement is particularly worthwhile in this task, because community representatives are in a far better position to determine who can and cannot pay than, say, a central government official removed from such realities.

- In everyday practice, NGO hospitals and dispensaries in Tanzania found that approximately 70 percent and 40 percent of patients, respectively, were unable to pay their full fee (Mujinja and Mabala 1992). Only 10 percent of hospitals and 5 percent of facilities said they offered no exemptions, while many facilities accepted alternative forms of payment. Some allowed deferred payment, payment in-kind with crops, temporary employment (without pay),

or assigned tasks for the client to perform. The proportion of hospitals and dispensaries exempting the disabled were 90 and 75 percent, respectively, those over 65 years of age (9 and 20 percent, respectively), poor people (86 and 85 percent), children under five (36 and 30 percent), those with chronic diseases (23 and 5 percent), and retired workers (9 and 10 percent).

Summing up, user fees and cost recovery almost completely sustain private providers of health care and are a potential means of increasing the financial sustainability of public providers. Correct application of fees can help unburden Ministry of Health expenditures which disproportionately go to urban-based curative services, thus paving the way for a reallocation of funds to primary care and greater use of public funds for public health services. Of course, were Ministries of Finance to offset the positive revenue generating effects of user fees with a corresponding reduction in Ministry of Health budget allocations from the Central Treasury, then these benefits of cost-sharing would not be realized.

User fees and better use of price signals can also contribute to the efficiency of referral systems and the reduction of excess demand for relatively simple out-patient services at expensive hospital-based facilities. And, when fees are retained at the site of collection, at health centers for example, they can contribute to quality improvements and offset the negative effects that higher prices might otherwise have on client demand. User fees can be introduced in ways that serve equity concerns by removing exemptions for relatively well-to-do clients, and providing targeted subsidies or waivers to those least able to pay. Finally, giving maximum autonomy to communities that are working with health districts to determine fee levels and exemptions makes sense. Combined with local retention of revenue, this will make fees more likely to reflect what households are willing to pay and can afford.

Health Insurance

User fees are an important part of cost recovery, but to cover full costs of major hospital and in-patient care, large parts of the population would eventually have to be covered by some form of health insurance. Insurance is a method of pooling the risk of becoming ill. In prepayment systems, all participants regularly pay a fixed amount. Funds are then pooled, allowing insurance providers to pay for all those needing care, especially the high costs associated with hospital-based curative care.

Though health insurance is not intended to be a mechanism for resource mobilization or for achieving equity between high- and low-income groups, it has significant implications for both. Groups that are insurable in Africa are often relatively better off compared to the rest of the population. Through insurance, these individuals can self-finance the level of health care they demand. Schemes to promote insurance can therefore help relieve the government budget of the high costs of expensive curative care, releasing funds for preventive and primary care.

Similarly, health insurance is not intended to be a mechanism for purging inefficiencies in the financing of health services, though it can contribute to this process through cost containment. With appropriate incentives, health insurers take a strong interest in containing

reimbursement levels for health care and are inclined to negotiate with suppliers to keep fees down.

Only a small proportion of the population is currently covered by health insurance in Africa today. Coverage ranges from virtually nil in Uganda to 13 percent of the population in Senegal (see Table V). However, there is potential to gradually increase the share of the population covered. In countries like Kenya and Senegal coverage has doubled since the mid-1980s.

Table V. Percentage of Population Covered by Health Insurance in Selected African Countries

	Population (millions)	*Percent Covered by Insurance*
Burkina Faso (1981)	6.7	0.9
Burundi (1986)	4.9	1.4
Kenya (1985)	21.2	11.4
Mali (1986)	7.6	3.3
Nigeria (1986)	103.1	0.04
Senegal (1991)	7.2	13.0
Uganda (1991)	16.8	0.0
Zambia (1981)	5.6	6.1
Zimbabwe (1987)	8.7	4.6

Source: Vogel (1990) and World Bank sector reports.

Encouraging Risk Sharing

One form of health insurance in low income Africa is government-sponsored social insurance, financed by general tax revenues. Enthusiasm over national insurance schemes follows from the assumption that they represent a means of transferring wealth from the healthy to the sick, and from the rich to the poor. This assumes that contributions are based on income and benefits are provided according to need. In reality, however, universal systems have fallen far short of goals in Africa. A predominant reason is the tax base tends to be weak and unstable, undermining public revenues. Improved performance in collecting taxes, especially direct taxes which tend to be progressive, could help resolve this situation, contributing to equity in the process. In addition, government sponsored social insurance schemes in Africa have tended to have a very high share of administrative expenses — as much as 50 percent in Mali for example.

A more promising route is to impose mandatory insurance payments on employed workers as a percentage of their wages, and to levy a similar or somewhat higher payroll tax on their employers. Examples include compulsory social security for the entire formal labor market in Senegal and Mali, compulsory programs for public employees in the Sudan, and government mandated employer coverage of health care for employees in Zaire.

By making health insurance compulsory for employees in the formal sector, governments can encourage risk sharing in a number of attractive ways. A larger number of enrollees spreads risks more widely and makes the system more viable and fairer. Compulsory insurance also creates a large market that may encourage private suppliers to enter and introduce a range of alternative risk-coverage plans to attract customers. Under such a system, governments have the choice of collecting compulsory premiums while allowing consumers to subscribe to any one of a number of public or private risk-sharing systems. Finally, with compulsory coverage the problem of adverse selection — the tendency of the healthy to avoid joining or paying a premium — is effectively avoided.

Employer-sponsored plans are a second form of coverage. They provide care directly through employer-owned, on-site health facilities or rely on contracts with outside providers or health maintenance organizations. Examples include employer-provided medical care in Zambia and Nigeria, as well as in the rubber forests in Liberia and Zaire. In Senegal employees are covered under two insurance programs: a system known as Institut Prevoyance Maladie (IPM) for 53,000 wage earners and their families; and the Institut de Prevoyance et Retraites du Senegal (IPRES) for 60,000 retirees. Approximately 445,000 family members are covered under these two schemes. In Nigeria five large parastatals offer comprehensive care for their employees and their families, either at their own proprietary health care facilities or by contracting with private hospitals and doctors.

A third category of risk-sharing is prepayment plans. Prepayment schemes have the advantage of a one-time, annual collection fee. This avoids the need to adjust rates on the basis of assessments of individual risk (Eklund and Stavem 1990). Examples include personal prepayment plans, community sponsored plans (such as village funds for purchasing medicines or a broader self-supporting network of local clinics), and programs sponsored by cooperatives. In Kenya an estimated 2.1 million employees and their families earning more than KSh 1000 per month contribute a flat rate of KSh 20 per month to the National Hospital Insurance Fund (NHIF). When they are hospitalized, the NHIF will pay out KSh 200 per day for up to 180 days of care. In Guinea-Bissau a system of prepayment has worked well, limited to prenatal care and treatment with a few essential drugs. In Zaire the Bwamanda health insurance system provides a model for the operation of community-based insurance (see Box 4).

Fourth, there is private insurance to cover fees of private providers. Private insurance represents a means of earmarking family savings for the self-financing of health care by selected groups, thus freeing up public resources for the poor. In countries like Côte d'Ivoire, Ghana, and Senegal, private-for-profit insurance plans cater to upper income groups that are willing to pay for a level or quality of care that their government does not, and cannot, finance, given prevailing financial constraints. In such cases, private insurance schemes can help free up public resources by paying for what is otherwise publicly subsidized tertiary care. Private insurance is perhaps the most promising means available of stimulating greater private sector involvement in health services provision. In Senegal rapid development of private insurance over a three year period resulted in the enrollment of 15,000 people in plans offered by eight companies by 1990. In other countries, such as Zimbabwe, private health insurance has grown well, in part because it is subsidized by the tax system (Vogel 1990).

Role of Government in Insurance

Governments can play a critical role in encouraging risk sharing. Perhaps most important is to recognize that the willingness to pay for health insurance is likely to be weak in countries where publicly provided health services are currently "free", and a tradition of cost recovery is not in place. When user fees become an established practice in the public sector, households begin to take interest in spreading the risk of substantial health expenditures over time and across a wider population. With the subsequent evolution of risk-sharing financing mechanisms, a key obstacle to private provision of services — such as expensive hospital care — can then be gradually lifted.

Box 4. Community Level Insurance Plans: Lessons from Zaire

PRACTICE:

The Bwamanda health insurance system in Zaire has several features which have contributed to its success. Offered by the health care provider, it avoids problems of setting prices for services and of transferring money from an insurance plan to the health care provider. The combination of simple fee structures and the requirement that patients be referred, helps minimize overuse of the system. The scheme also benefits from a good marketing structure, as reflected in its high enrollment. Health center nurses, who enjoy high levels of access to the community, are given financial incentives in the form of a small percentage of premiums when they recruit new participants.

The insurance covers 80 percent of the standard charge for hospitalization or treatment of a chronic disease. Although associated with a hospital, the accounting of the insurance program is kept separately, with the hospital billing the scheme for charges incurred by the beneficiaries. All hospital cases require referral through a health center, which serves as the site for verification of the requirement for treatment and of enrollment in the insurance plan. Premiums are collected once a year in the period following the harvest, so the scheme has an important pre-payment dimension. To prevent inflationary losses in the value of funds collected, the money is invested with interest or used to buy drugs.

Community enrollment rose from an initial 30 percent in 1986 to 60 percent in 1989. Cost recovery through user fees at Bwamanda hospital went from 50 percent of recurrent expenditures in 1986 to 80 percent in 1988. Health insurance and interest income exceeded expenditures under the plan in 1987, 1988, and 1989; 89 percent of funds collected went to hospital charges, 6 to 7 percent to health centers, and 5 percent to administrative costs. Although admission rates for insured patients are somewhat higher than for uninsured, the high rate of enrollment of the eligible population in the program allows absorption of this cost.

LESSONS LEARNED:

Studies of a variety of entirely autonomous community insurance schemes in Zaire have identified a number of pre-conditions or correlates of success (Shepard and others 1990):

- Most successful plans have modest premiums. Where premiums are beyond the financial means of potential members, participation rates will be low.
- A precondition for success is that health services be of acceptable quality.
- Sensitization of potential beneficiaries can help reduce the tendency of any voluntary scheme to concentrate its members (unintentionally), among those predisposed or most eligible to join, or those most likely to fall ill.
- Committed, decentralized management provides flexibility and accountability.
- Simple control methods, such as stamps for enrolled members and photo-identification of beneficiaries, can help reduce error and fraud.
- Enrollment of all family members, rather than individuals, increases the size of the pool of people among whom risks are to be spread.
- Appropriate investment strategies are needed to preserve the value of premium income in periods of inflation.
- Strong accounting systems are critical to effective functioning.
- A financial guarantee can be an important catalyst to launching a successful start-up phase.

Source: Shepard and others 1990.

Within compulsory and other insurance programs, government can encourage the use of deductibles and co-payments. If those covered by compulsory insurance can receive services at no cost at all (no deductible), they will likely overuse costly services. Requesting a deductible (meaning an amount that users must pay before their insurance coverage begins), as well as a copayment (meaning a percentage of total costs above the deductible paid by the user), can help prevent overuse of scarce personnel, equipment, and supplies. Even small deductibles, such as 1 percent of yearly household income, or small copayments such as 10 percent of the cost of services received can go a long way towards reducing unnecessary use of medical care by patients.

To minimize administrative costs of insurance programs and to broaden the range of options offered, governments can encourage competition among risk-sharing schemes. The point is that governments should avoid crowding out private insurers. To this end governments may consider subsidizing private insurers for a limited period, permitting firms to opt out of compulsory public sector health insurance if they provide a satisfactory alternative, or reducing risks that private insurers face through stop-loss provisions and re-insurance.

Governments can also take steps to satisfy criticism that insurance schemes can reinforce a maldistribution of health resources between rural and urban areas. With some justification it has been argued that the extra funds generated by insurance programs in low-income countries of Africa typically benefit urban, employed workers and their families, while leaving the large rural populations even further handicapped. This situation can be aggravated especially if public insurance promotes or reinforces hospital-based, doctor-centered, curative health care. One compensating measure is to assure that public funds freed up by insurance schemes are reallocated to primary care facilities in peri-urban and rural areas (Mills and Gilson 1988). Another is to subsidize the cost of insurance premiums through vouchers to the poor. The main practical problem with all such measures is to identify the poor — an administrative difficulty everywhere since means tests are difficult to apply (World Bank 1987d).

Summing up, there is considerable scope for expanding health insurance in Africa, particularly at the community level. The main benefit of public and private insurance is that individuals can pool the financial risks of costly medical care, while entirely self-financing programs can help reduce pressure on the public budget, leaving more resources available for the poor.

Conclusion: Resolving Crises

As countries of Sub-Saharan Africa strive to generate adequate resources to expand quality health services, it is important to consider how the various partners in better health should go about it and at what pace. Again, no single recipe can be advocated as each country faces a different configuration of problems, prospects, and priorities. There is much to be said, however, for proceeding in incremental fashion, along a development path that is cognizant of the need to tackle deeply entrenched problems in a progressive and systematic way, and to spur the private sector and households to assume greater responsibility for health. Governments can take a leadership role on several fronts simultaneously, and work towards national health

financing strategies which bring public and private financial resources for health together in a continuously evolving framework.

First, governments have control over the share of the total resource envelope they allocate to the health sector. This study shows that many countries in Africa lag behind other developing countries in their expenditures on health as a share of GNP, as well as in their public expenditures on health as a share of total public expenditures. Action can be taken to progressively restore commitments of public funds for health in countries where they have diminished or to raise such commitments in recognition of the immense importance of health for sustainable development. To illustrate, in Mauritania with a per capita income of around $500 per year, the government increased the budgetary allocation to health from 4.8 percent of the total government budget in 1992 to 8.9 percent in 1993, under a medium term health plan prepared within the framework of its structural adjustment program.

Second, governments have control over how government expenditures are allocated, and can have an immense impact on the enabling environment for health by spending public funds on public health goods and services. This study shows that large shares, and sometimes the majority, of public funds for health are not being used to finance or provide public goods and services. Action can be taken to progressively match symbolic commitments to preventive and primary care with reallocation of public funds away from expensive, urban-based curative care. To illustrate, in Madagascar, the government has succeeded in moving away from its emphasis on hospitals, increasing investment and operating resources to primary care, endemic disease control and drug supplies. Between 1986 and 1991, public expenditures on secondary and tertiary level care fell from 51 percent to about 36 percent, or by about 3 percent per year. In Nigeria the Fifth National Development Plan set out a strategy to begin moving federal funds away from expensive hospital programs. The reallocation of public funds is facilitated by a clear restatement and ordering of priorities — favoring primary care, water supply, sanitation, and health education. The share of federal funds going to hospital programs was to be reduced by about a third by 1992 from levels established in the early 1980s.

Third, governments can progressively implement user fees and cost recovery to help ensure financial sustainability of publicly financed health care. This study shows there is considerable scope for expanding user fees and that households are willing to pay, provided quality improvements accompany higher prices. Though revenues generated at the outset may be modest, improvement in cost recovery is an essential part of any health finance reform program because (i) retention of fees at the point of collection can be an incentive to hospital and clinic managers to enhance both revenue collections and service quality, (ii) purely on equity grounds, patients from higher income households (many of whom will have health insurance), should be required to pay for the health care they receive, and (iii) research has revealed that even middle- and low-income households are prepared to pay for most curative services, especially if service quality is positively affected.

To illustrate, in Malawi, a strategy for cost sharing is being introduced in three phases, with fees progressively introduced gradually across stages to cover various services in hospitals, urban-based health centers, and rural health centers. A critical element of the first stage is an information and communication strategy to explain the reasons, approach, and timing of user

fees and exemptions to the population. Gradually introducing the user fees also has the explicit intention of strengthening the referral system and facilitating the expansion of well staffed and equipped facilities at the primary health care level. In Zimbabwe improved collection procedures in the current system of cost recovery have the potential of raising revenues from Z$9.16 million to Z$11.82 million, whereas price adjustments for inflation have the potential of raising another Z$20.09 million in revenues, representing 11.4 percent of recurrent hospital spending in 1990.

Fourth, governments can create conditions for the expansion of health insurance programs, generating increased revenues for the health sector in general, and stimulating expansion of private providers of health care. This study shows that prospects for expanding community level insurance are good. A requisite of all health insurance programs is to introduce user fees so that possible private providers are not in competition with free health care. Governments may mandate compulsory insurance for salaried workers, and encourage expansion of private or employer provided insurance programs.

To illustrate, in Senegal schemes under the social security fund, modern enterprise insurance programs, and private health insurance have been encouraged during the 1980s to the extent that total insurance financing increased from 4.4 billion CFAF in 1981 to 8.8 billion by 1989, an increase of 100 percent. Transfers through health insurance now amount to about 20 percent of total health expenditures, compared with 14.9 percent in 1981. While formal insurance programs are limited to employees in the modern sector, informal associations at the community level — called "tontines" — have also been encouraged to contribute resources to a "community savings pool" from which contributing members can draw funds if needed. Such efforts particularly merit encouragement.

Fifth, governments can progressively promote public-private collaboration as a means of increasing efficiency and fostering development of private-for-profit and private voluntary organizations (see Box 5). Subsidizing religious missions has paid handsomely in Africa as a means of providing for indigents and serving areas where public and private-for-profit facilities

Box 5. Public-Private Collaboration

Increasingly, African governments are deliberately fostering collaboration with the private sector in the financing and provision of health care because increased private sector activity can ease pressure on the public budget. The private sector is also more responsive to market forces, and therefore more efficient than the public sector. A shift in the balance of health needs to more individual-level care among higher income groups further signals an expanding role for private providers, with insurance mechanisms to protect against catastrophic financial losses.

In the area of financing, public support can take the form of public subsidies to private voluntary organizations, contracting out to non-governmental providers, and a variety of incentives (World Bank 1987d). For example, in Rwanda where missions provided from 25 to 35 percent of health care services during the 1980s, the government reimbursed them for a large share of the salaries of Rwandese staff. These public subsidies accounted for about 5 percent of recurrent public health spending. In Zimbabwe about 4 percent of the central government health care spending went to subsidize missions, representing about 85 percent of their health service revenues in the early 1980s. This was provided in support of the missions' work in serving indigents. In Nigeria laboratory services have been contracted out, and in Zimbabwe, equipment, maintenance, laundry services, and invoicing of insured patients have been contracted out.

are scarce. It also makes sense in view of the co-subsidies which come from abroad, paying salaries of mission staff, providing essential drugs, and building and maintaining facilities. In Zimbabwe and Nigeria, for example, tax relief is granted to private voluntary providers. Contracting out to private providers is becoming increasingly commonplace and is producing savings, especially in the hospital sector. Certain responsibilities can be shifted to the private sector such as providing drugs; in Zimbabwe the role of the private sector in providing non-essential drugs is emphasized. Steps can be taken to legalize private practice; in Tanzania legislation prohibiting private practice has recently been repealed; and in Mozambique legislation has been adopted to allow private voluntary bodies to establish health care facilities and to allow private firms to establish enterprise clinics for employees.

Finally, governments can reap far greater sustainable benefits through the use of available external funds than they have in the past. This study has argued that donor initiatives and lending, while valuable on a number of criteria, have had problems achieving sustainable effects, and have often been criticized for fragmenting health systems rather than building national capacities. Instead of molding national strategies around available donor funding, governments should be developing national health policies and strategies to direct donor assistance. In Guinea and Benin, for example, national action plans are being developed by government, followed by the identification of financial resources together with donors on the basis of comprehensive financing plans. And, because the reallocation of national budgets is cumbersome, African states can use external funds to experiment with new strategies that are more conducive to national capacity building — such as the district based approach described in Chapter 3 and costed in Chapter 8. African policy-makers can further reduce dependency-related problems by taking the lead in developing donor coordination mechanisms.

CHAPTER 10: TIMETABLE FOR CHANGE

Introduction

As a foundation for sustainable development, better health in Africa requires a long-term vision and political commitment. Priorities must be guided by careful policy-analysis and planning of the socio-economic enabling environment for health, the many systemic components of health care delivery, the financing of health services, and institutional performance. A timetable for change needs to be established with priorities for completion over the short-term, others over the medium-term, and still others requiring commitments over a much longer time horizon.

Diversity among African countries further requires that priorities and action be tailored to differences in the severity of conditions affecting health, the quality and quantity of public and individual health services, access to external assistance, and so on. In some countries, such as Mozambique, Somalia, and Uganda, civil war has taken an immense toll on health systems, with the implication that a timetable for change will be preoccupied with basic assessments and improvements across almost all determinants of health outcomes. In other countries such as Benin, Guinea, Mali, Malawi, and Nigeria, experimentation and positive experiences linked to well-functioning district health systems can serve as a basis for extending well-conceived plans in the past. And in still other countries, like Botswana, Lesotho, and Zimbabwe, where per capita incomes and health expenditures are considerably greater, changes will be required to augment the capacity of health systems that are working relatively well, by encouraging the provision of health insurance to larger shares of the population, providing fuller coverage of the poor, and privatizing hospital services.

While the pace and direction of change will depend to a large extent on the leadership role played by African governments, and the active participation of households and communities, so too will sustainable outcomes depend on the cooperation and actions of the donor community. As partners in better health in Africa, external funding can play a vital role in building national capacities, particularly in low-income Africa where poverty is widespread.

This chapter begins with a rough timetable for change, summarizing major concerns and recommendations throughout this report, as though all countries faced a similar profile of health challenges. In fact, the commitments to reform and capacities for implementation will vary greatly from country to country, meaning that each country will need to determine its own particular agenda and timetable. The chapter goes on to provide a dynamic perspective on how key health priorities can be expected to differ among African countries as they move from low

to relatively higher levels of socio-economic development. This sets the stage for considering how international assistance might be used most effectively.

Action Agenda

Priorities for action are summarized in Table 1, including designations for "short term" action, meaning that completion of a particular activity is anticipated within about one year or so; "medium term", implying completion within around five years; and "longer term", with a ten to fifteen year time horizon to completion. For example, a government can formulate an operationally relevant health policy relatively quickly, even if data on demographic and epidemiological conditions are somewhat incomplete. Such a task requires expert opinion, collaboration among providers of health services, engagement of beneficiaries or their representatives, and coordination and leadership by government. It is therefore designated in Table 1 as an activity that can be undertaken for action over the "short term" — though continual revision and updating will be required over time.

Developing a comprehensive demographic and epidemiological data base, on the other hand, will take considerably more time. Surveys have to be designed, questionnaires enumerated, data processed, and statistics prepared for policy analysis. This says nothing of the training required to facilitate such work. This priority has therefore been designated in Table 1 as an activity that can be undertaken over the "medium term", though again data bases require continual updating and refinement over time. To date, national demographic and health surveys have been undertaken in only twelve of forty-five African countries.

"Longer term" activities tend to be more demanding of financial resources required, for example, to progressively construct new district hospitals in underserved rural areas, or to progressively expand intersectoral services so vital to health, such as water and sanitation. Also involved is the evolution of political commitments in support of institutional pluralism and the nurturing of strong and sustainable non-governmental organizations as partners of better health in Africa. Each country will need to determine its own agenda and the completion times that are reasonable in its particular circumstances.

Short Term: The priorities sketched out here concern initiatives to be taken by the public sector, given government's critical leadership role in creating an enabling environment for health, and its involvement in health care delivery. Priorities for the "short term" fall largely in the domain of public health goods and services, and include:

- Formulating comprehensive health policies and strategies in support of an inter-sectoral approach to health. This should include statements on how the enabling environment for health will be strengthened; prescriptions for the role of government in financing and providing public health activities and other public goods and services, and a research agenda to help fill critical gaps in knowledge.

- Identifying the most disadvantaged groups, establishing health targets, and agreeing on indicators for monitoring and evaluating improvements in their health status. In particular,

methodologies and screening mechanisms should be developed to establish who should qualify for fee exemptions and health subsidies. Community participation in this process is vital.

• Establishing national drug policies and essential drug lists, and reviewing the legal basis for their execution. Particular attention is needed to quantify national drug needs over a given time, to use cost-effective criteria in selecting and purchasing them, to pursue competitive bidding for generic drugs, and to consider — to the extent that trade and exchange regime might require — the desirability of inter-ministerial agreements on reservation of guaranteed foreign exchange for drug purchases.

• Formulating national human resource plans for health by geographic area, by expertise, by category of worker. In particular, attention should be paid to the staff profile required to manage and operate district-based system, including district health management teams, staffing of first referral hospitals, and personnel in health centers.

• A comprehensive assessment of present buildings and equipment and future needs. In particular, attention should focus on rehabilitation needs of existing buildings, establishing norms and procedures for locating new health facilities, especially at the district level, and establishing an advisory panel to assess technology choice in the future.

• Initiating institutional reform and assessments of management capacities and needs. This can be facilitated by participant/beneficiary assessments of current health systems and their operation, establishing management information systems to monitor and evaluate progress, and strengthening community involvement in management of lower level health facilities.

• Establishing coordinating mechanisms, under the joint leadership of the Ministry of Health, Ministry of Planning, and Ministry of Finance, to assess the profile and cost-effectiveness of donor activities and to develop a coherent approach to work with donors. Particular attention is needed to develop a more systematic approach for donor participation in decentralization and development of district health systems.

Medium Term: Because most governments in Africa are involved in the direct financing and provision of health care, a timetable for change over the "medium term" needs to incorporate activities aimed at making public provision and financing more efficient, equitable and sustainable. Priorities for completion over a medium-term horizon include:

• Developing demographic and epidemiological data bases, so as better to determine, monitor and evaluate cost-effective approaches to better health among different demographic and socio-economic groups situated throughout the country. In particular, emphasis should be placed on unveiling inequalities in health status between ethnic groups and geographic areas. Attention should also be concentrated on disseminating results of surveys to public health officials and private voluntary agencies, as well as universities and think tanks, in ways that help facilitate institutional pluralism and strengthen policy analysis, planning, and service provision.

Table 1. Action Agenda and Timetable for Change

Action Agenda	*Short Term*	*Medium Term*	*Longer Term*
Policy Analysis, Data Collection, and Target Setting			
• Formulate/review comprehensive health policies	•••		
• Develop demographic and epidemiological data bases		•••	
• Establish/review health targets	•••		
• Identify most disadvantaged groups	•••		
• Establish research agenda and critical gaps in knowledge	•••		
Enabling Environment for Better Health			
• Increase provision of available health information to the public and to the health care provider	•••		
• Identify ways to contribute to behavioral changes by households and individuals, through IEC methods		•••	
• Progressively encourage and assist sustainable interventions at community level, particularly in areas of water and sanitation			•••
Health Care Delivery			
• Strengthen quality of primary care services through well-functioning health centers and first referral hospitals			•••
• Improve referral system with regulations, price, and quality signals		•••	
• Reduce concentration of MOH resources at tertiary level, and devolve MOH involvement in their management		•••	
• Substantially improve supervision		•••	
• Increase access to health services by the "core" poor			•••
Pharmaceuticals			
• Establish national drug policies involving; - review of legal basis and structure for their execution - reservation of guaranteed foreign exchange for drug purchases	 ••• •••		
• Adopt essential drug lists	•••		
• Reduce inefficiency and waste through; - selection and purchase of drugs using cost-effectiveness criteria - quantification of national drug needs over a given time - competitive bidding for generic drugs - improve storage and management - counter irrational prescription with training and information - improve patient compliance through information/communication	 ••• ••• ••• 	 ••• ••• •••	
• Develop and support drug revolving funds		•••	
Personnel Management and Training			
• Formulate national human resource plan for health by geographic area, by expertise, by gender and category of worker.	•••		
• Generate budgetary savings, improve compensation, by reducing ineffectual civil service workers and rewarding productive ones		•••	
• Expand training in health management and administration		•••	
• Adapt training curricula to district and community level services		•••	

Action Agenda	*Short Term*	*Medium Term*	*Longer Term*
Health Infrastructure and Equipment			
- Establish rehabilitation plans for existing buildings and equipment		•••	
- Establish norms/procedures for new health facilities and equipment maintenance, especially at district level	•••		
- Designate one hospital as center of excellence for training	•••		
Institutional Reform and Management			
• Perform participant assessment of current system and its operation	•••		
• Pursue decentralization and redefine roles and responsibilities of central, regional, district and community level		•••	
• Develop management skills for planning and budgeting		•••	
• Foster institutional pluralism, especially between government and NGOs		•••	
• Form and strengthen community organizations	•••		
• Undertake training and other preparatory work for district health teams		•••	
• Undertake training/preparatory work for community management committees		•••	
• Establish Information Management Systems through;			
- assessment of needs by component of health system	•••		
- training required		•••	
- implementation of systems and procurement of needed equipment			•••
• Initiate health IEC programs, backed by social research		•••	
• Develop capacity for essential national health research			•••
Financing Health Care			
• Increase government commitments to health expenditures		•••	
• Reallocate government expenditures to public health goods/services		•••	
• Implement user fees and cost recovery in public facilities			
- at tertiary hospitals	•••		
- as first referral hospitals		•••	
- at health centers		•••	
• More rigorous identification of, and subsidies for the poor	•••		
• Encourage expansion of insurance schemes, especially employer-based, and at the community level			•••
• Promote public-private collaboration			•••
Donor Collaboration			
• Establish coordinating mechanisms, headed by government	•••		
• Assess profile and cost-effectiveness of donor activities	•••		
• Establish donor role in cost-effective approach to better health featuring health centers and first referral hospitals at district level	•••		
• Progressively increase donor funding to primary and first referral care in low-income Africa		•••	

• Supporting training and education programs for senior public health managers, health planners, and management information specialists, as well as through curricula attuned to the specific needs of health services at the district and community level. In particular, emphasis should be on getting professionals trained in health management and administration into key policy, planning, and budgeting positions in Ministries of Health. Also important is to sensitize and educate district level management on potential bridges between "modern" and "traditional" health paradigms.

• Progressively increasing government commitments to health expenditures, and earmarking larger shares of public funds for public health goods and services, preventive care, and primary care for the poor. In particular, governments should redress declining commitments to health, as reflected in falling shares of government expenditures on health as a share of total government expenditures. Real per capita expenditures on health will also have to be increased in many countries.

• Matching symbolic commitments to primary care with a progressive reallocation of public funds away from expensive, urban-based hospital care to well-functioning health centers and first referral hospitals.

• Progressively implementing cost-sharing, first at the tertiary level facilities where clients with health insurance are more likely to prevail, and where those who by-pass the referral system can be assessed full costs. This can be progressively complemented with cost-sharing at health centers and first referral hospitals, with a pre-determined amount to be retained by the facility collecting the funds without subjecting the overall Ministry of Health allocation from the Ministry of Finance to corresponding reductions. Particular attention needs to be paid to increasing quality of services at the same time that fees are being increased; and with full cost recovery levied against those who by-pass the referral system, the entire referral system can be expected to perform more efficiently, reinforced by appropriate price and quality signals.

• Launching programs to contribute to the reduction of inefficiencies and waste in the prescription of drugs (through training and information of providers), patient compliance in the use of drugs (through information, education, and communication); and general knowledge about the utility of generic drugs.

• Information, education, and communication programs (IEC) have a critical role to play, and if designed and targeted appropriately, can have immense influence on the demand and supply behavior of health services providers and consumers.

• Generating budgetary savings and improving compensation of health personnel by cutting back on ineffectual and unneeded workers in the civil service, and rewarding productive workers of primary care facilities, first referral hospitals, and in District Health Teams. At one end of the continuum the process can begin by systematically weeding out "ghost workers" and other redundancies at the central level. At the other end retention of fees for service at site of collection can be used to help supplement incomes of health center staff.

• Laying the groundwork for institutional reform and decentralization by redefining roles and responsibilities at the central, regional, district and community level, including development of management skills for planning, programming, and budgeting associated with such decentralization. In particular, emphasis needs to be placed on fostering institutional pluralism in support of decentralization — with strong involvement of NGOs and communities; training and other preparatory work for district health teams and community management committees; and design of management information systems to monitor and evaluate personnel, infrastructure, and equipment needs.

• Evolving sustainable forms of community financing of health, including drug revolving funds at well-functioning health centers, and community insurance schemes.

• Promoting public-private cooperation, thus paving the way for private providers to play a more prominent role in health care, and releasing public funds for public health goods and services, as well as subsidies for the poor. Experimenting with entirely new forms of public-private cooperation, may also prove appropriate.

• Increasing donor funding to primary care in low-income Africa, corresponding to the general parameters set out in Chapter 8. In particular, attention is required to assure that donor funding is used to complement and reinforce national strategies, and that the absorptive capacity of fledgling systems of health care is anticipated and provided for in the rate of disbursements.

• Devolving the management of tertiary level hospitals from the Ministry of Health and major reductions of public expenditures on tertiary level care. In particular emphasis should be placed on getting Ministries of Health out of the management and financing of tertiary level hospitals, perhaps through gradual privatization, and most certainly through progressive cost recovery, especially among clients who can be covered by health insurance.

Longer Term: Priorities over the longer-term involve features of health systems that require planning, progressive expansion, and financial commitments over time, so as to achieve sustainable improvements in health and wider coverage. They include:

• Implementing sustainable interventions affecting the enabling environment at the community level. Access to safe water, sanitation, nutrition, and family planning would thus be within reach of a large majority of Africans in rural and peri-urban areas.

• Strengthening the quality of primary care services and extending coverage, through well-functioning health centers and first referral hospitals throughout district based systems. This implies construction of needed health centers and first referral hospitals and increased public-private collaboration in their staffing, operation, and maintenance.

• Carrying out effective programs of information, education, and communication (IEC) for health behavior change at the individual, household and community level. Such programs should be backed by sound social research and carefully monitored and evaluated.

• Strengthening capacity for essential national health research in ministries, universities, and private voluntary organizations.

Dynamics of Change

The challenges implied in Table 1 will differ across African countries, depending on prevailing socio-economic conditions and political stability, changing epidemiology and health care services, and financial constraints. Some African countries are relatively ahead of others in laying the groundwork for efficient, equitable, and sustainable systems of health care. This can be illustrated by comparing the situation of three countries — Uganda, Mali, and Botswana. The message is simply that African countries are not homogeneous in the health problems they face: each country needs to determine its own agenda and timetable for reform.

Uganda: The situation in Uganda is not untypical of several African countries that have suffered from recent political, social, and economic upheaval. Health indicators, such as infant mortality, have shown little improvement over the last 10 to 20 years; fertility rates have remained constant if not increased over the last decade; and the economy has experienced major setbacks with unstable and declining public funds for social services during the 1970s and 1980s. Political turmoil and civil strive have resulted in profound disruption of the health care system, reducing one of Africa's most effective and efficient health services during the 1960s to near total collapse. Health finance is in disarray, with individual government-owned facilities taking unilateral decisions on fees to prevent outright collapse of their services. Profound management problems abound throughout public sector health care delivery, where capacity utilization is 50 percent lower than in non-governmental health facilities. And to make matters worse, Uganda's fledgling system of health care is burdened by the AIDS epidemic.

Uganda faces the immense challenge of taking action on virtually all items listed in the Timetable for Change in Table 1. Government plays almost no role in assuring public health goods and services, there is an urgent need for a sharp rise in public financial commitments to health, and public expenditures need to be reallocated from tertiary-level hospital care to primary health care. This is the time to rethink the country's health system entirely, and to emphasize the use of donor assistance in ways that contribute to an integrated system of health care.

Mali: The situation in Mali is typical of a handful of African countries that are progressively improving health outcomes under binding financial constraints. Health indicators such as infant mortality and life expectancy are improving, though slowly; low per capita incomes are gradually increasing; and the country enjoys somewhat greater social and political stability than many other African countries. Though the Ministry of Public Health has traditionally focused on the direct provision of health care through vertical programs, and has neglected its role in policy formulation and planning, it is achieving a gradual expansion of district-based health care. Currently, the country's network of district-based health centers provides access to care for 45 percent of the population and is expected to increase to 52 percent by 1997. To promote public-private collaboration, the government lifted its ban on private practice in 1987.

Mali also needs to take action on most of the items in Table 1, but with the distinct advantage that the groundwork has been laid for decentralizing services to the district level. Moreover, donors have been quite active in supporting district-level care and appear willing to expand on the positive lessons learned. Perhaps the greatest challenge facing the country is to rationalize health sector expenditure patterns, increase government commitments, promote cost-sharing as part of a strategy to finance recurrent costs of public health facilities, improve quality of services and regular supplies of essential drugs in public facilities, sustain gradual expansion of services and stimulate non-governmental provision of health care.

Botswana: The health situation in Botswana is shared by a few African countries such as Zimbabwe, Mauritius, Lesotho, and perhaps Kenya. It can also serve as a "road map" to the kinds of challenges likely to be faced in the future by poorer African countries. Health status has been improving rapidly, rising incomes and expenditures on public goods and services reflect increases in per capita GNP, illiteracy and fertility rates are on the decline, and the country enjoys a good measure of social and political stability. Access to health facilities is relatively good, and decentralization to the district and sub-district level has been in place for some time. Public expenditures on health are also relatively high — well over $30 per capita annually. This compares with an estimated $16 per capita, per year, to provide a basic package of services for a relatively "high income" African country (see Chapter 9). Furthermore, health planning is given prominence in the organization and work program of the Ministry of Health, and the country has a solid tradition of cost sharing for publicly provided services (though revenues constitute a small share of total government expenditures).

Predominant among the challenges facing Botswana are privatization or full cost recovery at hospitals, encouraging the expansion of public and private insurance schemes, strengthening health research and research capacity, and reducing donor involvement in stride with Botswana's growing financial and institutional capacities. Botswana will also want to compare the profile of publicly provided health services now available to rural and peri-urban households (associated with government expenditures of over $30 per capita), with the cost-effective package of basic services costed in this study.

Links with the International Community

Partnerships for better health in Africa need to encompass international as well as domestic perspectives, the views of multi-lateral and bi-lateral agencies engaged in financing health services, and focus on the relationship between macro-economic issues and health. A challenge faced by virtually every African country is to reap far greater sustainable benefits from donor funding than have been achieved in the past (see Box 1). Rather than mold national strategies around available donor funding, governments need to develop national health policies and strategies to direct external assistance.

African leadership is essential to initiate the process of consensus building. Several African countries are beginning to steer donor coordination more actively, under the chairmanship of the Ministry of Health or Planning, by bringing together a diverse group of donor agencies to work with national health staff to build national capacities for health over the longer-term goals. In Guinea and Benin, for example, national action plans are being developed

by governments, followed by the identification of financial needs and obligations to be shared by donors plans. This is precisely the approach favored by this report, and promises to address a major pitfall of donor assistance in the past — namely, sustainability of externally funded programs for health.

The donor community, on the other hand, needs to extend its time horizon in supporting government efforts to develop integrated systems of health care. Once donors become involved in funding health sector activities — particularly in countries with extremely low expenditure levels and institutional capacity — they should expect to remain partners for at least a decade. Though pressures for measurable health gains over the short term are understandable, succumbing to them is likely to be counterproductive to long-term efforts. Donors also need to concentrate their resources and efforts for health improvement on those African countries that are firmly committed to and sustain the effort of reform. A development-oriented vision of external support to improve the health of all the people on a sustainable basis should increasingly replace a welfare-oriented perspective that successfully improves the health and health care of the few with limited, unreplicable models.

Areas where future international assistance in health can make a relatively great contribution to better health in Africa are:

Box 1. International Initiatives and Sustainable Outcomes

In the 1980s, approximately half of external assistance for health in Africa was committed to internationally conceived and executed, multi-country programs. The list of initiatives is long and impressive: the Expanded Program of Immunization (EPI) of WHO, UNICEF and USAID; the Diarrhoeal Diseases Control Program of WHO; WHO's program for control of Acute Respiratory Infections; the Safe Motherhood Initiative; the Global Program on AIDS; the Child Survival programs of UNICEF and the United States; the Onchocerciasis Control Program; the International Drinking Water Supply and Sanitation Decade; and the Special Program of Research and Training in Tropical Diseases.

The 1990 World Summit for Children, sponsored by UNICEF, was an international initiative for overall improvements in the health and welfare of children, at the highest political level. Its goals are fully consistent with the proposals in this report.

Valuable as such initiatives have been on an individual basis, it is also widely believed that, collectively, they have had the unintentional effect of fragmenting systems of health care delivery, undermining national capacities in health policy, analysis and planning, and discouraging the development of local health leadership within Africa (see Chapter 2).

The processes of follow-up on the World Summit for Children through National Plans of Action, implementation of the Bamako Initiative, the WHO Three-Phase Scenario for development of district health systems, and other initiatives, merit pursuit on an integrated basis, *within* a framework of local adaptation, leadership and monitoring and evaluation of sustainable outcomes.

- Support for *long-term capacity building and institutional reform*, especially in the areas of policy analysis and formulation and execution of essential national health research.

- Support for the *provision and financing of sustainable cost-effective packages of basic health care services* at the district level, with emphasis on the development of human and institutional infrastructure, if necessary at the expense of immediate gains in health status.

- Support for *inter-country programs of public health training and practically-oriented research*, including technology assessment.

- Support for *inter-sectoral actions* for health. These activities can reach beyond the health sector and its "international counterpart", the World Health Organization, to encompass other multi-lateral agencies such as UNICEF, and the World Food Program.

The priorities set out above are few but their implications are complex. The push to extend Africa's physical infrastructure for health is a case in point. Direct support for its expansion should not be among the highest priorities for international assistance in most countries. Rather, rehabilitation of *existing* infrastructure and equipment needs to be ensured. Thereafter, donor support for facility expansion should be provided within a framework of health sector financing that considers not only proposed capital investments, but their implications for recurrent expenditure in the future as well. Under such arrangements, recurrent cost financing should be increasingly acceptable to the donor community as part of an overall financing plan for health services.

African experts on these issues need to initiate the work of consensus building at the country-level, and provide intellectual leadership in putting forward proposals for "compacts" between African countries and the international community. Such compacts might over time envisage, in those African countries most in need, a doubling of government resource mobilization effort for health and comparable increases in donor support, as well as programs for measurable efficiency gains in health services. The specific agenda for inclusion in such compacts can be expected to vary considerably from country to country.

A forum might also be established, extending beyond the country level, to ensure coordination of international initiatives for training and operationally oriented research. Such a group could prioritize actions, and monitor the modest levels of financial support that are likely to be needed. It could also assume a responsibility for reviewing actions for health reform taken at the country level, and facilitating the exchange of experience. Benchmarks, to facilitate monitoring and evaluation of the overall program for health improvement, would need to be established. A comprehensive independent evaluation of progress, nationally and internationally, could be undertaken after, say, five years.

A Consultative Group on Health in Africa could be responsive to these needs for well-orchestrated actions for health improvement, perhaps following the lines of the so-called Donors to African Education - a group that has brought together Africans and donors for consultations on a wide range of education issues. Another example is the Global Coalition for Africa, a high level group of Africans and donors that seeks to identify and monitor support for actions on issues that have previously received inadequate support. Consensus building of this nature, both nationally and internationally, could amount to an unparalleled effort to assist Africa in overcoming intolerable levels of suffering, premature death, and waste stemming from ill-health.

STATISTICAL APPENDIX

Table 1. Health and Development Indicators

Country	Mid-Year Population (000s) 1992	Annual Rate of Population Growth (%) 1992	Crude Birth Rate (Per 1000 Pop.) 1992	Crude Death Rate (Per 1000 Pop.) 1992	Total Fertility Rate (Per 1000 Women 15-49) 1992	Life Expectancy at Birth (M/F) 1992	GNP Per Capita (US$) 1991*	Adult Literacy Rate (%) Female 1990	Adult Literacy Rate (%) Total 1990
Angola	9,732	2.8	47	19	6.6	45/48	.....	28	42
Benin	5,042	3.0	46	16	6.2	49/52	380	16	23
Botswana	1,360	3.0	36	6	4.7	66/70	2,530	65	74
Burkina Faso	9,537	2.9	47	17	6.5	47/50	290	9	18
Burundi	5,818	2.9	46	17	6.8	46/50	210	40	50
Cameroon	12,245	3.0	42	12	5.8	55/58	850	43	54
Cape Verde	392	2.3	36	7	4.3	67/69	750	.....	.....
Central African Rep.	3,166	2.5	42	18	5.8	45/49	390	25	38
Chad	5,977	2.5	44	18	5.9	46/49	210	18	30
Comoros	510	3.5	47	11	6.7	56/57	500	40	48
Congo	2,428	3.3	49	16	6.6	49/54	1,120	44	57
Cote d'Ivoire	12,841	3.6	45	12	6.6	53/59	690	40	54
Djibouti	465	3.2	46	16	6.6	47/51	.....	.....	.....
Equatorial Guinea	437	2.3	41	18	5.5	46/50	330	37	50
Ethiopia	54,790	3.4	52	18	7.5	47/50	120	.....	.....
Gabon	1,201	2.8	43	15	5.9	52/56	3,780	48	61
Gambia	929	2.9	47	20	6.5	44/45	360	16	27
Ghana	15,824	3.2	44	12	6.1	53/57	400	51	60
Guinea	6,048	2.8	48	20	6.5	44/44	460	13	24
Guinea-Bissau	1,022	2.0	46	25	6.0	38/39	180	24	36
Kenya	25,838	3.3	45	10	6.4	57/61	340	58	69
Lesotho	1,860	2.5	36	10	5.1	58/63	580	84	73
Liberia	2,719	3.0	44	14	6.2	53/57	*450*	29	39
Madagascar	12,384	2.8	42	14	6.1	50/53	210	73	80
Malawi	9,085	3.1	53	21	7.6	44/45	230	31	42
Mali	8,962	2.9	50	18	7.1	47/50	280	24	32
Mauritania	2,082	2.8	49	18	6.8	46/50	510	21	34
Mauritius	1,099	1.1	18	7	2.0	67/73	2,410	75	82
Mozambique	16,565	2.7	46	19	6.5	45/48	80	21	33
Niger	8,171	3.3	52	19	7.4	44/48	300	17	28
Nigeria	101,884	2.9	43	14	5.9	50/53	340	39	51
Rwanda	7,310	2.2	40	17	6.2	45/48	270	37	50
Sao Tome and Principe	121	2.6	36	8	5.0	65/70	400	42	58
Senegal	7,845	2.7	43	16	6.1	46/49	720	25	38
Seychelles	69	0.9	23	7	2.7	68/75	5,110	95	88
Sierra Leone	4,354	2.6	48	22	6.5	40/45	210	11	21
Somalia	8,302	3.1	48	17	6.8	47/50	*170*	14	24
Sudan	26,587	2.9	44	14	6.2	51/53	*340*	12	27
Swaziland	860	3.6	49	12	6.6	55/59	1,050	65	100
Tanzania	25,965	3.0	45	15	6.3	49/52	100	88	90
Togo	3,899	3.2	45	13	6.5	53/56	410	31	43
Uganda	17,475	3.3	52	19	7.3	45/46	170	35	48
Zaire	39,794	3.0	44	14	6.2	50/53	*220*	61	72
Zambia	8,589	3.1	48	17	6.5	46/49	*420*	65	73
Zimbabwe	10,352	2.6	34	8	4.6	58/61	650	60	67
Africa	**501,932**	**3.0**	**45**	**15**	**6.5**	**49/52**	**340**	**38**	**50**
World	5,441,205	1.6	26	9	3.2	64/68	4,000	55	65
Less developed countries	4,213,796	2.0	29	9	3.6	62/65	900	52	63
More developed countries	1,226,756	0.5	14	10	1.9	71/78	20,000	95	96

Note : * Italic figures for individual countries are 1990 GNP.

Table 2. Population Projections (Standard/Medium)

Country	Mid-Year Population (Thousands)		Annual Rate of Population Growth (Percent)		Total Fertility Rate		Population Age Structure (Percent)				Urban Population (Percent)		
							0--14	65 +	0--14	65 +			
	2000	2025	2000	2025	2000	2025	1990	1990	2025	2025	1970	1990	2000
Angola	12,326	26,104	3.2	2.5	6.8	4.5	47	3	41	3	15	28	36
Benin	6,375	10,931	2.8	1.6	5.6	2.9	48	3	40	3	18	38	46
Botswana	1,694	2,699	2.6	1.3	3.9	2.1	46	3	31	5	8	29	37
Burkina Faso	12,047	22,745	2.9	2.0	6.4	3.5	45	3	39	4	6	15	24
Burundi	7,305	14,041	2.9	2.1	6.7	3.8	46	3	38	4	2	5	7
Cameroon	15,604	28,655	3.0	1.8	5.5	2.9	45	4	37	4	20	40	49
Cape Verde	470	726	2.2	1.4	3.7	2.1	44	4	27	4	20	29	36
Central African Rep.	3,867	7,330	2.7	2.2	6.2	4.0	42	3	39	3	30	47	55
Chad	7,353	13,622	2.7	2.0	6.1	3.8	42	4	37	4	12	32	42
Comoros	674	1,366	3.4	2.1	6.1	3.2	48	2	40	3	19	28	34
Congo	3,162	6,474	3.2	2.4	6.6	3.8	45	4	39	3	33	41	47
Cote d'Ivoire	16,878	33,140	3.3	2.0	6.2	3.3	48	3	43	3	27	40	47
Djibouti	606	1,175	3.2	2.1	6.5	3.6	45	3	40	4	62	81	84
Equatorial Guinea	525	839	2.3	1.5	5.4	2.9	40	4	37	4	27	29	33
Ethiopia	67,465	143,568	3.3	2.6	7.4	4.5	46	3	40	3	9	12	15
Gabon	1,515	2,996	3.0	2.3	6.4	3.7	50	5	37	4	26	46	54
Gambia	1,167	2,219	2.8	2.2	6.6	4.1	44	3	36	4	15	23	29
Ghana	20,334	36,221	3.0	1.7	5.5	2.6	47	3	36	4	29	34	39
Guinea	7,578	14,471	2.9	2.1	6.5	4.1	47	3	40	3	14	26	34
Guinea-Bissau	1,197	1,938	2.1	1.6	6.0	3.7	43	3	37	4	15	20	25
Kenya	34,091	72,853	3.4	2.6	5.9	4.0	49	3	35	4	10	24	32
Lesotho	2,282	3,647	2.5	1.3	4.5	2.2	43	4	32	6	9	19	27
Liberia	3,450	6,204	2.9	1.8	5.6	2.9	45	4	39	4	26	45	55
Madagascar	15,338	25,850	2.6	1.6	5.5	2.9	45	3	39	3	14	24	31
Malawi	11,555	24,409	3.0	2.7	7.6	5.2	47	3	41	3	6	12	16
Mali	11,430	23,760	3.2	2.5	7.0	4.2	47	3	40	3	14	24	30
Mauritania	2,628	5,415	3.0	2.5	6.8	4.4	45	3	38	4	14	47	59
Mauritius	1,192	1,450	1.0	0.6	2.0	2.0	30	5	20	13	42	41	42
Mozambique	20,768	43,063	3.0	2.5	6.9	4.5	44	3	39	4	6	27	41
Niger	10,737	24,286	3.5	2.9	7.5	5.2	48	2	41	3	9	20	27
Nigeria	127,806	216,900	2.7	1.6	5.0	2.8	47	2	38	4	20	35	43
Rwanda	8,762	16,701	2.7	2.0	6.2	3.8	49	2	42	2	3	6	8
Sao Tome and Principe	150	239	2.6	1.3	4.4	2.2	39	5	28	7	.....	42	.....
Senegal	9,609	17,918	2.9	1.8	5.9	3.2	45	3	36	4	33	40	45
Seychelles	74	97	1.0	1.0	2.3	2.1	34	7	23	8	.....	59	.....
Sierra Leone	5,370	10,076	2.7	2.1	6.5	4.1	43	3	39	3	18	32	40
Somalia	10,648	21,004	3.1	2.2	6.6	3.8	46	3	40	3	20	24	28
Sudan	33,659	60,335	2.9	1.7	5.8	3.0	45	3	37	4	16	23	27
Swaziland	1,137	2,179	3.3	2.0	6.0	3.1	45	3	33	5	10	26	36
Tanzania	32,901	58,850	2.8	1.7	5.8	3.0	47	3	41	3	7	21	28
Togo	4,980	9,294	3.0	1.9	5.9	3.0	45	3	38	4	13	29	34
Uganda	22,551	48,223	3.2	2.7	7.3	4.9	49	3	40	2	8	11	14
Zaire	50,856	100,287	3.1	2.1	6.2	3.5	47	3	41	3	30	28	31
Zambia	10,867	20,739	2.9	2.1	6.7	3.9	48	2	40	2	30	42	45
Zimbabwe	12,360	17,613	1.6	1.1	3.5	2.2	45	2	32	4	17	29	36
Africa	**633,540**	**1,202,642**	**2.9**	**2.0**	**5.8**	**3.5**	**46**	**3**	**38**	**4**	**19**	**28**	**34**
World	6,160,488	8,319,501	1.4	1.0	3.0	2.4	32	9	25	10	37	43	48
Less developed countries	4,887,621	6,946,332	1.7	1.1	3.2	2.5	36	7	26	6	25	34	40
More developed countries	1,272,866	1,373,169	0.4	0.2	1.9	2.0	21	17	18	16	67	73	76

Table 3. Population Projections (Rapid Fertility Decline)

Country	Mid-Year Population (Thousands)		Annual Rate of Population Growth (percent)		Total Fertility Rate		Contraceptive Use (% of married women age 15-49)			Population Age Structure (%)	
							Estimated	Required for Rapid Decline		0-14	65 +
	2000	2025	2000	2025	2000	2025	1990	2000	2025	2025	2025
Angola	12,128	17,752	2.4	1.2	5.4	2.4	3	33	69	29	4
Benin	6,240	7,073	2.3	1.2	5.0	2.4	6	40	71	29	4
Botswana	1,655	2,410	1.9	1.2	2.9	2.1	35	65	75	26	5
Burkina Faso	11,850	17,164	2.3	1.2	5.2	2.4	3	38	68	29	3
Burundi	7,189	10,264	2.2	1.2	5.5	2.4	9	40	72	29	4
Cameroon	15,380	22,907	2.5	1.3	4.8	2.2	2	29	72	28	4
Cape Verde	417	652	1.6	1.2	2.8	2.1	.....	.....	.....	26	4
Central African Rep.	3,801	5,153	1.9	1.1	4.9	2.4	13	38	69	30	3
Chad	7,228	9,996	2.0	1.1	4.9	2.4	17	43	71	28	5
Comoros	669	1,057	2.9	1.5	5.3	2.2	.....	.....	.....	28	4
Congo	3,088	4,937	2.9	1.4	6.0	2.3	11	30	74	30	3
Cote d'Ivoire	16,815	27,319	3.0	1.4	5.6	2.2	3	30	74	30	4
Djibouti	596	875	2.5	1.2	5.3	2.4	.....	.....	.....	28	4
Equatorial Guinea	507	660	1.4	0.9	3.9	2.4	.....	.....	.....	28	5
Ethiopia	66,450	104,549	2.8	1.3	6.3	2.4	4	34	73	30	3
Gabon	1,501	2,328	2.7	1.3	5.8	2.3	31	40	76	29	5
Gambia	1,148	1,598	2.2	1.1	5.3	2.5	0	33	65	29	5
Ghana	19,813	29,610	2.5	1.3	4.9	2.3	13	45	73	28	4
Guinea	7,452	10,593	2.2	1.1	5.3	2.6	0	32	64	30	4
Guinea-Bissau	1,196	1,571	1.7	1.0	5.4	2.7	19	36	68	31	3
Kenya	32,395	47,744	2.3	1.3	4.0	2.2	28	57	80	28	4
Lesotho	2,229	3,174	1.9	1.2	3.5	2.2	19	48	73	26	6
Liberia	3,420	5,167	2.5	1.3	5.0	2.3	7	41	72	27	5
Madagascar	15,206	21,982	2.3	1.2	4.9	2.4	0	37	68	28	4
Malawi	11,613	17,521	2.5	1.3	6.4	2.6	7	35	74	31	3
Mali	11,241	17,715	2.6	1.4	6.9	2.4	5	35	71	29	3
Mauritania	2,568	3,711	2.3	1.3	5.5	2.4	0	35	68	29	4
Mauritius	1,192	1,450	1.0	0.5	2.0	2.0	80	81	77	20	13
Mozambique	20,44[illegible]	29,453	2.3	1.2	5.4	2.4	0	29	67	28	4
Niger	10,627	16,709	2.8	1.3	6.3	2.5	0	30	70	31	3
Nigeria	127,800	187,427	2.4	1.2	4.7	2.3	7	38	73	29	4
Rwanda	8,621	12,168	2.0	1.1	5.0	2.5	14	38	78	30	3
Sao Tome and Principe	146	208	2.0	1.2	3.4	2.1	.....	.....	.....	25	8
Senegal	9,634	13,802	2.3	1.2	4.9	2.3	15	46	73	29	3
Seychelles	74	95	0.9	0.9	2.2	2.1	.....	.....	.....	22	8
Sierra Leone	5,277	7,296	2.0	1.1	5.3	2.5	4	39	67	29	4
Somalia	10,472	15,488	2.5	1.3	6.4	2.4	0	35	69	28	4
Sudan	33,368	49,352	2.5	1.3	5.1	2.3	3	36	69	28	4
Swaziland	1,127	1,743	2.9	1.4	5.2	2.2	.....	.....	.....	27	5
Tanzania	32,639	47,951	2.4	1.3	5.1	2.4	3	34	70	29	3
Togo	4,939	7,444	2.6	1.3	5.2	2.2	34	57	81	28	4
Uganda	22,162	33,549	2.6	1.3	6.1	2.5	5	35	73	32	2
Zaire	50,426	80,287	2.8	1.3	5.6	2.3	14	34	73	30	3
Zambia	10,688	14,991	2.2	1.2	5.4	2.5	3	29	72	31	2
Zimbabwe	12,192	16,410	1.5	1.0	3.0	2.2	46	71	80	28	4
Africa	626,000	939,000	2.5	1.3	5.2	2.3	11	45	75	29	4
World	6,150,000	7,850,000	1.3	0.7	2.7	1.9	54	65	74	22	11
Less developed countries	4,880,000	6,560,000	1.6	0.8	3.0	2.0	51	64	75	23	9
More developed countries	1,270,000	1,290,000	0.3	-0.1	1.7	1.5	71	71	66	15	20

Table 4. Mortality

Country	Infant Mortality Rate *			Under – Five Mortality Rate *			Adult Mortality Rate * (age 15–59)		Median Age at Death
							Male	Female	
	1970	1992	% Reduction	1975	1990	% Reduction	1990	1990	1990
Angola	180	125	31	281	214	24	434	381	3
Benin	155	110	29	228	170	25	387	316	6
Botswana	101	35	65	111	48	57	.....	.....	.....
Burkina Faso	178	132	26	254	159	37	429	352	4
Burundi	138	106	23	209	180	14	424	367	11
Cameroon	126	61	52	194	125	36	316	256	16
Cape Verde	87	40	54	133	52	61	.....	.....	.....
Central African Rep.	139	105	24	209	132	37	346	288	15
Chad	171	122	29	271	212	22	445	358	7
Comoros	141	87	38	175	133	24	.....	.....	.....
Congo	126	114	10	208	175	16	.....	.....	.....
Cote d'Ivoire	135	94	30	194	150	23	332	277	10
Djibouti	160	111	31	.....	194	.....	.....	.....	.....
Equatorial Guinea	165	116	30	259	203	22	.....	.....	.....
Ethiopia	158	128	19	262	197	25	404	329	4
Gabon	140	92	34	224	159	29	.....	.....	.....
Gambia	186	132	29	296	231	22	.....	.....	.....
Ghana	111	81	27	169	170	–1	344	282	7
Guinea	181	133	27	291	236	19	452	395	2
Guinea–Bissau	185	147	21	297	268	10	.....	.....	.....
Kenya	102	66	35	139	83	40	315	259	15
Lesotho	134	79	41	172	135	22	.....	.....	.....
Liberia	178	131	26	244	185	24	.....	.....	.....
Madagascar	181	93	49	200	170	15	389	333	11
Malawi	193	142	26	313	201	36	426	369	4
Mali	204	159	22	321	200	38	417	361	4
Mauritania	165	117	29	258	205	21	.....	.....	.....
Mauritius	60	18	70	65	25	62	.....	.....	.....
Mozambique	171	147	14	280	280	0	490	421	2
Niger	170	123	28	320	320	0	513	454	3
Nigeria	139	84	40	198	191	4	406	354	7
Rwanda	142	110	23	223	222	0	453	395	3
Sao Tome and Principe	.....	65	.....	.....	85	.....	.....	.....	.....
Senegal	138	80	42	265	156	41	397	340	15
Seychelles	.....	16	.....	.....	21	.....	.....	.....	.....
Sierra Leone	197	149	27	375	360	4	503	436	2
Somalia	159	132	17	262	214	18	443	390	4
Sudan	149	99	34	152	104	32	267	234	13
Swaziland	140	108	23	186	148	21	422	354	11
Tanzania	132	115	13	202	165	18	379	335	5
Togo	134	85	37	193	143	26	325	268	7
Uganda	109	118	–8	173	185	–7	424	367	4
Zaire	125	91	27	223	190	15	387	319	6
Zambia	106	107	–1	167	190	–14	.....	.....	.....
Zimbabwe	96	47	51	120	58	52	269	216	26
Africa	145	104	28	212	175	17	381	322	5
World	97	69	35	135	96	29	234	169	55
Less developed countries	111	70	37	152	108	30	250	199	39
More developed countries	24	14	42	25	15	40	188	86	74

Note: * Rates are per 1,000.

Table 5. Income and Poverty

Country	Average Annual Growth Rate of GDP (%)		Average Annual Rate of Inflation (%)		GNP/Capita (US$)		Percent Share of Income ('81–91)*		Population Dependency Ratio (% of working age)		Population Below Absolute Poverty Level, 1985 (%)	
						Annual						
	'70–80	'80–91	'70–80	'80–91	1991	Gro.Rate '80–91	Lowest 20%	Highest 20%	1970	1990	Urban	Rural
Angola	.....	.....	.....	.....	.....	.....	.....	.....	84	100	.....	.....
Benin	2.2	2.4	10.3	1.6	380	−0.9	.....	.....	92	98	.....	65
Botswana	14.5	9.8	11.6	13.2	2,530	5.6	1.4	66.4	118	99	40	55
Burkina Faso	4.4	4.0	6.6	3.8	290	1.2	.....	.....	86	89	.....	.....
Burundi	4.2	4.0	10.7	4.3	210	1.3	.....	.....	92	95	55	85
Cameroon	7.2	1.4	9.6	4.5	850	−1.0	.....	.....	84	93	15	40
Cape Verde	.....	2.3	9.4	9.4	750	2.3	.....	.....	111	93	.....	.....
Central African Rep.	2.4	1.4	12.1	5.1	390	−1.4	.....	.....	79	93	.....	91
Chad	0.1	5.5	7.7	1.1	210	3.8	.....	.....	82	88	30	56
Comoros	.....	−1.0	.....	.....	500	−1.0	.....	.....	96	103	.....	.....
Congo	5.8	3.3	8.4	0.4	1,120	−0.2	.....	.....	88	95	.....	.....
Cote d'Ivoire	6.6	−0.5	13.0	3.8	660	−4.6	7.3	42.2	93	104	30	26
Djibouti	.....	.....	.....	.....	.....	.....	.....	.....	81	92	.....	.....
Equatorial Guinea	.....	2.8	.....	−0.9	330	2.8	.....	.....	78	87	.....	.....
Ethiopia	1.9	1.6	4.3	2.4	120	−1.6	8.6	41.3	89	95	60	65
Gabon	9.0	0.2	17.5	1.5	3,780	−4.2	.....	.....	62	64	.....	.....
Gambia	.....	−0.1	10.6	18.2	360	−0.1	.....	.....	81	89	.....	.....
Ghana	−0.1	3.2	35.2	40.0	400	−0.3	7.0	44.1	93	93	59	37
Guinea	.....	.....	.....	.....	460	.....	.....	.....	91	97	.....	.....
Guinea–Bissau	2.4	3.7	5.7	56.2	180	1.1	.....	.....	89	82	.....	.....
Kenya	6.4	4.2	10.1	9.2	340	0.3	2.7	60.9	109	109	10	55
Lesotho	8.6	5.5	9.7	13.6	590	−0.5	4.5	61.3	82	84	50	55
Liberia	.....	.....	9.2	.....	450	.....	.....	.....	89	98	.....	23
Madagascar	0.5	1.1	9.9	16.8	210	−2.5	.....	.....	86	93	50	50
Malawi	5.8	3.1	8.8	14.9	230	0.1	.....	.....	96	104	25	85
Mali	4.9	2.5	9.7	4.4	280	−0.1	.....	.....	93	98	27	48
Mauritania	1.3	1.4	9.9	8.7	510	−1.8	.....	.....	84	91	.....	.....
Mauritius	6.8	6.7	15.3	8.1	2,410	6.1	.....	.....	66	54	12	12
Mozambique	.....	−0.1	.....	37.6	80	−1.1	.....	.....	88	91	18	36
Niger	1.7	−1.0	9.7	2.3	300	−4.1	.....	.....	94	101	.....	35
Nigeria	4.6	1.9	15.2	18.1	340	−2.3	.....	.....	95	100	.....	.....
Rwanda	4.7	0.6	15.1	4.1	270	−2.4	9.7	38.9	99	107	30	90
Sao Tome and Principe	.....	−3.3	4.0	21.5	400	−3.3	.....	.....	.....	85	.....	.....
Senegal	2.3	3.1	8.5	6.0	720	0.1	.....	.....	90	94	.....	.....
Seychelles	.....	3.2	16.9	3.5	5,110	3.2	.....	.....	.....	73	.....	.....
Sierra Leone	1.6	1.1	12.5	59.3	210	−1.6	.....	.....	82	91	.....	65
Somalia	.....	.....	15.2	49.7	170	.....	.....	.....	92	99	40	70
Sudan	5.6	.....	14.5	.....	340		.....	.....	89	92	.....	.....
Swaziland	.....	3.1	12.3	10.3	1,050	3.1	.....	.....	92	92	.....	.....
Tanzania	3.0	2.9	14.1	25.7	100	−0.8	2.4	62.7	97	99	.....	.....
Togo	4.0	1.8	8.9	4.4	410	−1.3	.....	.....	88	94	42	.....
Uganda	.....	.....	.....	.....	170	.....	8.5	41.9	98	103	.....	.....
Zaire	.....	.....	31.4	60.9	220	.....	.....	.....	89	101	.....	80
Zambia	1.4	0.8	7.6	.....	420	.....	.....	.....	94	103	25	.....
Zimbabwe	1.6	3.1	9.4	12.5	650	−0.2	.....	.....	108	90	.....	.....
Africa	4.0	2.1	13.9	18.4	330	−1.2	.....	.....	92	93	36	57
World	3.5	3.0	11.2	15.4	4,000	1.2	.....	.....	75	63	.....	.....
Less developed countries	5.3	3.3	21.6	53.9	1,000	1.0	.....	.....	94	67	.....	.....
More developed countries	3.1	2.9	9.0	4.3	21,000	2.3	.....	.....	57	50	.....	.....

Note: * Latest available data for the specified period.

Table 6. Education

Country	Adult Literacy Rate (Age 15+) (%)				Percentage of Age Group Enrolled								Primary Pupil/ Teacher Ratio	
					Primary				Secondary					
	Total		Female		Total		Female		Total		Female			
	1980	*1990*	*1980*	*1990*	*1970*	*1990*	*1970*	*1990*	*1970*	*1990*	*1970*	*1990*	*1970*	*1990*
Angola	.....	42	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Benin	28	23	17	16	36	61	22	44	5	11	3	6	41	35
Botswana	.....	74	.....	65	65	110	67	112	7	46	6	47	38	32
Burkina Faso	.....	18	.....	9	13	36	10	28	1	7	1	5	44	57
Burundi	27	50	15	40	30	72	20	64	2	5	1	4	37	67
Cameroon	.....	54	.....	43	89	101	75	93	7	29	4	21	48	51
Cape Verde	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Central African Rep.	33	38	19	25	64	67	41	51	4	11	2	6	64	90
Chad	.....	30	.....	18	35	57	17	35	2	7	0	3	65	67
Comoros	.....	48	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Congo	35	57	24	44	.....	.....	.....	.....	.....	.....	.....	.....	62	66
Cote d'Ivoire	20	54	.....	40	58	.....	45	.....	9	.....	4	.....	45	38
Djibouti	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Equatorial Guinea	37	50	.....	37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ethiopia	.....	.....	.....	.....	16	38	10	30	4	15	2	12	48	38
Gabon	.....	61	.....	48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gambia	20	27	12	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ghana	30	60	.....	51	64	75	54	67	14	39	8	31	30	29
Guinea	.....	24	.....	13	33	37	21	24	13	10	5	5	44	40
Guinea-Bissau	19	36	13	24	39	59	23	42	8	7	6	4	45	
Kenya	47	69	35	58	88	94	48	92	9	23	5	19	34	31
Lesotho	.....	73	.....	84	87	107	101	115	7	26	7	31	46	55
Liberia	.....	39	.....	28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madagascar	.....	80	.....	73	90	92	82	90	12	19	9	18	65	40
Malawi	.....	42	.....	31	.....	71	.....	64	.....	4	.....	3	43	64
Mali	.....	32	.....	24	22	24	15	17	5	6	2	4	40	42
Mauritania	.....	34	.....	21	14	51	8	42	2	16	0	10	24	46
Mauritius	79	82	72	75	94	106	93	104	30	52	25	53	32	21
Mozambique	33	33	23	21	47	58	.....	48	5	7	.....	5	69	58
Niger	10	28	6	17	14	29	10	21	1	7	1	4	39	42
Nigeria	34	51	23	39	37	72	27	63	4	20	3	17	34	41
Rwanda	50	50	39	37	68	69	60	68	2	7	1	6	60	57
Sao Tome and Principe	.....	58	.....	42	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Senegal	.....	38	.....	25	41	58	32	49	10	16	6	11	45	58
Seychelles	.....	88	.....	95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Leone	.....	21	.....	11	34	48	27	39	3	16	5	12	32	34
Somalia	6	24	3	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sudan	.....	27	.....	12	38	49	29	.....	7	20	4	.....	47	34
Swaziland	.....	.....	.....	65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tanzania	.....	.....	.....	.....	34	63	27	63	3	4	2	4	47	35
Togo	.....	43	.....	31	71	103	44	80	7	22	3	10	58	58
Uganda	52	48	40	35	38	76	30	.....	4	13	2	.....	34	35
Zaire	54	72	37	61	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zambia	.....	73	.....	65	90	93	80	91	13	20	8	14	47	44
Zimbabwe	69	67	61	60	74	117	66	116	7	50	6	46	.....	38
Africa	.....	50	.....	38	46	68	36	61	5	17	4	16	43	41
World	.....	65	.....	65	93	104	71	99	31	65	28	46	33	33
Less developed countries	.....	63	.....	52	79	104	64	98	24	61	18	39	35	35
More developed countries	.....	98	.....	95	106	104	106	104	74	93	73	96	26	17

Table 7. The Health and Status of Women

Country	No. of Women of Child-bearing Age, 15–49 (1,000s) 1990	Maternal Mortality (Per 100,000 live Births) 1988	Prenatal Health Care Coverage Rate (%) 1985–90*	Births Attended By Trained Health Personnel (%) 1985–90*	Pregnant Women Immunized For Tetanus (%) 1989–91*	Prevalence Of Anemia in Preg. Women (% Below Norm) + 1970–80s	School Enrollment (Females/100 Males) Primary 1990	School Enrollment (Females/100 Males) Secondary 1990	African States Parties to Human Rights Conventions: Children's Rights ** Year	African States Parties to Human Rights Conventions: Women's Rights *** Year
Angola	2,087	.....	27	16	36	30	.....	.....	1991	1986
Benin	1,068	800	64	45	83	55	.....	35	.....	.....
Botswana	299	250	74	79	62	.....	105	110	.....	.....
Burkina Faso	2,085	800	49	33	26	25	60	50	1990	1987
Burundi	1,252	800	30	16	56	70	85	55	1990	.....
Cameroon	2,480	450	56	25	35	10	85	65	.....	.....
Cape Verde	94	110	99	49	90	.....	.....	.....	.....	.....
Central African Rep.	715	600	68	.....	50	65	65	35	.....	.....
Chad	1,323	1,000	22	21	42	40	45	20	1990	.....
Comoros	104	500	69	24	53	.....	.....	.....	.....	.....
Congo	506	900	.....	45	60	.....	85	70	.....	1982
Cote d'Ivoire	2,527	1,000	50	65	35	35	70	45	1991	.....
Djibouti	95	750	75	80	10	.....	.....	.....	1991	.....
Equatorial Guinea	84	450	15	.....	84	.....	.....	.....	.....	1984
Ethiopia	10,174	500	14	9	6	10	65	65	.....	1981
Gabon	269	200	77	.....	86	.....	.....	.....	1990	1983
Gambia	200	1,500	72	65	77	.....	.....	.....	1990	.....
Ghana	3,287	1,000	65	42	33	65	80	60	1990	1986
Guinea	1,315	1,000	36	25	25	.....	45	30	1990	1982
Guinea-Bissau	233	700	29	39	44	.....	55	50	1990	1985
Kenya	4,910	200	90	.....	37	60	95	75	.....	1984
Lesotho	410	370	50	40	.....	.....	120	150	1990	.....
Liberia	553	.....	85	50	20	.....	.....	.....	1990	1984
Madagascar	2,542	400	76	71	17	.....	97	99	1991	1989
Malawi	1,946	420	76	41	76	50	80	55	1991	1987
Mali	1,959	2,300	11	14	9	65	55	45	1990	1985
Mauritania	455	1,100	39	20	40	.....	70	45	.....	.....
Mauritius	306	100	90	90	77	.....	98	100	1990	1984
Mozambique	3,653	300	54	29	30	60	75	60	1990	.....
Niger	1,704	700	33	21	44	50	55	40	1990	.....
Nigeria	25,726	800	78	45	58	45	75	75	1991	1985
Rwanda	1,515	400	85	22	88	.....	99	55	.....	1981
Sao Tome and Principe	27	.....	76	63	48	.....	.....	.....	.....	.....
Senegal	1,645	950	21	40	33	55	70	50	1990	1985
Seychelles	17	.....	99	99	98	.....	.....	.....	1990	.....
Sierra Leone	945	.....	30	25	77	45	70	55	1990	1988
Somalia	1,393	1,100	2	2	5	75	.....	.....	.....	.....
Sudan	5,562	660	40	.....	10	35	75	80	1990	.....
Swaziland	172	130	76	67	63	.....	.....	.....	.....	.....
Tanzania	5,844	340	90	60	40	80	98	75	1991	.....
Togo	823	720	83	56	81	45	65	35	1990	1983
Uganda	3,789	550	85	25	31	.....	.....	.....	1990	1985
Zaire	8,092	800	85	.....	29	45	.....	.....	1990	1986
Zambia	1,800	150	80	43	68	35	90	60	1990	1985
Zimbabwe	2,282	80	83	65	80	.....	99	88	1990	.....
Africa	108,318	700	60	34	30	40	76	67	.....	.....
World	1,312,949	400	67	55	39	42	84	76	.....	.....
Less developed countries	1,008,656	450	65	42	43	50	81	73	.....	.....
More developed countries	305,605	17	99	99	0	4	95	101	.....	.....

Note : * Latest available data for the specified period.

** Convention on the Rights of the Child.

*** International Convention on the Elimination of Discrimination against Women.

+ Each value refers to one particular but not specified year within the time period denoted.

Table 8. Food and Nutrition

Country	Percentage of Children affected by: Stunting (24–59mo) '80–90*	Percentage of Children affected by: Wasting (12–23mo) '80–90*	Percent Children fully Breastfed (0–3mo.) 1985–90*	Babies with Low Birth Weight (%) 1985–90*	Index of Food Production Per Capita (1987=100) 1975	1980	1985	1991	Food Supply: Calories Per Capita Per Day 1980	1989	Food Supply: Protein Per Capita Per Day (Grams) 1980	1989
Angola	.....	.....	.....	15	.....	.....	.....	.....	2,100	1,725	.....	.....
Benin	.....	14	.....	10	92	102	110	120	2,145	2,383	51	56
Botswana	37	9	39	8	196	139	129	104	2,155	2,260	71	69
Burkina Faso	28	11	.....	12	89	79	96	107	1,815	2,219	58	66
Burundi	48	6	86	18	102	95	86	85	2,059	1,948	69	56
Cameroon	43	2	70	13	127	109	108	87	2,340	2,208	59	55
Cape Verde	28	3	.....	.....	60	88	84	82	2,587	2,778	68	65
Central African Rep.	.....	.....	.....	18	120	110	93	99	2,136	1,846	43	46
Chad	13	.....	.....	11	104	112	96	104	1,762	1,852	.....	.....
Comoros	.....	.....	.....	13	133	119	99	92	1,763	1,760	38	38
Congo	27	5	.....	12	110	97	99	97	2,235	2,295	41	47
Cote d'Ivoire	20	17	.....	15	99	101	100	94	2,844	2,508	60	54
Djibouti	.....	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	.....
Equatorial Guinea	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	.....
Ethiopia	43	19	.....	13	112	114	100	100	1,777	1,858	.....	.....
Gabon	18	.....	.....	10	116	117	99	98	2,243	2,396	.....	.....
Gambia	24	7	.....	10	171	80	82	73	2,101	2,290	50	57
Ghana	30	8	61	5	132	100	98	96	1,973	2,144	44	46
Guinea	.....	.....	.....	11	104	110	101	102	2,268	2,242	51	52
Guinea–Bissau	22	5	.....	12	111	91	99	100	1,797	2,090	.....	.....
Kenya	32	5	45	18	103	99	97	105	2,149	2,064	57	55
Lesotho	32	3	.....	10	123	115	103	89	2,354	2,121	69	60
Liberia	37	3	14	.....	106	102	100	84	2,400	2,259	47	41
Madagascar	56	17	.....	10	116	112	105	91	2,472	2,156	60	52
Malawi	61	8	.....	11	118	119	101	93	2,273	2,049	66	59
Mali	24	11	82	10	107	109	100	109	1,866	2,259	57	64
Mauritania	34	17	.....	10	102	118	104	99	2,081	2,447	71	74
Mauritius	22	16	.....	8	91	79	92	88	2,701	2,897	62	70
Mozambique	.....	.....	.....	11	153	131	106	89	1,951	1,805	33	31
Niger	38	23	.....	20	125	168	101	125	2,224	2,239	64	62
Nigeria	43	9	61	17	123	103	104	120	2,128	2,200	48	48
Rwanda	37	5	.....	16	109	112	118	98	2,084	1,913	52	48
Sao Tome and Principe	26	5	.....	7	173	136	113	94	2,060	2,153	45	43
Senegal	25	6	77	10	155	85	83	76	2,415	2,322	69	67
Seychelles	5	2	.....	10	.....	.....	.....	.....	2,282	2,356	65	61
Sierra Leone	43	14	.....	13	117	104	97	83	2,098	1,899	45	39
Somalia	30	40	.....	.....	119	110	102	82	1,942	1,874	64	61
Sudan	32	13	84	15	134	132	117	100	2,215	2,043	63	59
Swaziland	30	1	.....	7	88	99	97	90	2,462	2,634	64	69
Tanzania	46	5	.....	13	110	106	107	88	2,239	2,195	54	55
Togo	20	6	60	20	126	117	106	102	2,266	2,259	49	53
Uganda	45	2	76	10	151	105	103	105	2,114	2,178	50	51
Zaire	27	3	64	13	109	103	102	96	2,133	2,130	35	34
Zambia	59	10	72	14	150	110	103	90	2,186	2,016	59	54
Zimbabwe	31	2	56	6	147	116	141	103	2,180	2,256	56	54
Africa	39	10	63	14	120	108	101	94	2,123	2,100	54	53
World	42	12	.....	17	.....	.....	.....	.....	2,579	2,697	68	71
Less developed countries	46	13	47	19	.....	.....	.....	.....	2,324	2,473	58	61
More developed countries	4	3	.....	7	.....	.....	.....	.....	3,287	3,404	99	104

Note: * Latest available data for the specified period.

Table 9. Access to Water, Sanitation and Health Care Services

Country	Access to Safe Water (percent) (1985–1990)*			Access to Sanitation Facilities (percent) (1985–1990)*			Access to Health Care Services (percent) (1988–1990)*		
	Total	*Urban*	*Rural*	*Total*	*Urban*	*Rural*	*Total*	*Urban*	*Rural*
Angola	38	75	19	22	25	20	24	.....	.....
Benin	50	79	35	41	60	31	32	.....	.....
Botswana	56	98	46	38	98	20	88	90	85
Burkina Faso	67	72	44	10	35	6	49	51	48
Burundi	38	92	34	57	80	15	45	.....	.....
Cameroon	34	47	27	.....	25	16	41	44	39
Cape Verde	74	87	65	16	35	9	81	.....	.....
Central African Rep.	12	14	11	20	36	11	65	78	17
Chad	29	30	27	14	.....	.....	26	.....	.....
Comoros	70	75	52	89	90	80	82	.....	.....
Congo	20	42	7	40	.....	.....	83	97	70
Cote d'Ivoire	83	95	75	36	69	20	60	92	45
Djibouti	43	50	21	78	94	20	47	95	40
Equatorial Guinea	.....	47	.....	.....	28	.....	.....	.....	.....
Ethiopia	18	70	11	17	97	7	55	.....	.....
Gabon	72	90	50	50	.....	.....	87	.....	.....
Gambia	77	92	73	77	.....	.....	30	50	30
Ghana	56	93	39	30	63	15	76	.....	.....
Guinea	33	56	25	24	65	9	32	.....	.....
Guinea–Bissau	25	27	18	21	30	18	80	.....	.....
Kenya	38	80	25	46	75	39	58	80	55
Lesotho	46	59	44	22	23	14	80	90	30
Liberia	50	93	22	15	24	8	34	50	30
Madagascar	31	81	17	.....	12	.....	41	90	30
Malawi	51	66	49	59	.....	.....	80	90	69
Mali	23	48	17	23	.....	5	27	60	25
Mauritania	66	67	65	.....	34	.....	40	.....	.....
Mauritius	99	100	98	98	100	96	99	99	99
Mozambique	22	44	17	19	61	11	27	50	15
Niger	59	61	52	9	39	3	30	75	17
Nigeria	32	60	20	13	30	5	67	87	62
Rwanda	64	86	62	61	62	45	27	60	25
Sao Tome and Principe	.....	33	.....	10	13	8	88	.....	.....
Senegal	53	79	38	32	87	2	40	.....	.....
Seychelles	98	100	97	65	96	19	89	99	85
Sierra Leone	43	83	22	43	59	35	30	61	11
Somalia	29	80	22	12	41	5	28	50	15
Sudan	34	90	20	12	40	5	51	90	40
Swaziland	30	.....	7	36	62	25	55	.....	.....
Tanzania	52	75	46	76	77	75	80	94	73
Togo	70	.....	60	23	42	16	30	60	20
Uganda	15	45	12	13	40	10	41	44	39
Zaire	34	59	17	14	15	13	.....	.....	.....
Zambia	59	76	43	55	77	34	75	.....	.....
Zimbabwe	36	99	14	42	99	22	83	90	80
Africa	**37**	**68**	**26**	**26**	**51**	**16**	**54**	**71**	**45**
World	81	93	72	68	89	54	91	.....	.....
Less developed countries	75	88	68	56	72	48	89	.....	.....
More developed countries	100	100	100	100	100	100	100	.....	.....

Note: * Latest available for the specified period.

Table 10. Immunization

Country	Immunization (per 100 children under one year old)							
	1980				1991			
	BCG	*DPT3*	*POL3*	*Measles*	*BCG*	*DPT3*	*POL3*	*Measles*
Angola	47	9	7	17	54	27	26	40
Benin	37	20	45	6	81	68	68	60
Botswana	76	70	71	68	92	86	82	78
Burkina Faso	16	2	^	23	60	38	38	36
Burundi	65	38	6	30	88	83	89	75
Cameroon	8	5	5	16	48	34	34	35
Cape Verde	64	31	39	54	99	87	88	76
Central African Rep.	22	13	13	14	79	46	45	46
Chad	.....	.....	.....	.....	59	20	20	32
Comoros	56	31	32	30	99	94	94	87
Congo	92	42	42	49	88	74	74	64
Cote d'Ivoire	.....	42	34	28	47	37	37	47
Djibouti	5	6	6	15	95	85	85	85
Equatorial Guinea	28	3	4	11	97	80	80	79
Ethiopia	6	3	3	5	57	44	44	37
Gabon	50	14	44	58	96	78	78	76
Gambia	92	80	53	71	97	85	89	87
Ghana	9	7	7	15	55	39	39	39
Guinea	5	2	1	9	47	35	35	33
Guinea--Bissau	38	15	11	35	94	63	63	52
Kenya	.....	.....	.....	.....	50	41	45	38
Lesotho	81	56	54	49	76	75	74	76
Liberia	41	17	26	40	62	28	28	55
Madagascar	23	34	8	15	67	50	49	40
Malawi	86	58	28	49	96	81	78	78
Mali	19	18	0	10	68	34	34	39
Mauritania	57	18	18	45	60	26	26	29
Mauritius	88	87	87	34	87	91	91	88
Mozambique	46	56	32	32	63	42	42	50
Niger	28	6	6	19	26	17	17	23
Nigeria	23	24	24	55	57	44	44	46
Rwanda	51	17	15	42	94	85	85	81
Sao Tome and Principe	95	42	48	25	96	78	77	68
Senegal	22	34	34	22	69	51	51	46
Seychelles	67	13	16	29	98	82	82	89
Sierra Leone	34	13	10	29	71	56	57	54
Somalia	5	5	5	5	31	18	18	30
Sudan	3	1	1	1	73	62	62	57
Swaziland	59	30	22	30	71	86	87	80
Tanzania	69	55	50	49	89	79	74	75
Togo	44	9	9	47	79	61	61	51
Uganda	18	9	8	22	99	76	76	73
Zaire	34	18	18	24	65	32	31	31
Zambia	71	44	50	21	96	65	70	69
Zimbabwe	64	39	38	56	87	83	81	83
Africa	**29**	**22**	**19**	**33**	**61**	**45**	**45**	**45**
World	.....	.....	20	.....	88	82	84	80
Less developed countries	.....	.....	.....	.....	89	82	84	79
More developed countries	.....	.....	.....	.....	82	83	85	82

Table 11. Health Care Personnel

Country	Doctors+	Para-medics	Nurses+	Tech-nicians	Assistant Nurses	Assistant Tech-nicians	Population per Doctor		Population per Nurse		Nurse to Doctor Ratio
	'85–90*	'80–88*	1985–90*	'80–88*	1980–88*	'80–88*	1970	'85–90*	1970	'85–90*	1985–90*
Angola	480	.....	1,200	.....	.....	.....	8,500	15,000	4,500	6,000	3
Benin	280	.....	1,700	50	1,000	300	29,000	13,000	4,000	2,500	6
Botswana	240	10	2,500	700	900	1,709	15,000	4,000	.....	500	10
Burkina Faso	130	160	1,800	30	1,600	280	96,000	50,000	15,000	4,000	14
Burundi	280	130	1,200	50	450	90	59,000	15,000	14,000	4,000	4
Cameroon	940	2,000	6,000	300	5,000	300	30,000	11,000	4,000	2,000	6
Cape Verde	100	500	250	20	150	30	12,000	4,000	4,000	1,500	3
Central African Rep.	110	150	500	70	500	100	44,000	25,000	2,500	5,000	5
Chad	135	30	150	200	1,000	30	62,000	35,000	.....	30,000	1
Comoros	70	2	300	50	550	.....	15,000	6,000	9,000	1,500	4
Congo	500	30	2,000	250	3,800	300	10,000	4,000	1,500	1,000	4
Cote d'Ivoire	700	.....	3,300	.....	.....	.....	16,000	15,000	3,000	3,000	5
Djibouti	80	.....	300	100	250	.....	4,000	5,000	1,000	1,500	4
Equatorial Guinea	100	.....	200	.....	.....	.....	12,000	4,000	.....	2,000	2
Ethiopia	1,500	220	3,500	850	7,000	.....	92,000	29,000	21,000	12,000	2
Gabon	420	80	1,500	.....	.....	.....	5,000	3,000	.....	800	4
Gambia	60	.....	700	200	700	.....	25,000	13,000	2,000	1,500	12
Ghana	800	350	5,900	1,200	10,000	.....	13,000	15,000	1,000	2,000	7
Guinea	130	.....	550	180	1,300	400	51,000	40,000	.....	10,000	4
Guinea–Bissau	120	20	300	150	1,800	800	18,000	6,000	5,000	2,000	3
Kenya	3,100	.....	10,000	300	13,000	500	8,000	6,000	2,000	2,500	3
Lesotho	110	.....	550	50	500	.....	30,000	16,000	3,000	3,300	5
Liberia	220	150	1,200	.....	.....	.....	13,000	10,000	2,000	2,000	5
Madagascar	1,400	1,700	5,000	450	8,000	550	10,000	8,000	9,000	2,000	4
Malawi	260	350	550	250	1,600	650	77,000	27,000	5,000	14,000	2
Mali	440	90	1,100	500	3,700	300	45,000	18,000	6,500	7,000	3
Mauritania	200	400	900	60	1,200	750	18,000	9,000	6,000	2,000	5
Mauritius	900	.....	3,300	530	500	80	4,500	1,200	520	320	4
Mozambique	280	100	3,700	280	350	850	19,000	50,000	5,000	4,000	13
Niger	220	40	2,500	280	9,500	200	60,000	35,000	11,000	3,000	11
Nigeria	16,000	.....	97,000	4,200	16,000	1,200	21,000	6,000	2,000	1,000	6
Rwanda	160	350	300	680	1,500	420	60,000	35,000	10,000	20,000	2
Sao Tome and Principe	60	1	300	70	200	30	4,500	2,000	4,000	400	5
Senegal	410	250	1,100	400	7,000	.....	16,000	16,000	1,500	7,000	3
Seychelles	30	.....	350	.....	.....	.....	4,500	2,500	170	200	12
Sierra Leone	260	150	1,300	160	250	.....	18,000	13,000	3,500	3,000	5
Somalia	480	70	3,500	130	500	.....	36,000	15,000	2,000	2,000	7
Sudan	2,100	2,700	5,600	1,300	18,000	.....	14,000	10,000	4,500	4,500	3
Swaziland	80	.....	1,300	.....	100	.....	8,000	9,000	500	600	16
Tanzania	770	950	5,700	200	1,400	.....	23,000	29,000	3,000	4,000	7
Togo	260	150	1,700	730	1,300	200	29,000	10,000	2,500	2,000	7
Uganda	600	600	6,800	1,000	.....	550	9,000	18,000	13,000	2,500	11
Zaire	2,500	150	5,100	1,100	13,000	200	28,000	14,000	4,600	7,000	2
Zambia	880	1,300	4,300	450	4,000	550	14,000	7,000	4,300	2,000	5
Zimbabwe	1,400	3,500	8,600	900	10,000	250	6,500	6,000	750	1,000	6
Africa	40,000	.....	205,000	18,000	148,000	.....	19,000	9,000	3,000	2,000	5
World	6,200,000	.....	9,200,000	.....	.....	.....	.....	900	.....	570	1.5
Less developed countries	2,800,000	.....	2,300,000	.....	.....	.....	.....	1,500	.....	1,700	0.8
More developed countries	3,400,000	.....	6,900,000	.....	.....	.....	.....	350	.....	180	2.0

Note: Africa here is defined as Sub–Sahara only.
Note: + Doctors are medical doctors only. Nurses are registered nurses and registered midwives only.
* Latest available data for the specified period.

Table 12. Health Care Facilities

Country	Number of Health Care Facilities						Number of Beds		Population Per Bed	
	Hospitals			Health Centers and Others *						
	Central/ Regional	District/ Rural	Total	Health Centers	Others *	Total *	Hospital only	Total **	Hospital only	Total *
Angola	53	.....	.....	226	1,231	1,457	.....	.....	.....	850
Benin	12	9	21	364	392	756	.....	.....	.....	.....
Botswana	38	7	45	37	299	336	.....	2,200	.....	500
Burkina Faso	2	5	7	58	6,005	6,064	2,700	5,600	3,000	1,400
Burundi	34	21	55	218	114	332	3,100	5,800	1,600	900
Cameroon	.....	.....	.....	528	1,006	1,534	.....	29,000	.....	400
Cape Verde	2	3	5	4	37	41	.....	.....	.....	.....
Central African Rep.	15	26	41	56	77	133	1,600	4,000	1,800	700
Chad	9	22	31	26	363	389	.....	4,000	.....	1,363
Comoros	5	.....	.....	7	72	79	.....	.....	.....	.....
Congo	45	.....	.....	92	515	607	5,700	7,300	350	300
Cote d'Ivoire	20	71	91	.....	690	690	7,000	9,700	1,500	1,100
Djibouti	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Equatorial Guinea	15	37	52	.....	.....	.....	.....	.....	.....	.....
Ethiopia	86	42	128	140	1,820	1,960	.....	.....	.....	3,500
Gabon	27	.....	.....	33	423	456	3,100	5,300	350	200
Gambia	2	4	6	19	67	86	.....	.....	.....	.....
Ghana	9	124	133	180	.....	.....	.....	.....	.....	700
Guinea	29	.....	.....	62	551	613	1,200	.....	4,500	1,700
Guinea-Bissau	7	10	17	126	181	307	.....	.....	.....	.....
Kenya	.....	.....	.....	282	1,535	1,817	31,000	32,000	700	650
Lesotho	20	.....	.....	.....	.....	135	2,250	.....	700	.....
Liberia	15	15	30	26	275	301	.....	.....	.....	.....
Madagascar	7	72	79	99	581	680	.....	.....	.....	1,100
Malawi	51	.....	.....	44	610	654	7,550	12,600	950	600
Mali	10	4	14	333	2,144	2,477	2,500	5,000	3,000	1,500
Mauritania	15	13	28	143	57	200	1,350	.....	1,400	.....
Mauritius	17	4	21	24	129	153	2,750	2,950	400	350
Mozambique	10	26	36	223	948	1,171	6,300	13,000	2,000	1,000
Niger	9	1	10	43	597	640	.....	3,200	.....	2,250
Nigeria	.....	.....	.....	705	6,604	7,309	61,000	91,000	1,700	1,200
Rwanda	30	22	52	170	74	244	10,300	.....	650	.....
Sao Tome and Principe	1	.....	.....	25	19	44	.....	.....	.....	.....
Senegal	.....	10	.....	47	1,117	1,164	3,450	5,500	2,000	1,250
Seychelles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Leone	51	37	88	57	163	220	3,200	3,900	1,100	950
Somalia	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,250
Sudan	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,100
Swaziland	9	.....	.....	8	113	121	.....	.....	.....	.....
Tanzania	26	104	130	300	10,453	10,753	.....	.....	.....	900
Togo	23	.....	.....	317	402	719	5,300	.....	650	.....
Uganda	75	.....	.....	404	.....	.....	.....	.....	.....	1,250
Zaire	.....	153	.....	1,095	3,983	5,078	60,000	.....	500	.....
Zambia	12	66	78	555	.....	.....	.....	.....	.....	.....
Zimbabwe	26	155	181	.....	.....	999	4,600	.....	1,900	500
Africa	.....	.....	.....	.....	.....	.....	.....	.....	1,100	900
World	.....	.....	.....	.....	.....	.....	.....	.....	280	.....
Less developed countries	.....	.....	.....	.....	.....	.....	.....	.....	500	.....
More developed countries	.....	.....	.....	.....	.....	.....	.....	.....	110	.....

Note : * Total includes health centers and others (maternities, dispensaries, clinics, health posts).
Data are for most recent years.
** Total beds include beds in hospitals, health centers, maternities, dispensaries.

Table 13. Health Expenditures

Country	Health Expenditures (1990) (Millions US$)				Per Capita	Health Expenditure as a Percentage of GDP (1990)				Aid Flows as a % of Total Health Expenditure
	Public	*Aid Flows*	*Private*	*Total*	*US$*	*Public*	*Aid Flows*	*Private*	*Total*	*1990*
Angola	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Benin	20.8	29.6	30.4	80.8	17	1.1	1.6	1.7	4.4	37
Botswana	120.0	32.0	42.0	194.0	155	3.8	1.0	1.3	6.2	17
Burkina Faso	21.3	158.0	43.6	222.9	25	0.8	6.1	1.7	8.6	71
Burundi	15.9	3.4	6.2	24.9	5	1.4	0.3	0.6	2.3	13
Cameroon	75.5	34.1	199.2	308.8	28	0.7	0.3	1.8	2.8	11
Cape Verde	3.6	9.3	5.1	18.0	48	1.3	3.4	1.9	6.6	52
Central African Rep.	14.5	19.7	21.4	55.6	16	1.1	1.5	1.6	4.2	35
Chad	20.9	36.0	18.9	75.8	13	1.7	3.0	1.6	6.2	47
Comoros	6.1	3.2	3.8	13.1	26	2.5	1.3	1.6	5.4	24
Congo	53.4	13.7	43.5	110.6	49	1.9	0.5	1.5	3.9	12
Cote d'Ivoire	161.9	11.3	161.0	334.1	28	1.6	0.1	1.6	3.4	3
Djibouti	....	....	....	19.1	45	.....	.....	.....	.....	.....
Equatorial Guinea	4.2	4.9	2.2	11.3	27	2.8	3.3	1.4	7.5	43
Ethiopia	64.6	43.1	97.8	235.5	5	1.6	0.7	1.6	3.9	18
Gabon	108.9	13.3	73.1	195.3	172	2.2	0.3	1.5	3.9	7
Gambia	7.2	13.0	4.9	25.1	29	2.1	3.8	1.5	7.4	52
Ghana	71.5	28.9	105.6	204.0	14	1.2	0.5	1.8	3.5	13
Guinea	41.3	21.5	40.8	103.6	18	1.5	0.8	1.5	3.8	21
Guinea-Bissau	5.0	7.9	2.7	15.6	16	2.6	4.1	1.4	8.0	51
Kenya	150.1	83.1	142.1	375.2	16	1.7	1.0	1.6	4.3	22
Lesotho	18.5	17.0	12.8	48.4	27	3.2	2.9	2.2	8.3	35
Liberia	1.8	6.2	1.9	10.0	4	1.6	5.6	1.8	9.0	62
Madagascar	22.8	16.9	39.0	78.7	7	0.7	0.6	1.3	2.6	21
Malawi	32.4	21.5	38.6	92.5	11	1.7	1.2	2.1	5.0	23
Mali	32.5	37.0	60.8	130.3	15	1.3	1.5	2.4	5.2	28
Mauritania	11.4	12.0	16.7	40.1	20	1.1	1.1	1.6	3.8	30
Mauritius	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mozambique	17.7	45.1	24.0	86.8	6	1.2	3.1	1.7	6.0	52
Niger	43.5	43.0	38.2	124.6	16	1.7	1.7	1.5	4.9	34
Nigeria	330.9	55.2	573.7	959.8	10	1.0	0.2	1.7	2.9	6
Rwanda	11.0	29.2	38.2	78.4	11	0.5	1.4	1.8	3.7	37
Sao Tome and Principe	1.4	2.5	0.9	4.8	41	2.7	5.0	1.7	9.4	53
Senegal	98.4	38.2	87.6	220.1	30	1.7	0.6	1.5	3.8	16
Seychelles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Leone	4.3	10.8	6.8	21.9	5	0.5	1.2	0.8	2.4	50
Somalia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sudan	32.9	13.6	253.3	299.8	12	0.4	0.2	2.8	3.3	5
Swaziland	24.7	19.4	11.8	55.9	70	3.2	2.5	1.5	7.1	35
Tanzania	15.7	59.0	41.6	116.3	5	0.7	2.6	1.8	5.0	51
Togo	27.1	14.2	26.7	68.0	19	1.7	0.9	1.6	4.1	21
Uganda	12.6	32.0	50.2	94.8	6	0.5	1.2	1.8	3.4	34
Zaire	15.2	47.8	159.0	222.0	6	0.2	0.6	2.1	2.9	22
Zambia	76.5	4.8	35.8	117.1	14	2.1	0.1	1.0	3.2	4
Zimbabwe	167.7	45.8	202.9	416.4	42	2.5	0.7	3.0	6.2	11
Africa	1,993	1,133	2,765	5,910	14	2.6	0.4	2.0	4.5	19
World	1,016,221	3,252	680,982	1,702,455	323	4.8	0.0	3.2	8.0	0.2
Less developed countries	76,376	3,252	90,497	170,115	41	2.1	0.1	2.5	4.7	1.9
More developed countries	951,108	0	581,232	1,532,340	1,340	5.4	0.0	3.3	8.7	0.0

Technical Notes

In all tables, **Africa** is defined as Sub-Saharan Africa. It excludes Eritrea and Namibia (due to lack of data) and La Reunion and South Africa (due to differences from other Sub-Saharan countries). Africa-wide values are population-weighted, unless the context indicates otherwise.

"More Developed" countries comprise Europe, the countries of the former USSR, North America (USA and Canada), Australia, New Zealand and Japan. **"Less Developed"** countries comprise the rest of the world.

Unavailable data are denoted by ".....".

The principal sources of the data are: World Bank and United Nations Development Programme, 1992, African Development Indicators (ADI92); the World Bank's Population, Health and Nutrition Department (PHN); World Development Report 1993 (WDR93); the World Health Organization - Geneva Headquarters (WHO) and African Regional Office (WHO/AFRO); the United Nations (UN); and the United Nations Children's Fund (UNICEF).

Table 1. Health and Development Indicators

Population numbers for mid-1992 are World Bank estimates. These are normally projections from the most recent population censuses or surveys, which, in some cases, are very dated. Refugees not permanently settled in the country of asylum are generally considered to be part of the population of their country of origin.

Population growth rates are calculated from the midyear population by the exponential method. The rates are expressed in percent.

The **crude birth rate** and **crude death rate** indicate respectively the number of live births and deaths occurring per thousand population in a given year. They are World Bank estimates, based on various sources including the United Nations.

The **total fertility rate** represents the number of children that would be born per woman, if she were to live to the end of her childbearing years and bear children at each age in accordance with currently prevailing age-specific fertility rates. Data are from the UN (Population Division and Statistical Office) and the World Bank (PHN Department) based on demographic and health surveys and information from country statistical offices.

Life expectancy at birth is the number of years a newborn infant would live if subjected throughout life to the current age-specific mortality rates. Data are presented for males and females separately. The sources of data are the UN and the World Bank.

GNP per capita figures in U.S. dollars are calculated according to the World Bank Atlas method. Gross national product (GNP) measures the total domestic and foreign value added claimed by residents. It comprises gross domestic product (GDP, the total dollar value of all goods and services produced in the country), with adjustments for the value of goods and services produced by nationals abroad and by foreigners residing within the country. The Atlas conversion factor for any year is the average of the exchange rate for that year and the exchange rates for the two preceding years, after adjusting them for differences in relative inflation between the country and the U.S. The resulting GNP in US dollars is divided by the midyear population for the latest of the three years to derive GNP per capita. Data are from WDR93.

The **adult literacy rate** is the proportion of the population 15 years old and over who can read and write a short, simple statement on their everyday life. The data are from WDR93.

Tables 2 and 3. Population Projections (standard and rapid fertility decline)

Population estimates and projections are those made by the World Bank, with midyear 1990 as the base, from data provided by the UN, country statistical offices, and other reliable sources. The projections for 2000 and 2025 are made for each country separately by the component method, based on previous trends of fertility, mortality and migration. Note that the data reflect the potentially significant impact of the human immunodeficiency virus (HIV) epidemic. A full description of the methods and assumptions used to calculate the estimates is contained in the World Bank's World Population Projections, 1992-93 Edition.

Annual rate of population growth. See note to Table 1. The population projections for rapid fertility decline assume that each country will increase the use of contraceptives at the maximum possible rate.

Total fertility rate. See note to Table 1.

Population age structure for under 15 and 65 and over is expressed as the percentage of total population. Data are from the World Bank data files, 1993; and the UN (World Population Prospects, the 1992 Revision, UN 1993).

The data on **urban population as a percentage of total population** are from the UN's World Population Prospects, the 1992 Revision, supplemented by data from the World Bank. Because these estimates are based on different national definitions of what is urban, cross-country comparisons should be interpreted with caution.

Contraceptive use is the proportion of married women of childbearing age (15-49) in families using contraception. The data are from African Population Advisory Committee (APAC) 1993a.

Table 4. Mortality

The **infant mortality rate** is the number of infants who die before reaching one year of age, per thousand live births in a given year. The data are from the UN as well as from the World Bank.

The **under-five mortality rate** is the probability of dying between birth and age 5, expressed per thousand live births. The rates were obtained from a special background paper prepared for WDR93 and UNICEF. The methodology is described in the Hill and Yazbeck background paper cited in WDR93. The underlying information comes from the UN (Child Mortality since the 1960s, 1992), augmented by recently available census and survey data.

The **adult mortality rate age 15-59** is the probability of an adult age 15 dying before reaching age 60. The figure here is per thousand. The rates were derived from the child mortality estimates for the same year, combined with assumptions about the relationship between child and adult mortality based on country-specific projections by the World Bank.

Median age at death is the age below which half of all deaths occur in a year. The indicator is affected by several factors, including the age structure of the population and the age pattern of mortality risks in the population. It does not represent the average age at which any group of individuals will die, and it is not directly related to life expectancy. Since African countries are characterized by very young populations (with nearly 50% of population under 15 years old, due to high total fertility rates) and high infant and child mortality rates, the median age at death is very low (only 5) compared to that of developing (39) and more developed countries (74). The data are from WDR93.

Table 5. Income and Poverty

Average annual growth rate of GDP. GDP measures the total output of goods and services for final use produced by residents and nonresidents, regardless of the allocation to domestic and foreign claims. The data are

obtained from national sources, sometimes reaching the World Bank through other international organizations but more often collected during World Bank staff missions. The data are from WDR93.

Average annual rate of inflation is measured by the growth rate of the GDP implicit deflator for each of the periods shown. The GDP deflator is first calculated by dividing, for each year of the period, the value of GDP at current values by the value of GDP at constant values, both in national currency. The least-squares method is then used to calculate the growth rate of the GDP deflator for the period. This measure of inflation, like any other, has limitations. It is used, however, as an indicator of inflation because it is the most broadly based measure, showing annual price movements for all goods and services produced in an economy. The data are from WDR93.

GNP per capita. See note to Table 1. The data are from WDR93.

Percent share of income is the share of the lowest and highest population quintiles in total income or consumption expenditure. The data refer to different years between 1981 and 1991, and are drawn from nationally representative household surveys. The data have been compiled from two main sources: government statistical agencies and the World Bank (mostly from the Living Standards Measurement Surveys). For further details, see Chen, Datt, and Ravallion, 1993.

Population dependency ratio is calculated as the number of persons under age 15 and at age 65 and over (dependent ages) for every 100 persons aged 15-64 (economically productive ages). It gives a rough indication of how many persons are economically supported by each 100 persons who are economically active. The sources of data are the same as for total population (Table 1).

Absolute poverty level is defined as the country-specific income level below which adequate standards of nutrition, shelter, and personal amenities cannot be assured. The data are from ADI92.

Table 6. Education

Data are from the World Bank data files (WDR93 & ADI92).

Adult literacy rate. See note to Table 1.

Primary school enrollment data estimate the number of children of all ages enrolled in primary school. Figures are expressed as the ratio of pupils to the population of school-age children. Although many countries consider primary school age to be 6 to 11 years, others do not. For some countries with universal primary education, the gross enrollment ratios can exceed 100 percent because some pupils are younger or older than the country's standard primary school age.

The data on **secondary** school enrollment are calculated in the same manner, but again the definition of secondary school age differs among countries. It is most commonly considered to be 12 to 17 years. Late entry of more mature students as well as repetition can influence these ratios.

The **primary pupil-teacher ratio** is the number of pupils enrolled in school in a country, divided by the number of teachers in the education system.

Table 7. The Health and Status of Women

Women of child bearing age are those in the 15-49 age-group.

The **maternal mortality rate** refers to the number of female deaths that occur during childbirth, per 100,000 live births. Because deaths during childbirth are defined more widely in some countries than in others, and many deaths are never recorded, the figures should be treated with extreme caution. The data are drawn from diverse sources: WHO/AFRO country reports; Maternal and Child Health, WHO/AFRO, 1990; UN Demographic Yearbooks; UNICEF; and mostly from Maternal Mortality, A Global Factbook, WHO 1991.

Prenatal Health Care Coverage Rate is the percentage of pregnant women who attended prenatal care clinics in a given year. The data suggest the service was utilized but do not imply that coverage was adequate or effective. The data are from the Health for All data base, WHO 6/92; Global Health Situation and Projections, WHO 1992; WHO/AFRO computer print-out, 1990; and WHO/AFRO country reports.

Births attended by trained health personnel. Trained personnel include physicians, nurses, midwives, trained primary health care and other health workers, and trained traditional birth attendants. National coverage levels are drawn from official estimates and sample surveys. Where no direct figures were available, the percent of births in health care institutions has been substituted as a conservative estimate. The data are from the Health for All data base, WHO 6/92; Global Health Situation and Projections, WHO 1992; WHO/AFRO computer print-out, 1990; and WHO/AFRO country reports.

Pregnant women immunized for tetanus is the percentage of women giving birth in a given year who received tetanus toxoid injections during pregnancy. The data are from the Health for All data base, WHO 6/92; Global Health Situation and Projections, WHO 1992; WHO/AFRO computer print-out, 1990; and WHO/AFRO country reports.

Prevalence of anemia in pregnant women (% below the norm for hemoglobin). Women are classified as anemic when the blood hemoglobin level is below the WHO norm of 110 grams per liter. The data are from WDR93.

School enrollment (females per 100 males) shows the extent to which females have equal access to schooling. The data are from WDR93.

African States Parties to Human Rights Conventions. The Convention on the Rights of the Child and the International Convention on the Elimination of Discrimination against Women contain provisions relevant to the status of women. The data indicate the years when the country ratified the Convention(s). The data are as of February, 1992, from the United Nations Center for Human Rights, Geneva.

Table 8. Food and Nutrition

Nutrition Status : wasting (low weight for height) and **stunting** (low height for age) refer to the percent of children with less than 77 percent (2 standard deviations) of the median weight-for-height or height-for-age of the U.S. National Center for Health Statistics (NCHS) reference population. Mild/moderate malnutrition is between 60 and 80 percent of the norm. Severe malnutrition is less than 60 percent of the norm. Chronic malnutrition is measured by stunting, and acute or short-term malnutrition is measured by wasting, whether the cause is inadequate food intake or infectious disease or both. Mild or moderate malnutrition is not considered disease, but all degrees of malnutrition increase the risk of death in children. The data are from WDR93.

Percentage of children fully breastfed is defined as those given breast milk with or without water, juice, or other liquids but no food or non-breast milk before age 4 months. The data are from WDR93.

Babies with low birth weight is the proportion of children born weighing 2,500 grams (5.5 pounds) or less. The data are from WDR93.

The index of food production per capita relates food production from 1975 to 1991 to that of 1987. The value of the latter within each country is taken as 100. The data are from the World Bank data files, 1993 (STARS93).

Food Supply: Calories per capita per day were calculated by dividing the calorie equivalent of the food supplies in a country by the population. Supplies include domestic production, imports less exports, and changes in stocks. The data are from the Food and Agriculture Organization Yearbook (Production), 1991.

Food Supply: Protein per capita per day (grams) indicates one of the nutrient elements of food supply. Data are from the FAO Yearbook, 1991.

It is important to note that the quantities of food available relate to the quantities of food reaching households but not necessarily to the amounts of food actually consumed. The quantity consumed may be lower than the quantity shown, due to losses of edible food and nutrients in the household and to issues in the intra-household distribution of available food. The data represent only the average supply for the population as a whole.

Table 9. Access to Water, Sanitation and Health Care Facilities

The data are from the Health For All data base, WHO 6/92; Global Health Situation and Projections, WHO 1992; WHO/AFRO computer print-out, 1990; and UNICEF data file 1993.

Access to safe water is the proportion of the population with reasonable access to safe water sources. Safe water commonly includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells. Reasonable access in urban areas is defined as a public fountain or stand post located not more than 200 meters from a dwelling. In rural areas, reasonable access implies that members of the household do not have to spend a disproportionate part of the day in fetching the household's water needs.

Access to sanitation facilities is the proportion of the population with adequate sanitary facilities in the home or immediate vicinity. The WHO indicators and definitions changed in the late 1980s, and caution is needed in interpreting the data,

Access to health care services is now defined in the WHO Health for All data base as the proportion of the population having treatment for common diseases and injuries and a regular supply of the essential drugs on the national list available within one hour's walk or travel. Caution is needed in interpreting the data.

Table 10. Immunization

Data are from the Health For All data base, WHO 6/92; Global Health Situation and Projections, WHO 1992; WHO/AFRO computer print-out, 1990; UNICEF data file 1993; and ADI92.

Immunization coverage is the percentage of children in a given year who were fully immunized against each disease or group of diseases by age 1. The requirements for full immunization depend on the type of disease. The vaccination schedule recommended by WHO, which is used in this table to measure full immunization, is as follows:

Tuberculosis : 1 injection of BCG (Bacterium Calmette-Guerin), which can be given at the time of birth.

Diphtheria, Pertussis, Tetanus : 3 injections with DPT vaccine before age 1; the first is recommended 6 weeks after birth followed by 2 more at 1-month intervals.

Polio : at least 3 doses of oral polio vaccine before age 1, given 1 month apart. In areas where polio is endemic, the first dose is recommended at the time of birth, followed by 3 more doses at the same time as the DPT injections.

Measles : 1 injection of measles vaccine, given after 9 months of age.

Table 11. Health Care Personnel

The data is this table are from WHO (Statistics Annual, 1988; Human Resources data base 1992; Global Health Situation and Projections, 1992); WHO/AFRO (Computer print-out 1990) and WHO/AFRO country reports); and, World Bank data files 1993 (PHN, WDR93). As explained in the WHO statistics annual, military personnel

who do not provide assistance to the civil health services are not included in the data, but expatriate staff are included. Because definitions of various categories of health care personnel vary among countries and the definitions given below lack precision, cross-country comparisons of the data must be made with extreme caution.

Doctors are graduates of a medical school or faculty actually working in any medical field (practice, teaching, administration, research, laboratory, etc.). The practitioners of traditional medicine are not included in this category.

Paramedics are staff whose medical training is less than that of qualified physicians but who nevertheless dispense similar medical services, including simple operations.

Nurses (professional, high level) are graduates of a nursing school working in any nursing field (general nursing, specialized clinical nursing services in mental health, paediatrics, cardiovascular diseases, etc., public health or occupational health, teaching, administration, research, etc.). These personnel are qualified and authorized to provide the most responsible and competent professional nursing service. Also included in this category are **midwives (professional, high level)**, who are graduates of a midwifery school actually working in any field of midwifery (practice in institutions and community health services, teaching, administration, private practice, etc.).

Technicians are graduates of health technical school. They perform duties in laboratory, X-ray department, dental department, pharmacy, environmental health, etc.

Assistant nurses (middle level) are personnel providing general patient care of a less complex nature in hospitals and other health services, in principle under the supervision of a professional nurse. These personnel do not have the full education and training of a professional nurse. Also included in this category are **assistant midwives (middle level)**, who are personnel carrying out the midwifery duties of normal obstetric care, in principle under the supervision of a professional midwife. Assistant midwives do not have the full education and training of professional midwives.

Assistant technicians (middle level) are health services personnel carrying out duties other than those of assistant nurses or assistant midwives. In principle, they work under the supervision of a technician. These personnel do not have the full education and training of a professional technician.

Population per doctor or per nurse represents the number of people served by 1 doctor or by 1 nurse. The data show only the average available for the population as a whole and must be interpreted with caution because of the concentration of highly qualified health staff in urban areas.

Tables 12. Health Care Facilities

The data are from WHO/AFRO (Computer print-out, 1990); WHO/AFRO country reports; and from World Bank data files (WDR93). Note that, in some respects, the definitions are not fully consistent with the usage in the text. Furthermore, terminology and definitions vary substantially from country to country, and thus inter-country comparisons must be made with caution.

Hospitals are establishments permanently staffed by at least one physician that offer in-patient accommodation and provide medical and nursing care. Establishments providing principally custodial care are not included.

Central/regional hospitals are hospitals--other than local or rural hospitals--providing medical and nursing care for several medical disciplines.

District/rural hospitals are, in principle, first referral facilities, usually in rural areas, permanently staffed by one or more physicians, which provide medical and nursing care of a more limited range than that provided by central or regional hospitals.

Health centers are, in principle, the first point of contact of the population with the formal health care system. They are not permanently staffed by physicians but by medical assistants, nurses, midwives, etc. Usually, they are small units (sometimes also known as rural health centers), which offer limited in-patient accommodation and provide a limited range of medical and nursing care.

Others include maternities, dispensaries, and health posts. They furnish a very limited range of medical and nursing care not provided by professional staff.

Beds. A **hospital bed** is situated in a ward or a part of the hospital where continuous medical care for in-patients is provided. The total of such beds constitutes the normally available bed complement of the hospital. Cribs and bassinets maintained for use by healthy newborn infants who do not require special care are not included.

Population per bed represents the number of people served by 1 hospital bed or other health care facility bed in the country. It is only an average and must be interpreted with caution because of the concentration of health care facilities with beds in urban areas.

Table 13. Health Expenditure

Health expenditures include outlays for prevention of disease, health promotion, rehabilitation, and individual and public health care services; population programs; nutrition activities; program food aid; and emergency aid specifically for health. In this table, health expenditures do not include water and sanitation. **Per capita expenditures** are based on World Bank midyear population estimates. **Total health expenditure** is expressed in official exchange rate US dollars.

Data on **public** and **private health expenditure** are from national sources, supplemented by Government Finance Statistics (published by the International Monetary Fund), World Bank sector studies, and other studies. Public expenditures include government health expenditures and parastatal expenditures. They do not include aid flows. **Private expenditures** are based on household surveys carried out by the ILO and other sources, supplemented by information from United Nations National Income Accounts, World Bank studies, and other studies published in the scientific literature.

Estimates for countries with incomplete data, including a number of African countries, were calculated, in a special exercise undertaken for WDR93, in three steps. First, where data on either private or public expenditures were lacking, the missing figures were imputed from data from countries for which information was available. The imputation followed regressions relating public or private expenditure to GDP per capita. Second, for a country with no health expenditure data, it was assumed that the share of GDP spent on health was the same as the average for the corresponding region. Third, if GDP was unknown but population was known, it was assumed that per capita health spending was the same as the regional average.

Aid flows represent the sum of all health assistance to each country by bilateral and multilateral agencies and by international non-governmental organizations (NGOs). National NGOs were not included because the available information was not separately available by recipient country. The estimates of aid in this table were prepared for WDR93 by the Harvard Center for Population and Development Studies.

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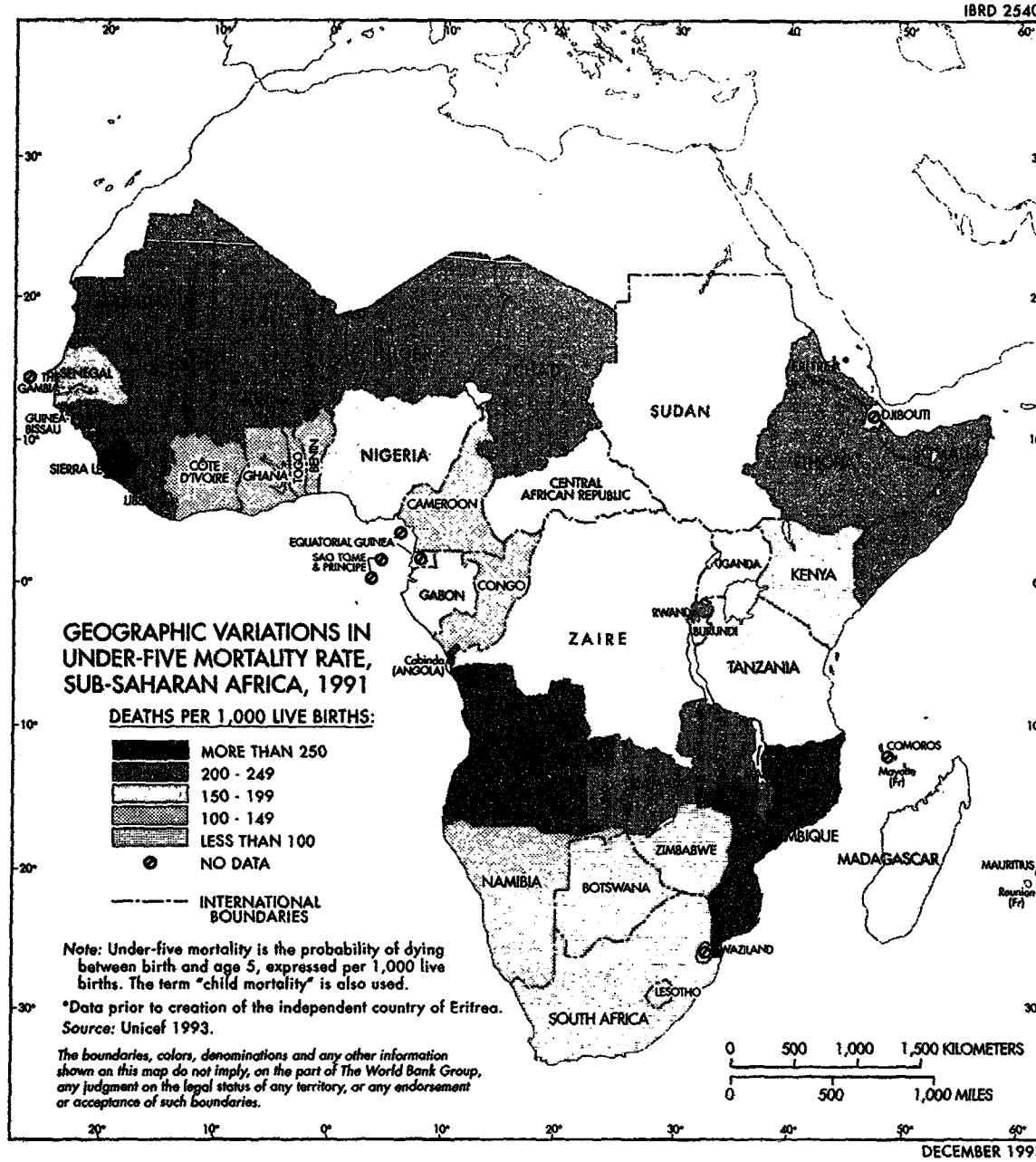

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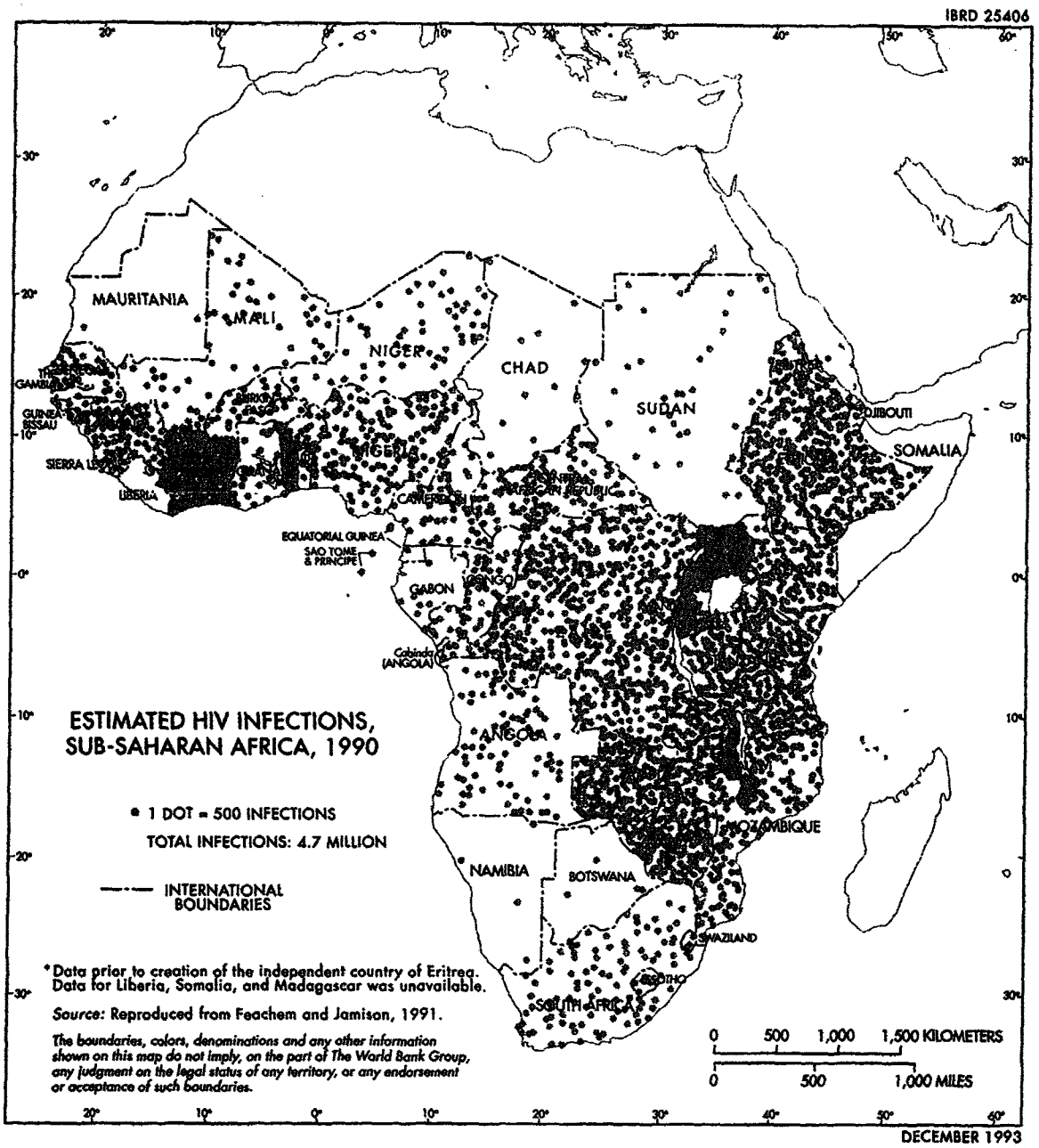
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Cabinda (ANGOLA)
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MOZAMBIQUE
NAMIBIA
BOTSWANA
SWAZILAND
LESOTHO
SOUTH AFRICA
ESTIMATED HIV INFECTIONS, SUB-SAHARAN AFRICA, 1990
• 1 DOT = 500 INFECTIONS
TOTAL INFECTIONS: 4.7 MILLION
INTERNATIONAL BOUNDARIES
*Data prior to creation of the independent country of Eritrea. Data for Liberia, Somalia, and Madagascar was unavailable.
Source: Reproduced from Feachem and Jamison, 1991.
The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.
0 500 1,000 1,500 KILOMETERS
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DECEMBER 1993