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Health Financing in the Poor Countries

Cost Recovery or Cost Reduction?

J. Brunet-Jailly

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Providing adequate health care and expanding access to care are crucial problems in many developing countries. Should governments direct their efforts to meeting existing costs through cost recovery mechanisms or should they give priority to lowering the costs before trying to recover them?

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Health Financing in the Poor Countries:
Cost Recovery or Cost Reduction*

by
J. Brunet-Jailly

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WORKING PAPERS

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This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — is part of a larger study undertaken by PRE of African health policy. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (41 pages, with figures and tables).

Many donor agencies, including the World Bank, have tended to view the problem of financing health care services in developing countries as a problem of cost recovery. Policy reforms based on this view have therefore focused on measures, such as user charges and insurance, intended to generate additional revenues to meet recurrent resource needs. However, the potential to actually reduce costs by eliminating waste in health systems has not been given adequate attention.

The health care situation in Mali represents a case study in the difficulties of providing effective care in poor countries. The share of health expenditures in the government's budget amounted to nearly 9 percent at the beginning of the 1970s, but has fallen to about half that level since then. Households bear most of the burden of health financing, accounting for about 75 percent of total sectoral expenditures in 1986.

Revenues from user charges represent only a small fraction of operating expenditures in

government health facilities. Changing the present system so that cost recovery becomes a significant proportion of actual expenditures would be extremely difficult.

However, realistic possibilities exist for reducing the costs of pharmaceuticals, which accounted for over 50 percent of total health expenditures in 1986. Brunet-Jailly's analysis shows that with improved drug management practices, Mali would not need additional external aid to make drugs available in its health units and dispensaries. This example suggests that the therapy for improving public health services should be based primarily on cost reduction, not simply cost recovery.

The conditions that govern access to health care and drugs in the poorest countries today are grossly inequitable. Only cost reduction can diminish this enormous inequity and give the poor better access to health care services. Such a focus on cost reduction is consistent with the goals of the Bamako Initiative.

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Health Financing in the Poor Countries:
Cost Recovery or Cost Reduction

The problem of financing health services in the developing countries is currently being looked at as one of cost recovery. This is the approach taken by, in particular, the World Bank, whose activities as a pressure group are currently aimed at getting the countries to which it furnishes health assistance to undertake four policy reforms:

- *Charge users of government health facilities, especially for drugs and curative care.* "This will increase the resource available to the government health sector, allow more spending on underfunded programs, encourage better quality and more efficiency, and increase access for the poor" (who will be protected by reduced fees and will be "the principal beneficiaries of expanding resources for and improved efficiency in the government sector)." (cf. [1] p. 3).
- *Provide insurance or other risk coverage,* "in order to help mobilize resources for the health sector while simultaneously protecting households from large financial losses. A modest level of cost recovery is possible without insurance. But in the long run, insurance is necessary to relieve the government budget of the high costs of expensive curative care; governments cannot raise government hospital charges close to costs until insurance is widely available." (cf. [1] p. 4).
- *Use nongovernment resources effectively.* "Encourage the nongovernment sector (including nonprofit groups, private physicians, pharmacists, and other health practitioners) to provide health services for which consumers are willing to pay. This will allow the government to focus its resources on programs that benefit whole communities rather than particular individuals...Any prohibitions or restrictions on nongovernment providers should be reviewed. Unnecessary paper work and the regulations relating to nonprofit providers should be reduced." (cf. [1] p. 5).
- *Decentralize government health services.* Decentralize planning, budgeting and purchasing for government health services, particularly the services offering private benefits for which users are charged. When setting national policies and programs, use market incentives where possible to better motivate staff and allocate resources. Allow revenues to be collected and retained as close as possible to the point of service delivery. This will improve both the collection of fees and the efficiency of the service." (cf. [1] p. 6).

These reforms are expected to have a favorable impact on the solution of three essential problems, all of which are said to be due to the efforts of governments to cover the full costs of health care for everyone from general public revenues:

- insufficient spending on cost-effective health activities;
- inefficient use of resources in public programs;
- inequity in health-care distribution.

The World Bank is not, however, the only organization to preach cost recovery. Since 1984 the World Health Organization has concerned itself with disseminating these ideas (cf. [2]). The technical discussions that took place during the Fortieth World Health Assembly (Geneva, May 1987) concerned "economic support for national health-for-all strategies," and the ways of increasing health services financing were on that occasion were grouped into four categories: public revenues, insurance schemes, community financing schemes, and user charging (cf. [3] pp. 62-79). The schemes and mechanisms put forward under the heading of "community financing", while highly diverse, have one feature in common: the effort is borne by the people, most often the sick. In other words, the term "community financing," which no doubt pleases certain experts and certain audiences, accords perfectly with cost recovery systems (and even sometimes the special case of user charging).

Similarly, the activity announced by UNICEF in September 1987 under the title "Bamako Initiative" is based on recovering a multiple of the cost of essential drugs and thereby generating a margin sufficient to finance certain primary health-care activities (cf. [4], [5], [6]). The fact that this proposal is based mainly on the use of essential drugs is not without significance: this explicitly introduces the prospect both of rationalizing prescribing to some degree, very necessary in all countries and especially the poorest, and of a perhaps decisive reduction in average prescription cost.

On reflection it is clear that solution of the problem posed by the inability of governments to finance health services can be sought in two directions: the view can be taken either that the costs are a given and new financing sources must be found to cover them (direct: cost recovery, or indirect: insurance), or that costs can be reduced and the solution lies at least in part in eliminating waste that has been tolerated up to now. Should efforts therefore be directed to recovering costs as they are or else to first lowering them before trying to recover them?

In the following pages we shall examine this question on the basis of a detailed analysis of a particular case, that of Mali, organized as follows. In section 1 we present the general situation in Mali; in section 2 examine the actions to help resolve the problem already taken or discussed with the object of mobilizing new resources, and evaluate their practical impact; in section 3 assess the benefits to be expected from eliminating certain sources of waste, and in section 4 set forth the broad lines of a recommendable solution.

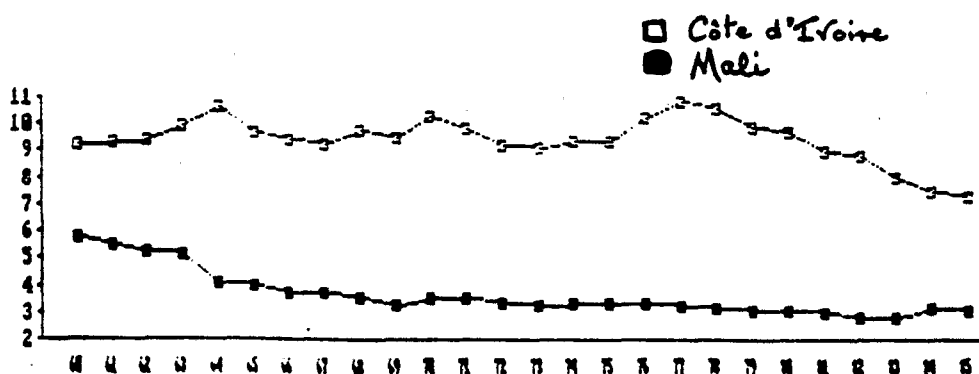
1. The Setting

Before examining the problem of financing recurrent health costs in Mali we need to recall certain features of Mali's development and economic situation and of its health system.

1.1 General economic situation

Mali is one of the world's poorest countries. According to the national accounts kept by the international organizations, Mali's GNP per capita, estimated at \$180 in 1986, is one-hundredth that of Switzerland or the United States and one-tenth that of Brazil or Mexico ([7] p. 256-257). According to studies based on the concept of purchasing power parity--which, by correcting the error due to the use of exchange rates, are known to reduce the level of living differences between countries in relation to the current measurements ([8]--in 1985 GDP per capita in Mali was 3% of that of the United States ([9], table 23).

Mali is also a country that is growing poorer as the years go by: the assessments of purchasing power parity indicate that Mali's GDP per capita has fallen continuously since 1964 from what its 1960-1963 level, and its ratio to per capita GDP in the United States has fallen by half (from 5.77% in 1960 to only 2.81% in 1983; as we shall see later, the 3.21% attained in 1984 was due to external aid (cf. [9], table 23). The following graph depicts this trend and compares it with that experienced in Côte d'Ivoire.



Real GDP Per Capita
as Percentage of That of the United States

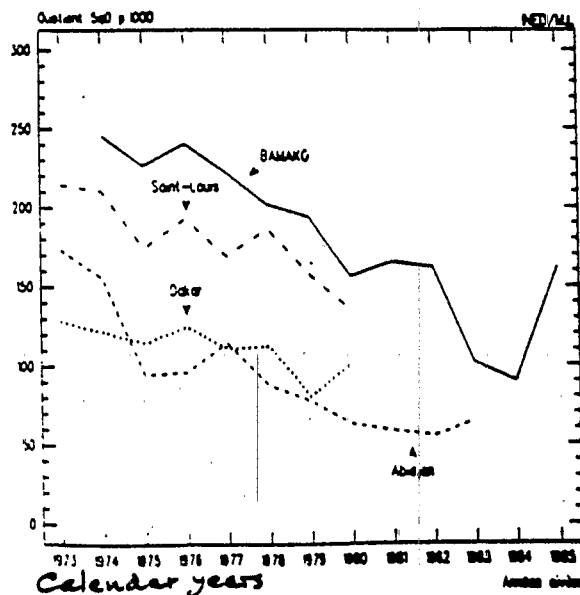
Source: Based on [9], tables 17 and 23.

Mali is also a country that has for a long time received substantial aid: its current public resource management problems are of long standing and were known to every Malian official and international expert; however, as is recognized today in the documents drawn up in preparation for the inevitable structural adjustment, they have been masked, since the 1972-73 drought, by the rapid growth in external aid flows. Even though this inflow apparently leveled off at the beginning of the 1980s, official development aid alone accounted for 32% of Mali's GNP in 1984 ([10] p. 238), 34.9% in 1985 ([11] p. 274)--the absolute world record for each of those two years--and 22.7% in 1986 ([7] p. 298).

The large volume of this aid has prevented neither poor management nor inexcusable decisions. Poor management is a scourge of a swollen public sector, plundered by its staff, which has piled up increasing deficits and payment arrears. The inexcusable decisions are those concerning development expenditure allocation. The generous donors clearly share responsibility here with the Mali authorities: thanks to the good understanding between them, the share of development expenditures allocated to the directly productive sectors fell from 46% in 1981 to 29% in 1985 (for agriculture by itself, from 33% to 23%). During this period three fourths of the growth in foreign-financed development expenditure was accounted for by three large infrastructure projects (the Sélingué dam, Sévaré-Gao highway and Manantali dam), all three of which it was known in advance would have very low rates of return (cf. [12] p. 39, para. 32).

1.2 Health situation, and status of the health system

The health sector is unable to post exceptional results in these circumstances. Infant-child mortality in Bamako continues to be much higher than in a number of other African capital cities (cf. the graph below, reproduced from [13], p. 39), even though it has declined. On the latter point, it is obviously not enough to point to the "expansion and improvement of public health plant, particularly that devoted to maternal and child care" ([13] p. 91); it would be necessary to document the expansion and improvement not of the plant but of the activities for which it was designed, which could be difficult to do. It would then be necessary to demonstrate the relationship between these activities and their supposed results; it is clearly impossible to do that the data available at this time.



Infant/Child Mortality Rates in Certain Western African Cities, 1973-75

No one knows the exact infant mortality rate for Mali as a whole. The following table reproduces the figures found in recent World Bank publications:

Mali: Infant Mortality Rate
for Certain Years Between 1960 and 1966

<u>Reference</u>	<u>1960</u>	<u>1965</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
[14] p. 17	210						
[15] p. 180	179		134				
[10] p. 250		207			176		
[16] p. 92-		184		148			
[11] p. 288		200				174	
[7] p. 320		207					144

The variations shown in this table would merely demonstrate the fragility of the data were it not that the weakest estimates are given in the publications that deal specifically with demographics and population policy. For its part, a document prepared under the aegis of WHO confines itself to citing, without the slightest comment, rates (furnished by surveys of visibly uneven quality) ranging from 118 to 255 per thousand (cf. [17 pp. 28-29]). The national documents refer to the assessments made by the international organizations or unhesitatingly use studies done by amateurs (for example [18]).

The health services are in a crisis, as every one knows. A recent survey [18], while improving on the previous Ministry of Health estimates by at least 50%, leads to extremely low utilization rates (cf. [19] pp. 26-31): for the 4.8 million residents of districts (*cercles*) that have no hospital, just over 700,000 episodes have been counted (but are these episodes in the true sense?), which gives a utilization rate of 15%. For the 2.8 million people living in *cercles* that possess a hospital, just over 1.5 million episodes were counted, giving a rate of 55%. The hospitalization rate is at most 1.4%.

It should be noted that the statistics recording staff are in practice unable to distinguish between contacts (any contact between a sick person and a health professional) and episodes (or new patients). When some written trace of the activity remains, only the former are entered in the records and totaled in the statistical statements under the heading of episodes (whereas they obviously relate to contacts); and when the number of contacts has to be supplied, the number of "episodes" is multiplied by an arbitrary figure, often close to 3. As a result, utilization rates are always greatly overestimated. It follows from the above figures that certainly less than one Malian in three today has contact with the health services during the course of a year; the rate was higher than 1 out of 2 in 1975 (cf. [20] p. 284; see also, for 1974, [21] p. 43).

The breakdown of the health services reflected in these figures has no doubt been occurring in most of the African countries over the last 30 years. In Senegal, for example, the contacts rate was over 100% in 1960 and was still running at 64% in 1979, in which year the hospitalization rate was around 3% (cf. [22] pp. 133-135).

In light of the probable mortality rate (see above) and the few systematic epidemiological surveys (cf. for example [24], [25], [26]), such utilization levels are an irrefutable sign that the health system takes care of only a low, even a very low, percentage of pathology. But the technical level of the care provided is also very low: evidence of this is the fact that paraclinical examinations, even the most elementary, are very little used (less than one examination per patient hospitalized in a secondary hospital and about four per patient in a national hospital (cf. [23] pp. 123-138) and that the diagnoses traités in the national hospitals differ very little from those soigned by the *arrondissement* and *cercle* health centers (cf. [23] pp. 79-89).

These general observations further conceal an important phenomenon, that of inequity in access to health care. The skew in favor of the cities is evident in Mali as elsewhere: for example, there is one midwife for just over 3,000 inhabitants in Bamako, against nearly 80,000 in the Mopti and Sikasso regions, which are not the most disadvantaged ones (cf. [28] p. 83); moreover, two out of three midwives in the Mopti region are located in Mopti itself (cf. [29] p. 32). Annual government health expenditure per inhabitant and per *cercle* ranges from under CFAF 70 to over CFAF 1,300 and total expenditure from under CFAF 200 to over CFAF 9,500 ([27] p. 7).

This situation is aggravated by inequality between social groups. This stems from a number of factors, including clandestine private medical practice, accessible only to those with the ability to pay for it, provision of free health care to relatives by public health service staff, and the privileges enjoyed by employees of the health services (or of the Social Security Institute (INPS) and their families. While these phenomena have not been fully described, concerning the second and third it is known that, for example, 77% of biological tests run by the Public Health Research Institute (INRSP) during the first six months of 1987 were done for patients presented as employees of the health services (the large majority of them of the INRSP itself) or members of their families ([30]). It is also known that 60-70% of INPS spending on pharmaceutical purchases is consumed by its own personnel (see 2.2 below). Finally, it is known that, despite purported strict control, 17.4% of biological tests run by the laboratory of the Point G hospital in 1988 were done on behalf of its staff (cf. [31] p. 27).

1.3 Health financing

Even today some people apparently still believe that health care is free in Mali and government pays practically the whole of its cost. That is not the case at all.

We cannot ascertain precisely what the situation was 20 or 30 years ago. What is clear is that the government effort has declined continuously, certainly since 1970: detailed analysis of the available data on the budget of the Ministry of Public Health (cf. [23] pp. 181-186) indicates that the

share of health expenditure in the government budget (which comprises both the budget of the ministries and national administrations and that of the regions) was nearly 9% at the beginning of the 1970s and has fallen by half since then. Only artful presentation can mask this situation, which is summarized in the following graph:



HEALTH SHARE OF NATIONAL BUDGET

The fact is that health expenditures are financed essentially by families. The major expenditure component by far is purchases of pharmaceutical products, which represent a much heavier drain on private budgets than is generally imagined: whereas the value of sales is officially of the order of CFAF 6 billion (in 1986 and 1987), equal to about CFAF 800 per capita, the pharmaceutical expenditure per capita indicated by the direct population surveys is much higher--more than double. The old surveys ([32], [33]) indicate drug expenditures four to eight times higher, and the more recent surveys ([34]) two to three times higher, than the official pharmaceutical sales figure.

These differences are explained by a number of well-identified phenomena. These include the sale of products of the PPM (*Pharmacie Populaire du Mali*, a public agency with a monopoly right to import, and until 1986 to market, drugs) at above their official prices, sale of products imported clandestinely from several neighboring or European countries, and sale to the public of products forming part of the supplies allocated to public health units or projects. Whatever the mechanism, the drug always ends up being paid for by the patient or the family. It has to be concluded that the direct surveys give a better picture of the situation than the incomplete statistics normally used and that families pay at least CFAF 12 billion for modern drugs, whether prescribed or self-administered.

The second major item is traditional medicine. Some figures put forward reflect more the favor it enjoys among politicians and certain experts--at least to the extent that it asks nothing more of the Government than fine words--than a concern to arrive at a realistic assessment. On the basis of the very few direct population surveys that exist (cf. [32], [33], [34], [35]), we estimate that expenditures connected with traditional medicine do not exceed CFAF 2 billion a year.

The other expenditure items are smaller: about CFAF 500 million for clandestine private medical practice (estimate based on [34], [35]), about CFAF 250 million for total fees charged by health units (estimate based on a survey of all health units, cf. [19], appended tables), and about CFAF 300 million for health-related transportation expenses.

The order of magnitude of total health-sector operating expenditures for 1986 would be as follows (cf. comparative figures in [36] to assess the magnitude of the recent revisions in relation to the first effort of this kind, and cf. [19] for supplementary information on the evaluations used by us):

	<u>CFAF millions</u>	
Public financing		
Government		
(national budget + regional budgets)	4,200	
Other public sources	90	
Development operations	8	
INPS	<u>380</u>	4,678
Family budgets		
Fees	236	
Modern drugs	12,000	
Traditional medicine	2,000	
Clandestine private fees	500	
Health-related transportation	<u>300</u>	15,036
External aid		<u>542</u>
Total		<u>20,256</u> =====

Families thus now bear three fourths of health expenditure--an expenditure that probably average CFAF 2,700 per capita per year. Free health care is nothing but a fiction.

It must also be borne in mind that current per capita health expenditure is low. The comparable amount was already CFAF 4,000 in Senegal in 1980 (according to [37] p. 162) but only CFAF 2,200 in Burkina Faso in 1981 (cf. [39] p. 17, rather than [40] p. 18, since the latter document was obviously quickly outdated, at least on this point).

It follows that the problems of health financing were clearly evident from the beginning of the 1980s. It was precisely at that time that a ten-year social and health development plan for Mali was drawn up. But while this document bluntly makes no bones about the inability of the government to assume health financing (cf. [38] p. 32), it adopts a typical attitude: first of all, it cites the possibility that wider dissemination of health care among the population would afford an opportunity to get patients to share in its financing (cf. [38] pp. 32-33); further on, however, it claims that, already, health care beneficiaries have become accustomed to and have faced up to the fact that they must to bear the bulk of personal health expenditure ([38] p. 157). Wonderful! The problem has disappeared without anybody having had to decide anything at all! And not a word, in this same ten-year plan, not even

in discussing strategies ([38] pp. 53-55), about the reasons why it was agreed, at the same time, at the highest levels of the party, to examine the "problems of the practice of private medicine" ([41] p. 18). It is true that at the same time the international organizations fully shared the national illusions concerning the feasibility of carrying out simultaneously the ambitious classical program defined in the 1960s and a no less enormous primary health care program (cf. [42]).

2. New Financing Sources?

It will have taken several years, during which the health services have continued to deteriorate, for effective account to be taken of the difficulties perceived from the beginning of the decade. Concerning financing in the true sense, it is only during the last few months that a number of alternatives have been put forward and discussed, either within the Mali administration (cf. in particular [43] and [44]) or in the international agencies. They concern in particular what is designated cost recovery (or for the national hospitals, an obvious abuse of language, management autonomy), sickness insurance and mutual schemes, and privatization of exercise of the health professions. It is appropriate to consider the practical value of each of these suggestions.

2.1 Cost recovery

Decree No. 243/PG.RM of September 19, 1983 laid down "the system of remuneration for medical care, hospitalization and other services of health units," accompanied however by very extensive provisions concerning free health care (for certain health conditions, students and pupils, health personnel, the very poor, etc.). The enabling regulations, which were issued a few months later (Interministerial Order No. 1943/MF.MSPAS of April 16, 1984) are a masterpiece of ambiguity: in Article 2 it excludes all health centers from the field of application of the decree while providing that the health center management boards can implement "various forms of community participation," i.e. "fees that may in no case exceed those prescribed in the decree" mentioned above, with the further understanding (article 22) that "free care is retained in the clinics in the context of primary health care."

The conditions were thus laid down for total anarchy, and in fact at the beginning of 1988 the Ministry of Health absolutely did not know which health centers charged for their services, which services had to be paid for and at what price, what was the amount of revenue and how it was used. In this situation it obviously impossible for the health policy authorities to engage in any enlightened thinking on the problem of cost recovery. The surveys we organized enabled us to show that:

- More than half the *cercle* health centers charge for at least some of their services; the charges vary widely but are always much higher than could have been expected, particularly for surgical interventions (see the appended table). The receipts so collected are managed in such a way that only one chief physician out of two among those that apply cost-recovery has been able to recoup the annual amount for the last three years; and no *cercle* chief physician can state with assurance what the situation is in the *arrondissement* health centers of his district (for which he is responsible!).

- In the *arrondissement* health centers that levy charges (contacts and confinements), the few cases that could be studied show that receipts just barely cover the most basic operating expenditures (firewood or oil, surgical spirits, cotton wool, ballpoint pens, etc.). In the health centers that do surgery, the charges for surgical interventions are usually the preferred method of meeting the operating expenditures of the entire health unit; in a secondary hospital, in contrast, strict application of the scale of fees laid down by Decree No. 243 can by itself generate sufficient receipts to finance its entire its operating expenditures plus the cost of laboratory supplies (cf. [23] pp. 149-153).
- The amounts recouped by the national hospitals account for by far the greater part of the official contribution by patients but only a small fraction of the hospitals' operating expenditures, excluding wages. Thus, cost recovery alters the situation created by the public budget allocations (cf. [23] p. 148) only very slightly; total cost recovery receipts for the entire country do not exceed CFAF 250 million.

Since this amount is, properly speaking, negligible in relation to the health sector's financing needs, cost recovery does not offer a solution to the problem under current conditions. Moreover, it appears to be extremely difficult to change these conditions in such a way that cost recovery receipts represent a significant proportion of actual expenditure. That would in fact call for complete overhaul of each of the following areas:

- Fees: No one is in a position to say what is today the level of fees which, given a clear improvement in service quality, the population would be objectively able to bear. It is however known that the fees charged outside Bamako are in fact borne very well while at the same time some people, without saying exactly why, assert that these fees could not be applied in Bamako itself.
- Definition of free services: The advantages granted to pupils and students, social and health personnel and their families, civil servants, government- or private-sector employees and their families are in practice supplemental benefits enjoyed by socio-occupational groups that are already privileged, particularly as regards access to health care. The same is true of free care for certain health conditions since only those with effective access to health care can benefit from it.
- Application of the regulations: It is surprising to note that the same rules lead to charge-free proportions that vary widely from one establishment to another (at Point G, 50% of hospitalization days, after deducting all psychiatry and phtysiology days, are free of cost, compared with only 32% at the San hospital (cf. [23] pp. 138-153). It should be noted, however, that the granting of free care gives rise to payment by the patients of private compensation to the health service staff (patients cared for by the hospital services but unknown to the admissions office, a system known at INRSP as "intervention" or "third-party payment").

- Management of the sums collected: Until January 1989 only the three national hospitals and the Ségou regional hospital were authorized, experimentally, to deposit their receipts into a bank account and use them in accordance with a quarterly program approved by the Ministry of Health. It is this that is called "management autonomy." However, the public finances crisis is so serious that this solution is likely to be rescinded at any time, so great is the temptation to mop up immediately any fund that is not empty. In the longer term, however, consideration needs to be given to reform on a completely different scale, since the present system of administrative management, which deprives the director of the establishment and his board of all power, has long ago demonstrated its inefficiency.

2.2 Sickness insurance and mutual schemes

A number of recent documents appear to place great hope in relieving the public finances by developing sickness insurance and mutual schemes (cf. in particular [43] and [44]).

The present system of social protection was legally organized by Law No. 62-68 AN/RM of August 9, 1962. To use the specialized vocabulary, it presents some aspects of labor medicine, some of work accident insurance and some of cash medicine. Thus, the services offered by the INPS are:

- recruitment, periodic and work-resumption examinations, which form part of the normal framework of labor medicine;
- compensation for work accidents and occupational diseases;
- certain forms of preventive care (prenatal supervision) and curative care, for employees and members of their families, provided in three protection centers and 15 inter-enterprise medical centers (CMIE), where a few drugs should also be available.

The employees affiliated to the INPS belong either to the public sector (without being government employees--civil service, army) or the private sector. The number of card-holding members is said to be about 60,000, and the INPS claims that the number of beneficiaries is about 250,000. In judging the reliability of these figures it has to be borne in mind that the contributions are paid by the employers on the basis of total wage bill, without the employees being listed by name; it is then up to the employees to comply with the necessary formalities to obtain a card entitling them to receive the services.

However, the number of wage earning jobs is still very low in Mali: it appears to be about 150,000 at this time ([45] p. 13), including 48,000 in the public sector (34,000 civil servants and 14,000 other public-sector wage earners, following a 25% reduction, between 1979 and 1985, in the staff of the public companies and enterprises). It is immediately apparent that sickness insurance could affect a maximum of 100,000 wage earners, giving a total of 500,000 beneficiaries and eligible persons. This suggests that the current number of insured employees and beneficiaries could be doubled by simply

applying the current regulations. But even if that happened over the next few years, sickness insurance would still cover barely more than 6% of Mali's population.

Moreover, it need hardly be said, no one can recommend the establishment of a system for farmers without this suggesting some ulterior motive: the difficulties encountered in managing such schemes in all the countries that have tried the experiment must condemn this idea out of hand unless it is intended, under this title, to create a new tax on the farmers.

The question also arises of whether the INPS is in fact capable of assuming part of health expenditures, that of wage-earners. It is known that in the current situation the INPS's administrative costs absorb nearly half of its receipts ([46]). The situation is probably even worse under the sickness insurance scheme: for each franc of health expenditure we would have to reckon on more than 3 francs for fixed assets, administrative charges, depreciation and miscellaneous expenses ([47]). It would be necessary also to ascertain what part of the last fourth is absorbed not by the insurees but by INPS personnel. The management of the institution is such that it is impossible to determine this with any certainty. However, as regards pharmaceutical products, which represent annual expenditure of the order of CFAF 100 million in recent years (down substantially from previous years), purchases from the Bamako PPM against prescriptions issued to INPS personnel total somewhere between CFAF 60 and 75 million. The main activity on behalf of insurees is thus limited to consultations: during recent years the INPS claims to have recorded, for the whole of the CMIEs and enterprise clinics, about 200,000 episodes and 4-500,000 contacts a year. But since the quality of these statistics is just as poor at the INPS as in the public health units, only the first figure may have any significance. Moreover, the practical conditions under which the activities of the centers are conducted, particularly at Bamako, are such that episodes may not relate to wage-earners duly registered with the INPS or their eligible beneficiaries but simply to residents of the neighborhood where the medical center is located or acquaintances of INPS staff.

Concerning mutual insurance schemes, an Order of October 19, 1945, as amended by laws of April 27 and August 23, 1947, is still in force, but has fallen into disuse. For example, when the National Education and Culture Union (*SNEC--Syndicat National de l'Education et de la Culture*) decided in 1986 to establish a mutual or friendly society with the object of setting up a supplementary system covering retirement and all solidarity and mutual assistance activities, the acknowledgment of its official declaration to the administration referred to Order No. 41/PGG of March 28, 1959 "relating to associations (other than commercial companies, mutual assistance companies, cultural associations and congregations)."

One can imagine the mutuals system developing, as it has in the western countries, first of all in certain relatively qualified occupational groups that exhibit a certain social solidarity. These would probably not consist of skilled workers, who are still much too few, but perhaps of civil servants or employees of the large public-sector enterprises. As we saw earlier, the number of people in these categories does not exceed 50,000;

thus, even if important initiatives were taken to promote mutual insurance, its coverage would not exceed 250,000 beneficiaries in the next few years.

All this shows clearly that the problem of financing the health services will not be resolved through sickness insurance or mutual schemes, as some people--particularly the representatives of the medical orders [48]--appear to believe. While the development of institutions of this kind is entirely desirable, they affect access to health care for only a small number of people and then only in the capital city. In these circumstances neither sickness insurance nor mutual schemes offer possible solutions commensurate with the problem to be resolved, a problem that concerns first of all the rural population.

2.3 Private exercise of the health professions

The regulations authorizing private exercise of the health professions were published in 1985 (Law No. 85-41/AN.RM and its enabling regulations). These legislative instruments concern doctors, dental surgeons and midwives, who may henceforth open professional offices or clinics, and also dispensary pharmacists. What is the relevance of these documents to the creation of new sources of financing of health expenditures?

As regards the distribution of pharmaceutical products, no one claims that investment is the main problem. The Mali People's Pharmacy (PPM) possesses an adequate number (about 100) of dispensaries and depots (cf. [49] pp. 2-3). It is of course conceivable that it could sell them to raise resources or meet the wishes of the pharmacists (cf. [50] p. 3), but an adequate network exists and the PPM has never lacked external aid to replenish its internal funds.

Thus, for privatization of drug distribution to be effective in relieving the public finances, the cost of drugs to the users (not least among which, however, is the government, as we saw earlier) would need to be reduced below the present levels. For that to be possible, either margins would have to be lower in the private enterprises than in the public company or procurement prices would have to be lower.

Regarding purchase prices, it is not clear what the advocates of privatization hope for: if the import monopoly continues, the PPM is already in the best situation to purchase through calls for bids on the world market because it has the largest order volume; and if it does not do so because its own funds are inadequate, the amounts involved are clearly out of proportion with what it could raise through private participation in its capital. If the import monopoly is abolished, the importers, by dividing their order volume, will obviously only obtain higher prices.

Turning to margins, those of the PPM are known. The gross margin (difference between turnover and cost price of sales, as a percentage of turnover) was 22% in 1980 (according to [51] p. 15), 26% in 1986 and 25% in 1987 ([52] p. 3), and since 1982 has not fallen appreciably below that level except in 1984 and 1985 ([52] p. 46). The margin was to be raised to 32% under a new price scale to be adopted in 1988, and a new scale was in fact published in August of that year. However, on December 13, 1988 a new Interministerial Order, No. 5024, provided that all drugs would henceforth be

sold in Mali at a price obtained by applying a multiplier of 1.95 to their price c.i.f/Bamako (compared with previous factors of 1.4 for essential drugs and 2.06 for other drugs) and that the margin of private dispensaries would be 25.52% of the public sale price. It is thus clear that, for the conditions under which it is organized in Mali, privatization is just as expensive as a particularly badly managed public company was.

Concerning exercise of the health professions proper, the Mali regulations simply transpose the situation in France, whereas a number of adaptations might have been wise. For example, one cannot help wondering what the purpose is of setting charges for medical services by interministerial order. It is explained neither by the existence of a general sickness insurance scheme whose financial equilibrium needs to be protected nor, having regard to Mali's current economic policies, by a general context of price control.

From the standpoint of our concerns in the present document, the only question is whether these regulations can henceforth cause a significant portion of the health care demand currently met by the public sector to be attracted away by the private sector. The level at which it has been decided to set these charges (for example, CFAF 4,185 for consultation of a general practitioner and CFAF 18,600 per day of first-grade hospitalization in a private clinic) shows clearly that the purpose of intervention by the administration has not been to guarantee access to care by private practitioners by the ordinary run of the people. To illustrate this point we may add that in Mali the fee for consulting a general practitioner represents about 8% of GNP per capita (which is about CFAF 54,000) whereas the charge applied in France, where more than 90% of the population is covered by a sickness insurance scheme, represents only about 2 per mill of GNP (about FF 120 out of FF 65,000). The question therefore becomes the following: what proportion of Mali's population will agree to receive care at this price in Mali? It will certainly not include civil servants, having regard to their average income level and the fall in their purchasing power (25% between 1980 and 1986, according to [53] pp. 10 and 28). It can only concern the "well-off segments of the population (...), businessmen, industrialists, members of the liberal professions" ([43] pp. 20-21), and then provided that they neither have relatives in the public sector nor are able to obtain care abroad.

More generally, detailed and unrealistic regulation of private practice by health professionals and of the scales of fees for their services strengthens private practice for those who already have a clientele and compromises experimentation by other with (and possibly the dissemination of) formulas tailored to varying local or socio-occupational contexts. However, particular reference is made in some circles to such forms of medical practice as rural doctor ([54]) and salaried doctor practising in a health unit managed by a local community, a mutual society or a neighborhood association ([55]). One can easily imagine such forms of medical practice being suited to unemployed young Medical School graduates and at the same time to fairly large population groups, but no provision is made for them in the ingenuously Malthusian legislation introduced since 1985.

2.4 Limitations of these proposals

The foregoing demonstrates clearly that the new sources of financing to which reference has recently begun to be made are not, at least in the case of Mali, commensurate with the problem to be resolved. The same applies to external aid.

The important place of aid in some estimates of financial flows allocated to health (for example [36]) is due in part to accounting conventions: while it is clearly perfectly legitimate to value technical assistance on the basis of its actual cost to the country or the organization paying for it, it does not make a lot of sense to augment the amounts so obtained, particularly those for operating expenditures, by the costs borne by the administration of the country assisted or by its population. The estimates are then artificially swollen by substantial expenditures--having regard particularly to the discrepancy between national and expatriates salaries--effected outside the country assisted, over which the latter has no control and the real counterpart to which (in the form of health services to the population) may be extremely low.

If we stick with a more prudent estimate, we find that aid is decisive in the case of investment but makes only a small contribution to operational financing (cf. [19]). It goes without saying, and every one is no doubt aware of this, that there is a political limit on the share that external aid can represent in the financing of recurrent costs: independence becomes a fiction that is increasingly difficult to sustain. But intolerable recurrent charges can be created by poorly thought-out investment decisions: the very recent example of the construction of a seriously over-dimensioned hospital at Timbuktu (CFAF 3 billion for 84 beds, apparently, cf. [57]) clearly illustrates this danger; yet the possibility is under consideration, at the pressing initiative of the African Development Bank, of repeating the exercise at Niafunké, Diré and perhaps even elsewhere!

All this serves to demonstrate the limits, even the dangers, of solutions based only on the use of new resources. Yet it is also quite clear that, under the influence of the international organizations, which are unanimous on this point, a blinkered view of the problem has been taken so far: efforts are focused on finding new resources without consideration of whether, by any chance, costs could not--ought not?--to be appreciably reduced.

3. Trimming monumental waste?

The estimate of annual volume of operating expenditures proposed above shows that two items are of prime importance: purchases of pharmaceuticals (order of magnitude: CFAF 6 billion according to PPM turnover alone and at least double that for aggregate pharmaceuticals consumption), and personnel expenditures (order of magnitude: CFAF 3 billion, cf. [19], appended tables). As all observers are aware, the possibility of reducing these costs is plain to see; the main questions that arise are the size of the expected benefit and how long it would take to implement the desired changes.

3.1 Staff

Personnel costs are obtained by multiplying swollen and poorly distributed staffs by miserable salaries. Although few studies have been done on this sensitive point, the low productivity of health service personnel can be illustrated by many examples. Thus, in regions 6 and 7, a nursing person is consulted by an average of 7-8 patients per contacts day (nearly 10 if the nurse works in a *cercle* health center, only 6 in an *arrondissement* clinic) and a doctor 10-11 patients; this never represents more than 2 hours of actual work a day (cf. [56] pp. 46-47). Similar observations have been made in region 5 (Dr. Brugière, personal communication) and in a laboratory in region 1 (less than 1 hour of actual work per staff member per day, cf. [58] p. 23). This situation is due to many factors, which can be grouped into two categories:

- First, the spatial assignment of staff is based on personal convenience and not on the needs of the service (staff members refuse assignments that do not suit them and have positions created in the localities where they wish to live). As a result, the staff are not in place where the demand for services exists. For example, midwives are superabundant in the Bamako community maternity clinic and health center but in short supply in the *cercle* health centers. The control over the territorial distribution of medical staff and services exercised by the Ministry of Health at the beginning of the 1970s had disappeared by 1975 (cf. [20] pp. 89-94).
- Second, the poor functioning of the health units depresses demand: the objective lack of resources is aggravated by indifference and unconcern (hierarchical control is no longer exercised and, for example, staff make patients reward them in money or in kind, cf. [34] pp. 52-54) to bring it home to patients that they are only a nuisance and any one wanting care had better have money.

With its present staffing, therefore, the health system possesses substantial productivity reserves which could be mobilized either to reduce the wage bill or to expand activities. But it is not clear how these reserves could be put to work: cutting staff beyond freezing recruitment and the rehiring of people who leave the public service is politically unthinkable; and expanding activity almost certainly implies significantly improving the quality of the services, which in turn probably necessitates raising average salary levels (though it is alas to be feared that that would not suffice).

For these reasons it is unrealistic to assume that the waste that currently characterizes personnel management can be rapidly reduced. In the following pages, therefore, we shall confine our examination to drug procurement.

3.2 Drugs

The diagnosis of colossal waste in the area of drugs dates back to the beginning of the 1980s (cf. [59] pp. 2-4). It has been known at least since then that:

- Prescribing is of poor quality: practitioners have acquired shoddy prescribing habits stemming from their poor diagnostic ability, the practice of symptom treatment, lack of control of prescriber quality, and inadequate training and information ([59] p. 2).
- Drugs management is deplorable. In particular, the coexistence of free drugs (in the public health units, to the extent that they are available) and pay drugs (the balance of consumption) is a "source of trafficking" ([59] p. 4); the range of products marketed is far too wide (more than 2,000 specialized products, cf. [49] p. 1), which encourages losses, theft and spoilage (up to 20% of cost price, [59] p. 4); there is absolutely no control of selling prices ([59] p. 2), and finally, the PPM, which has an import monopoly "makes 86% of its purchases from foreign suppliers under the private contract system" (cf. [49] p. 1).

The scale of waste has never been estimated because such an assessment would present insurmountable difficulties. However, fairly plentiful data are available for such a purpose. They fall readily into two categories:

- We know the average cost of a drug prescription given to an out-patient in a number of health units: a minimum of CFAF 1,500 (and a maximum of CFAF 2,600) in the *cercle* health centers of region 1 (cf. [60], [61], [62]), where drugs are prescribed on the basis of the PPM's available supplies and at PPM prices; at least CFAF 200 (and at most CFAF 450) in health centers that possess a health shop in regions 5, 6 and 7 (cf. [23] pp. 55-58 for regions 6 and 7, [63] for region 5).
- We know the quantities prescribed of each product used, and the corresponding costs, in three *cercles* of region 5 (health shops project carried out with the technical assistance of *Médecins du Monde*). We can revalue these quantities at PPM prices. We also know the quantities used for in-hospital patients and their cost, for the health development project financed by the World Bank in region 1, this project is operating without any change whatever in the conditions of drug procurement (cf. [23] pp. 33-40). We know, at least for one year, the quantities consumed of the 30 drugs most used in the Point G hospital and their cost at PPM prices; we can revalue these quantities at health shop prices after replacing each specialized product prescribed by the closest essential drug that would have been available in a health shop but without otherwise changing the prescription (in particular the forms prescribed are respected, cf. [23] pp. 96-100).

The data in the first category give the combined effect of selecting drugs and purchasing at best price; the prescriptions written in the ordinary health units ignore both of these means of rationalizing drug expenditure, whereas those written in the units in regions 5, 6 and 7 use both of them: prescription from a list of essential drugs with common international denomination (and an effort to use injectable drugs only when they are clearly preferable to oral administration), and procurement by competitive bidding on

the international market (or at least by restricted invitation to tender). According to the figures quoted above it can be stated without exaggeration that prescribing is four times less expensive under these conditions than it is based on PPM availability and prices.

The data in the second category give only the effect of price differences: they show that, for the products considered, procurement at PPM prices is at least twice as expensive as procurement at world market prices. Thus, the value of the 30 products most heavily consumed at Point G at health shop prices is half that at PPM prices; the value of products consumed in one of the cercles of the health development project at health shop prices does not exceed 42% of their value at the prices that have been paid; and the value of the quantities consumed in the health shops of region 5 at PPM prices is double their value at the cost price to the shops.

It follows that under PPM conditions (preference for specialized products and for purchases under private contracts) drug procurement costs Mali about 4 times what it would have to pay if it effectively applied its essential drugs strategy and used the familiar procedure of international calls for bids. Product choice accounts for about half the difference and price differentials for the other half.

4. A Realistic Solution

In the following pages we shall use a simplified representation of the health system, both as it now stands and how it could be if certain decisions were taken concerning its financing. To be able to construct such a model we need to define the conditions under which the health system operates (or could operate), such as for example:

- what are (or could be) the main activities of the system, at the various levels of its organizational pyramid?
- what is (or could be) the rate of utilization of these various activities?
- what is (or could be) the unit cost of each of the major services within each activity?
- what is (or could be) the fee charged for each of these services and therefore the expected volume of receipts generated by charging?

An extremely simple model constructed in this way, on explicit bases, which can be submitted to discussion and if necessary modified, gives a picture of the variation both in the aggregate amount of financing required when or the other condition of operation is modified and the aggregate amount of the resources that can actually be raised. The value of such a table is that it allows immediate calculation of the consequences of any modification of the hypotheses it contains.

4.1 Characteristics of the simulation model

The first stage consists in defining the activities to be financed and the costs of each activity. We shall confine ourselves to modern

medicine: it is there that a financing problem arises, since the public authorities have not pursued an active policy of support--which would involve for example financial assistance--for traditional medicine.

The figures used for the essential variables of the model are not taken from the Health Ministry's statistical data system:

- first, the quality of the data collected is very mediocre; this is particularly true of the statistics on activities and therefore of average cost per activity unit;
- second, the observed values for the activity and cost variables would reflect the conditions of management of the health system during recent years and these conditions cannot serve as an acceptable reference basis for projection: the budget resource and personnel allocations are based on neither the quantitative nor the qualitative level of the services, and the practical conditions of supervision are such that service quality control is totally lacking; there is no purpose in working with the costs of services whose quality is neither acceptable nor at least approximately uniform.

In these circumstances, instead of the observed values for the entire health system over recent years, we have used as our basis a number of particular cases, those for which reliable data are available on activities whose quality can be regarded as acceptable. This does not make the hypotheses used for the simulation unrealistic. Concerning service utilization rates, service technical levels and procurement costs, we shall use simulation bases very close to the practical conditions observed in Mali during recent years. However, the examples used to fix the orders of magnitude of the simulation parameters are often, for a very simple reason--the existence of a minimum of data here and not elsewhere--those of health units that have in one way or another received project aid. For the same reasons we have also decided to describe those activities and costs for which valid data are available rather than activities that appear in job and post descriptions but that nobody is able to carry out. The fact that the technical level of the activities no doubt hardly varies at all when we pass from one level of the pyramid to another diminishes the drawbacks stemming from this constraint.

In practice, we disregard activities associated with confinements that take place in rural maternity hospitals and *arrondissement* clinics. The hospitalization activities of the *cercle* health centers and those of the hospitals (including the national hospitals) are grouped together; while this procedure may be surprising, it is justified by the information available on the nature of the activities of these types of establishments (cf. [23] pp. 77-94). Similarly, we shall disregard education and basic and refresher training activities for health staff to be assigned to villages or groups of villages, activities which, despite their important place in certain health projects, have never been shown to have an impact--beyond their start-up phase--on either the level or the quality of the services (cf. [23] pp. 1-18). We shall also disregard nutritional and social activities: the former

relate essentially to emergency programs supported by special financing; and the latter can be regarded, considering the present health situation of the country as a whole and their geographical location, as luxury or at the very least premature programs. Finally, account is not taken of vertical programs because, since they are in fact favored by certain donors and certain public health administrators, financing for them is always assured, when the political authorities so desire, by external aid, without regard either to their efficacy or to the impact they can have on the organization and operation of the horizontal services.

The following table shows the orders of magnitude of the parameters than can be used, at the various levels of the health pyramid; it also specifies the origin of the information used.

This table prompts the following comments.

Regarding service utilization rates, those given for the *cercle* towns do indeed relate to the latter (and not to the entire *cercle*), whereas those given for the *arrondissements* relate only to the peripheral *arrondissement* (the central *arrondissements* being by definition those of the *cercle* capital); the Bamako district is treated separately. It was necessary to use these definitions because of the low attraction radius of the health units: it has been shown that the service utilization rate falls to a negligible value (less than one contact per 100 inhabitants in a year) when the distance to the *cercle* health center exceeds 15 km (cf. [58]). While the choice of these definitions can hamper comparison between the figures used by us and those published in other studies, we felt it to be clearly preferable. Moreover, the extreme diversity in service utilization rates noted at all levels of the health system is due to many factors. These range from interregional differences in access to care and in the attitudes of the population to it to no less important differences between health units in the reputation, skills and attitude of the health personnel. This dispersion is obviously a source of extreme difficulty when it comes to introducing a particular value for this parameter into the model.

Self-medication and private prescribing are of considerable importance which must be reflected as well as possible in our estimates. Unfortunately, this phenomenon, which many people prefer to ignore about, can be measured only indirectly. It is certainly known that, at Niono, 20% of dispensary customers present prescriptions that have not been issued in a health unit and 65% of customers purchase without prescription ([65] p. 77). Similarly, at Bamako, self-medication represents 48% of purchases, and prescriptions written by "anonymous" prescribers (people probably incapable of obtaining a qualification to prescribe) 13% ([67] p. 22). But to be able to estimate the value of drugs supplied in this way at each of the health-pyramid levels defined by us, we had to combine data on PPM turnover and data from the survey of total private consumption.

Thus, we had to obtain from the PPM an estimate of the turnover of the pharmaceutical depots for the first half of 1986. This estimate uses the amount of the discounts granted by the dispensaries to the depot managers and the rate of these discounts (in principle, 15% or 10%, depending on the seniority of the depots) to calculate the value of the sales effected in this way. Although approximate, this estimate shows that sales by the depots are

of the order of CFAF 2 billion a year in the peripheral *arrondissements*. We estimate the amount of the sales corresponding to private practice and self-medication as the difference between this figure and our estimate of consumption of drugs prescribed by the health service staff in the *arrondissements* and villages.

Moreover, what we know about official turnover and actual consumption (cf. above, para. 1.3) prompts us to double the turnover figure. But this means that we are estimating globally, without being able to distinguish between them, the consumption pertaining to private prescription and self-medication and the price supplements charged by PPM dispensary managers.

When we turn to the *cercle* capital towns and the district of Bamako the question is more difficult. We know the turnover of the Bamako PPM but there are several reasons to believe that a percentage of the products purchased there is intended for sale in the regional and *cercle* capitals. Moreover, the available data on prescription and self-medication are appreciably less fruitful for the district than for the rest of the country. In practice, the figure assigned to drug consumption corresponding to self-medication and private prescription for the *cercle* capitals relates to all of the latter plus Bamako.

Regarding unit costs, the table shows all the available data according to the case studies but does not bring out a point which will be of prime importance when it comes to selecting the level of unit costs to be used in the simulation.

The unit costs attained by the health shops in regions 6 and 7, designated in table 1 by (MSF), derive both from purchases at particularly low prices and low charges. The latter are limited to transportation and insurance costs from Europe and within Mali and certain storage expenses. In total, the estimated amount of supplies delivered to destination (in the *cercles* and *arrondissements*) is about 1.7 times the f.o.b. value of purchases from suppliers; the value c.i.f./Bamako is about 1.3 times the f.o.b. value, and the value at destination 1.288 times the value c.i.f./Bamako (cf. [56], Annex A). The charges incorporated in the value at destination are the expenses of bid calls, storage and administrative supplies and transportation between Bamako and the destination localities.

Rather than going into the details of the calculations--though this could be useful for the purposes of more thorough study--we point out only that they do not take account of distribution expenses proper. The reason is that the system is managed essentially by the public health personnel. Experience shows that these operating conditions cannot be generalized, for two basic reasons:

- they do not allow an acceptable rate of drug cost recovery: the rate does not exceed 22% (cf. [56] p. 31) and this poor result is attributable to the behavior of the public health personnel (cf. [56] pp. 27, 30, 37);
- consequently, they are too heavily geared to external aid.

The unit costs attained by the health shops set up by *Médecins du Monde*, designated in table 1 by (MDM) derive from purchases at prices fairly comparable to those obtained by MSF plus fuller incorporation of distribution costs. In total, the selling price of drugs is obtained by multiplying the price paid to the supplier by 2.5. This allows financing from drug sales not only of consumables and small equipment required to administer treatments but not sold but also of distribution expenses (salaries and travel expenses for one manager per *arrondissement*) and part of the supervision expenses and operating costs of the health units. The modalities chosen permitted a recovery rate close to 100% in the two *cercles* of Bankass and Koro, where however the activity of the health services is not exceptionally great.

For these reasons the unit costs of the *Médecins du Monde* health shops will provide the basis for our simulations.

Table 1

ORDER OF MAGNITUDE OF MODEL PARAMETERS

Activity parameter	Order of magnitude	Notes	Reference
Total population	7,600,000	1987 General Census	[66]
Rural population (RP)	5,300,000	1987 General Census	[66]
Urban population outside BKO (UP)	1,600,000	1987 General Census	[66]
District population (PB)	700,000	1987 General Census	[66]
<u>Village or section</u>			
HS and AS utilization	25% of RP	Djidian (AFVP) 1983: 6-10% Bankass and Koro (MDM): 30-40% Kolokani (1986): 24%	[23] pp. 7-11 [23] pp. 1-5 [23] pp. 11-15
Drugs/inhab.	CFAF 30-230 (PPM)	Kita, Bafoulabé, Kéniéba (PDS) 1985: CFAF 30-50 Djidian (AFVP) 1983: from CFAF 83 to 230 Kolokani (1986): from CFAF 34 to 118	[23] pp. 19 ff. [23] pp. 7-11 [23] pp. 11-15
	CFAF 15 (MS)	Bankass and Koro (MDM): 15 CFAF	[23] pp. 1-5
<u>Arrondissements</u>			
Utilization with no change	10% of RP	Djidian (AFVP) 1983-86: 9-13% Nossombougou 1985-87: 8%	[23] pp. 7-11 [23] pp. 160
existence of drugs	12-30% of RP	Bankass (MDM) 1987: 31% Koro (MDM) 1987: 12% Timbuktu Region (MSF) 1987: 13% Gao Region (MSF) 1987: 17%	[23] pp. 1-5 [23] pp. 1-5 [23] pp. 43 ff. [23] pp. 43 ff.
Prescription per episode	CFAF 1,000 (PPM)	Nossombougou 1985-87: CFAF 960 Niono 1988: CFAF 2,600 (to be checked)	[23] pp. 160 [65]
	CFAF 400 (MS)	Bankass (MDM) 1987: CFAF 364 Koro (MDM) 1987: CFAF 416 Timbuktu Region (MSF) 1987: CFAF 225 Gao Region (MSF) 1987: CFAF 282	[23] pp. 1-5 [23] pp. 1-5 [23] pp. 43 ff. [23] pp. 43 ff.
Private prescription and self-medication	CFAF 800/inhab. (PPM)	Estimation by difference (see text)	
<u>Cercle capitals</u>			
Utilization with no change	6-30% of UP	Kolokani 1985-86: 6% (under-recording) Kita attraction zone (PDS) 1987: 30% Mahina attraction zone (PDS) 1987: 40% Bafoulabé attraction zone (PDS) 1987: 30% Kéniéba attraction zone (PDS) 1987: 31%	[23] pp. 11-15 [58] [58] [58] [58]

Existence of drugs	20-100% of UP	Bankass (MDM) 1987: 52% Koro (MDM) 1987: 20% Timbuktu (MSF) 1987: 29% Goundam (MSF) 1987: 24% Diré (MSF) 1987: 40% Niafunké (MSF) 1987: 29% Gourma-Rharous (MSF) 1987: 48% Gao (MSF) 1987: 53% Bourem (MSF) 1987: 45% Menaka (MSF) 1987: 55% Ansongo (MSF) 1987: 26% Kidal (MSF) 1987: 94% Timbuktu Region (MSF) 1987: 33% Gao Region (MSF) 1987: 50%	[23] pp. 1-5 [23] pp. 1-5 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52 [23] pp. 51-52
Prescription per episode	CFAF 2,000-2,500 (PPM) CFAF 200-600 (MS)	Niono (1988): CFAF 2,600 Kita (1985): CFAF 1,888 Kita (1987): CFAF 2,607 Keniéba (1986): CFAF 2,323 Timbuktu (MSF) 1987: CFAF 204 Gao (MSF) 1987: CFAF 251 Bankass (MDM) 1987: CFAF 367 Koro (MDM) 1987: CFAF 581	[65] [60] [61] [62] [23] pp. 55-59 [23] pp. 55-59 [23] pp. 1-5 [23] pp. 1-5
Private prescription and self-medicn.	CFAF 2,800/inhab. (PPM)	Estimation by difference (see text)	
District			
Utilization			
no change	60% of PB	Education and culture staff	[35]
increase	75% of PB		
Proportion of pay consultations	36%	Education and culture staff	[35]
Average price of consultation	CFAF 1,600	Education and culture staff	[35]
Drugs			
Proportion of buyers	60%	Education and culture staff	[35]
Average cost	CFAF 5,000 (PPM) CFAF 1,250 (MS)	Education and culture staff	[35]
Hospitalization			
Utilization	2-3 o/oo of RP	Official statistics: 0.25% (cercles without a hospital)	[19]
	1.1% of UP	Didiéni, Dioïla, Kangaba: 1-3 o/oo	[34]
	2.4% of PB	Official statistics: 1.1% (cercles with a hospital)	[19]
		Official statistics: 2.3%	
		Education and culture staff: 2.4%	[35]
Existence of drugs	5 o/oo of RP 3% of UP 3% of PB		
Drugs	CFAF 20,000 (PPM)/admissn.	Point G: from CFAF 13,000 (medicine) to 20,000 (surgery, gynecology)	[23] pp. 95 ff. [23] pp. 178-89
	CFAF 7,000 (MS)/admission	Point G: between CFAF 14,000 and 37,000 Mopti (MDM) 1987: CFAF 4,500 in medicine CFAF 10,000 in surgery	[64] [23] pp. 95 ff.

Laboratory

Utilization	0.5-4 per admission	San (EMI) 1987: 0.5 Mopti (MDM) 1987: 4 Point G (1987): 3.5	[23] pp. 123 ff. [23] pp. 123 ff. [64]
	0.08-0.2 per episode	San (EMI) 1987: 0.08 Mopti (MDM) 1987: 0.2	[23] pp. 123 ff. [23] pp. 123 ff.
Cost	CFAF 200	San (EMI) 1987: CFAF 200 Mopti (MDM) 1987: CFAF 175	[23] pp. 123 ff. [23] pp. 123 ff.

Key: (PPM): at Pharmacie Populaire du Mali price
(MS): at health shops price
RP: Rural population (outside Bamako and cercle capitals)
UP: Population of cercle capitals
PB: Population of Bamako
MSF: Médecins sans frontières, Belgium
MDM: Médecins du Monde
AFVP: Association française des volontaires du progrès
PDS: Health Development Project (World Bank)
EMI: Entr'aide médicale internationale

4.2 Five variants

Using values compatible with the observations presented above (table 1) for all parameters contained in the model, we first of all construct a variant corresponding as closely as possible to current activity and cost levels. To that end we select for the activity parameters those shown, in the upper part of table 2, under the heading CURRENT RATE and for costs those shown in the column PPM COST". The results are shown further down in the table, under the headings TOTAL COST and FINANCING (column CURRENT ACTIVITY, PPM PRICES).

Three other variants are presented in table 2. In one of them, the current activity rates are retained but entire pharmaceuticals consumption is revalued at health shop prices (column CURRENT ACTIVITY, MS PRICES). In the other, the current activity rates are combined with procurement at health shop prices for products prescribed in the public health units and at PPM prices for self-medication and private prescription (column CURRENT ACTIVITY, MS PRICES AND PRIVATE SECTOR). The third variant takes into account the probable impact of drug procurement at health shop prices on utilization of health unit services (column ENHANCED ACTIVITY, MS PRICES).

The first variant again finds total health expenditure of the order of CFAF 17 billion for the modern sector. This is consistent with our previous accounting estimates (in which we arrived at CFAF 20 billion, including CFAF 2 billion for traditional medicine and several hundred million for other items not taken into account here). More than two thirds of this total amount relates to pharmaceuticals: the CFAF 12 billion paid by the Mali people, part of it abroad (purchase of imported products) and part to middlemen.

The variant "enhanced activity, MS prices" shows that it is possible to finance a much higher level of activity for a cost of the order of only CFAF 10 billion on the sole condition that the country's drug needs are met under the health shop type of arrangement. In this variant the level of activity is much greater than it is now because the utilization rates in the *arrondissements* and *cercle* capitals double and hospitalization rates rise by 25% (cf. the differences between the columns CURRENT RATES AND ENHANCED RATES in the upper part of the table); drugs now represent only half of total health cost, even though self-medication and private prescription still account for the other half.

One characteristic of this variant only appears, however, when we look at the distribution of the amounts allocated to drugs. In the reference health shops the selling price is calculated by multiplying the supplier price by 2.5. When we use the corresponding price structure, given in the annex (according to [68] p. 79), we immediately note that this solution offers another advantage, in addition to those already indicated: drug sales then suffice for (partial) financing of a number of activities essential to the sound operation of the health services. In that sense this solution is comparable to the one put forward under the title "Bamako Initiative."

Table 2

FORESEEABLE IMPACT OF A PHARMACEUTICAL POLICY

1. PARAMETERS	STAFF		STAFF		
District population	700,000		Rural population (RP)	5,300,000	
Urban population outside BKO (PU)	1,600,000		Total population (RP)	7,600,000	
UTILIZATION PARAMETERS	CURRENT RATE	ENHANCED RATE	UNIT COST	PPM COST	MS COST
HS and AS access	.25	.25	Drugs/inhab., village	100	15
Utilization, consult., CSA	.10	.20	Prescr./consult., arrond.	1,000	400
Utilization, consult., CSC	.20	.40	Self-medicn./inhab., RP	800	300
Utilization, consult., District	.60	.75	Prescr./consult. CSC	2,500	400
% paid consultations, District	.36		Self-medicn./inhab., UP	2,600	800
% drug buyers, District	.60		Price private consult., BKO	1,600	1,600
Hospital utilization, RP	.002	.005	Average prescription cost	5,000	1,250
Hospital utilization, UP	.011	.030	Drug cost/hospital. patient	20,000	7,000
Hospital utilization, PB	.024	.030	Cost of lab. test	200	
Lab tests per hospitalized patient	2				
Lab tests per hospitalized patient	.10				
Average stay	10	10	Cost-free rate	0.40	0.15
2. TOTAL COST	CURRENT ACTIVITY PPM PRICES	CURRENT ACTIVITY MS PRICES	CURRENT ACTIVITY MS PRICES AND PRIVATE SECTOR	ENHANCED ACTIVITY MS PRICES	
Village or section					
Drugs/inhabitant	132,500,000	19,875,000	132,500,000	19,875,000	
Arrondissements					
Drugs prescribed by health units	530,000,000	212,000,000	212,000,000	424,000,000	
Private prescription and self-medicn.	3,337,500,000	1,590,000,000	3,337,500,000	1,590,000,000	
Cercle capitals					
Medications prescribed by health units	800,000,000	128,000,000	128,000,000	256,000,000	
Private prescription and self-medicn.	4,200,000,000	1,280,000,000	4,200,000,000	1,280,000,000	
District					
Private practice fees	241,920,000	241,920,000	241,920,000	302,400,000	
Private prescription and self-medicn.	2,100,000,000	525,000,000	756,000,000	525,000,000	
Hospitalization					
Cost of drugs	900,000,000	315,000,000	315,000,000	668,500,000	
Laboratory					
Cost of tests	32,800,000	32,800,000	32,800,000	32,800,000	
Current fixed charges					
Public-sector wages	3,000,000,000	3,000,000,000	3,000,000,000	3,000,000,000	
Operating costs (excl. drugs)	1,500,000,000	1,500,000,000	1,500,000,000	1,500,000,000	
TOTAL RECURRENT COSTS	16,774,720,000	8,844,595,000	13,855,720,000	9,598,575,000	

A final variant which can readily be studied with the aid of the same model would be based exclusively on cost recovery: raising the charges for health unit services and reducing the percentage of free services. This variant (the results of which are not reproduced here, for lack of space) shows that doubling of fees, in conjunction with a general reduction in the percentage of patients entitled to free services (from 40 to 15%), would increase cost recovery practically threefold in relation to the current situation but bring in receipts of only just under CFAF 900 million. This solution is is not only clearly socially unacceptable but moreover would not contribute the amounts required to revitalize the health services.

3. FINANCING	FEE SCALE	CURRENT ACTIVITY <u>PPM PRICES</u>	CURRENT ACTIVITY <u>MS PRICES</u>	CURRENT ACTIVITY <u>MS PRICES AND</u>	ENHANCED ACTIVITY <u>MS PRICES</u>
COST RECOVERY				<u>PRIVATE SECTOR</u>	
Consultations					
Arrondissement	100	31,800,000	31,800,000	31,800,000	63,600,000
Cercle health center	500	96,000,000	96,000,000	96,000,000	192,000,000
District	500	126,000,000	126,000,000	126,000,000	157,500,000
Private practice (Bamako)		241,920,000	241,920,000	241,920,000	302,400,000
Laboratory		32,800,000	32,800,000	32,800,000	32,800,000
Hospitalization					
Reg. and sec. hospitals	250	37,460,000	37,460,000	37,460,000	111,750,000
National hospitals	1,500	151,200,000	151,200,000	151,200,000	189,000,000
PAYMENT FOR DRUGS		12,000,000,000	4,069,875,000	9,081,000,000	4,763,375,000
GOVERNMENT					
Wages		3,000,000,000	3,000,000,000	3,000,000,000	3,000,000,000
Operating costs (excl. drugs)	1,500,000,000	1,500,000,000	1,500,000,000	1,500,000,000	
TOTAL RECEIPTS		17,217,180,000	9,287,055,000	14,298,180,000	10,312,425,000

Conclusion

The estimates contained in the foregoing table do not define, in the required detail, the solution to be recommended to Mali's public health authorities if they wish to act to deal with the breakdown in the activities of the health system. They merely show in what direction the solution should be sought.

This direction has much in common with that outlined by UNICEF under the title *Bamako Initiative*; it was after all only natural that one should be concerned in Mali to ascertain how the Bamako Initiative could be given practical shape there. What emerges from our analysis is that Mali absolutely does not need additional grants to be able to make drugs available in the health units and dispensaries. Very much to the contrary, the experiments conducted in Mali show clearly that the best results are obtained where aid is least important. In the field with which we are concerned here, region 5, assisted by a simple NGO, has developed a formula that is practically self-financing and therefore self-perpetuating (cf. [23] p. 75-76). In regions 6 and 7, where external aid has been greater, it is not clear how the system in place can endure without being subsidized at the rate of three fourths of its cost, and no one can say that that has to do only with the low level of living of the population (cf. [23] p. 59-61). In region 2, the example of Kolokani shows that massive and uncoordinated aid generates totally irresponsible behavior patterns and destroys a decade of patient effort to rebuild the health services (cf. [23] p. 11-15). Finally, in region 1 about CFAF 6 billion has been spent since 1985 without any significant change having been brought about in the conditions of operation of the health system (cf. [23] p. 26-42), while aid on such a large scale obviously cannot be extended to the entire country.

The reason that Mali does not need grants to make drugs accessible and develop a primary health care strategy is that simple application of the principles of the Bamako Initiative concerning procurement of drugs will simultaneously bring about an appreciable expansion of health service activity and a reduction of nearly CFAF 8 billion in the drugs bill. The resulting situation, as described in table 2, is based on completely realistic service utilization and cost hypotheses. On the latter point, it assumes that drugs are sold at 2.5 times the supplier price. It is noteworthy that this solution compares very closely with the one underlying the various examples used by UNICEF to demonstrate the feasibility of the Bamako Initiative:

- in Benin, the price charged for treatments is on average 3 times the cost price of the corresponding drugs; in practice, however, the multiplier varies according to the treatment: for example, it is 1.0 for oral rehydration sachets but 5-8 for mebendazole treatment of parasitoses;
- in Ghana and Zaire, the price of the drugs sold by the health committees is calculated so as to allow the latter a profit of 100%; the selling price is therefore double the purchase price (cf. [6]).

However, the cost price referred to in these examples is probably the destination price. We therefore used the table 2 model to describe a variant in which, in conformity with the Bamako Initiative, the margin obtained on drug sales serves to finance part of health service operating costs. The calculations assume that the selling price would be double the destination cost price. According to the price structure of the MDM health shops, given in the annex, we know that for every CFAF 100 paid by the patient, destination price accounts for CFAF 88. In other words, the new calculation is based on a unit pharmaceutical prescription cost that is no longer CFAF 400 but $CFAF 400 \times 0.88 \times 2 = CFAF 704$ for the CSAs and CSCs; similarly, all the other figures of the column MS UNIT COST in table-2 are multiplied by 1.76.

According to our model this situation leads to a pharmaceuticals bill of CFAF 8.3 billion for the population (the new version of table 2 is not reproduced here). This figure is calculated in such a way that private prescribing and self-medication retain their current volume, which is no doubt exaggerated in that the current scale of the phenomenon is due in large part to the deficiencies of the public health units. In this case, however, the pharmaceuticals bill is lower by about CFAF 4 billion than its current level, and the 100% margin on destination cost price generates more than CFAF 4 billion, which can be used to finance certain health-system operating expenditures. If we assume that private prescribing and self-medication decline by one-half due to elimination of all the trafficking currently generated by the scarcity and high price of drugs, the pharmaceuticals bill would decline to about CFAF 5.2 billion, generating a margin of only about CFAF 2.5 billion.

Although the figures just quoted are only orders of magnitude, they deserve consideration because they show clearly that the way Mali's health system functions can be changed completely if it is decided to do so, i.e. if it is really desired, by adopting a drugs policy in conformity with the official statements of past years. Let us then accept that a margin of some CFAF 2.5 billion can be obtained and consider some of the purposes to which it could be applied:

- establishment of a working capital fund for the PPM, to enable it to pay for an increasing proportion of its purchases in cash;
- rehabilitation of the health units and procurement of small equipment required for their operation: the current allocation for "major repairs", not more than CFAF 40 million a year could easily, it seems, be increased tenfold; and the allocation for "materials and drugs" currently serves only to deal with a few absolute emergencies, usually in the capital city, needs that could be met by incorporating the cost of consumables into the cost price of the drugs;
- financing of the day-to-day operation of the units;

- institution of bonuses for health service personnel: it must be admitted that the current level of compensation is inadequate and encourages trafficking. It must also be admitted that the public finances will not permit any significant pay increase for Mali civil servants in the next few years; on the other hand, we see no reason why specific bonuses cannot be instituted, financed out of own resources. If CFAF 1 billion were allocated to such bonuses they would represent an increase of 33% in the current wage bill and could offer a means for restoring hierarchical responsibility and authority, which have completely disappeared, to Mali's health system.

The above indications are adequate for our purpose. They show clearly that the therapy for the collapse of the public health services must be based primarily not on cost recovery but on cost reduction. The difficulties of cost recovery are due in part to the fact that costs are greatly swollen by private and public profits that are all too clearly evident to every one. And, quite obviously, the definition of poverty conferring entitlement to free care will not be the same if costs remain at the maximum as if they are reduced to the minimum possible.

Thus, it will be said, it is only in the last line, as it were, of this article that the author turns attention to the equity consequences of the Bamako Initiative. We shall not disagree: we have neglected this topic because we believe that no situation can be more inequitable than the present one. If there is no longer time, at the point we have reached in our discussion, to argue seriously concerning equity, we can still point out that opponents of the Bamako Initiative, expressing their views in a journal usually serious in its field of competence, show no concern about it all:

- "Today," we read in an authoritative editorial, "socially desirable programs such as prenatal care, vaccination, pregnancy surveillance are provided free or charge in practically all the African countries" (cf. [69] p. 1177), yet we see nothing of the kind around us.
- "When the Ministry of Health unfortunately tried to extend the system to the whole of Senegal, with charges as at Pikine and health committees along the same lines, this policy failed" (cf. [70] p. 162); however, the reader will learn nothing more about this failure except for the need to take into account the diversity of local situations and the risk of ideas that have proved their worth in small projects being converted into national policy principles.
- "An experiment under way in Guinea-Bissau since 1983 suggests that training more village health staff is all that is needed to resolve the remuneration problem because the individual work load then decreases to the point that the "volontariate" becomes practicable" (cf. [71] p. 1366), but these remarkable results appear to have been obtained and published in the actual start-up year of the project.

In brief, while we do not deny that application of the Bamako Initiative presents serious difficulties, this was not the place to go into them. Nor do we deny that any health strategy presents equity aspects that deserve serious consideration. But we assert that the conditions that govern access to health care and drugs in the poorest countries today are so contrary to equity, one wonders why the good-hearted do not begin there; that the cost reduction that implementation of the Bamako Initiative can bring about cannot fail to diminish the present enormous inequity by giving the very poor access to health care services that are no longer delivered to them by financially and morally bankrupt public health systems; and that, for this reason in particular, as well as for the other reasons developed at length in the foregoing pages, priority must be directed not to cost recovery but fairly and squarely to cost reduction.

Annex 1

FEES FOR COMMONEST SERVICES IN HEALTH CENTERS

<u>Cercle</u>	<u>Consultation</u>	<u>Confinement</u>	<u>Surgery</u>
Ansongo	300	500	
Bafoulabé	100	1,750	5,000 or 10,000
Banamba	300	400	5,000
Bandiagara		400 or 750	
Bankass		250	5,000
Bla		400	
Bougouni	200	500	10,000
Bourem	300	500	
Diéma		500	
Dioïla	400-1,000	500	3,500-6,250
Diré	200		
Douentza		250	2,500
Gao	300	500-2,500	
Goundam	200	500	
Gourma Rharous	150 or 200	500	1,500
Kadiolo		250	2,500-5,000
Kangaba	300	300	5,000
Kati	300 *	750	
Kayes	200	1,000 or 2,000	
Kaniéba	100		
Kidal	300	500	
Kita	100	1,000	10,000
Kolokani	50 or 100	500	12,500
Kolondiéba		500	5,000
Koro		1,000	5,000
Koulikoro	250-300 *	1,000	15,000
Koutiala		750	4,000
Macina		300	4,000
Menaka	300	500	
Mopti		500-1,000	
Nara		500	2,500-5,000
Niakunké	200	500	
Niono		500	5,000
Nioro du Sahel	500 *	200	
Tenenkou	100	500	
Timbuktu	150 or 200	500	1,500
Yanfolila		300	2,500
Yélimane		500	
Yorosso		300	4,000

* Fee for consultation of a physician.

Source: INRSP survey, July-September 1988.

STRUCTURE OF HEALTH SHOP SELLING PRICE

The drug cost paid by the patient breaks down as follows, per CFAF 100:

	<u>CFAF</u>
- price paid to supplier for the drug	40.0
- price paid to supplier for consumables or small equipment required to administer the drug for which patient is not charged	14.3
- international transport, insurance and transit costs	17.6
- transport costs in Mali	1.3
- losses, spoilage, etc.	5.4
- distribution costs (salaries and travel expenses of managers--one per arrondissement)	9.6
- recovery against the selling price of the drug of part of health units' supervision and operating costs	11.7

Bibliography

- [1] *Financing Health Services in Developing Countries : An Agenda for Reform*, A World Bank Policy Study, The World Bank, Washington, D.C. 1987.
- [2] David DE FERRANTI : *Stratégies pour le financement des services de santé dans les pays en développement*, World Health Statistics Quarterly Report, 37, 4, 428-450 (1984).
- [3] *Economic Support for National Health for All Strategies*, basic document, Fortieth World Health Assembly, Geneva, May 1987, reference A40/Technical Discussions/2, 145 p.
- [4] *Idées directrices pour la mise en oeuvre de l'Initiative de Bamako*, WHO Africa Regional Committee, 38th session, Brazzaville, September 7-14, 1988, AFR/RC38/18, August 3, 1988, 22 p.
- [5] *Directives pour la mise en oeuvre de l'Initiative de Bamako*, WHO Africa Regional Committee, 38th session, Brazzaville, September 7-14, 1988, AFR/RC38/18 Add. 1, August 3, 1988, 15 p.
- [6] *Financement des services de santé locaux par les collectivités : expérience acquise en Afrique*, United Nations Children's Fund, Board of Directors, 1988 session, reference E/ICEF/1988/CRP.2, March 17, 1988, 25 p.
- [7] *World Development Report 1988*, World Bank, Washington, D.C., 1988.
- [8] Irving B. KRAVIS : *Comparative Studies of National Incomes and Prices*, Journal of Economic Literature, vol. XXII (March 1984), pp. 1-39.
- [9] R. SUMMERS, A. HESTON : *A New Set of International Comparisons of Real Product and Price Levels Estimates for 130 Countries, 1950-1985*, The Review of Income and Wealth, 34, 1, 1-25 (March 1988). N.B.: Tables on three accompanying diskettes.
- [10] *World Development Report 1986*, World Bank, Washington, D.C., 1986.
- [11] *World Development Report 1987*, World Bank, Washington, D.C., 1987.
- [12] *Mali: Public Resource Management*, World Bank, provisional document, October 15, 1986, 57 p. + annexes.
- [13] Philippe FARGUES, Ouaidou NASSOUR : *Douze ans de mortalité urbaine au Sahel, Niveaux, tendances, saisons et causes de mortalité à Bamako, 1974-85*, INED-Institut du Sahel, PUF, 1988.
- [14] *World Development Report 1980*, World Bank, Washington, D.C., 1980.

[15] *Population Change and Economic Development*, The World Bank-Oxford University Press, 1984.

[16] *Population Growth and Policies in Sub-Saharan Africa*, A World Bank Policy Study, World Bank, Washington, D.C., 1986.

[17] *Examen de l'utilisation des ressources dans les pays : Mali*, World Health Organization, draft, HRG/CRU.22.

[18] Fatoumata DIANI : *Evaluation de la situation sanitaire au Mali*, pharmacy thesis, ENMP, 1985, 215 p.

[19] Joseph BRUNET-JAILLY, Seydou O. COULIBALY, Kafing DIARRA, Amadou KOITA : *Le financement des coûts récurrents de la santé au Mali*, Report of the WHO (Geneva) contract on USAID financing for the international comparative study of recurrent health costs, INRSP, Bamako, January 1989, 100 p.

[20] J. BRUNET-JAILLY, A. ROUGEMONT, G. ELLENA : *Evaluation du système malien de formation médicale : son adaptation aux objectifs du système de santé*, Centre d'Economie de la Santé, Aix-en-Provence, 1985, 434 p.

[21] *Annuaire statistique du Mali 1974*, Ministry of Planning and Transportation, National Directorate of Statistics and Data Processing, March 1981, 225 p.

[22] I. WONE, H. DE LAUTURE, A. M. LALEMENT, E. HAABY, M. SINANKWA : *Première analyse d'indicateurs de santé à partir des statistiques officielles du Ministère de la Santé Publique du Sénégal, de 1960 à 1979*, Faculty of Medicine of Dakar, Preventive Medicine and Public Health Clinic, July 1983, 300 p.

[23] J. BRUNET-JAILLY : *Etudes de cas sur le fonctionnement du système de santé au Mali*, INRSP, Bamako, January 1989, 186 p.

[24] *Etat de santé des populations riveraines avant la mise en eau du barrage de Sélingué (March 1980)*, National School of Medicine and Pharmacy, United Nations Development Program, Sélingué Dam Authority, undated, 400 p. + annexes in 2 volumes.

[25] *Evaluation sanitaire des cercles de Kéniéba, Bafoulabé et Kita (Mali 1981)*, National School of Medicine and Pharmacy, World Bank Health Development Project, undated, 360 p.

[26] *Evaluation sanitaire de la zone CMDT (Mali 1984-1985) : évaluation épidémiologique*, National School of Medicine and Pharmacy, Mali South Project II, undated (1985), 81 p. + annexes.

[27] Kafing DIARRA, Seydou O. COULIBALY : *Le financement des coûts récurrents du secteur de la santé au Mali*, manuscript, INRSP, Bamako, January 1989, 21 p. + annexes.

- [28] *Annuaire statistique 1982*, Ministry of Public Health and Social Affairs, September 1986.
- [29] *Planification sanitaire de la région de Mopti 1988-1992*, vol. I, Ministry of Public Health and Social Affairs, June 1988, 140 p.
- [30] Document prepared by INRSP accountant, dated July 15, 1987, 3 p. + 4 tables.
- [31] Seydou Mohamed SOW : *Contribution de l'informatique dans la gestion de laboratoire d'analyses médicales en milieu hospitalier (appliquée au laboratoire de l'hôpital de Point G)*, pharmacy thesis, ENMP, Bamako, 1988.
- [32] *Projet d'alimentation en eau et de développement sanitaire dans les zones rurales de Kita, Bafoulabé et Kéniéba : Rapport socio-economique*, Ministry of Industrial Development and Tourism--Ministry of Public Health and Social Affairs--SNED, Bamako, February 1982, 68 p.
- [33] Jonathan D. MEYER : *Final Report, Survey of Health Expenditures, Mali*, JDM Consulting Group, Potomac, USA, August 1985, 109 p.
- [34] J. BRUNET-JAILLY, T. DIARRA, G. SOULA : *Les dépenses de santé dans l'économie familiale rurale*, summary report of a survey conducted in the arrondissements of Didiéni, Dioïla and Kangaba between April 1986 and July 1987, INRSP, Bamako, January 1988, 99 p.
- [35] J. BRUNET-JAILLY : *La consommation médicale des familles des personnels de l'enseignement et de la culture*, summary report of a survey conducted in April 1988 by the members of MUTEK, INRSP, Bamako, December 1988, 41 p.
- [36] Jean-Bernard RASERA : *Mali Public Expenditure Mission, Health Sector Review*, World Bank, June 1986, 17 p. + annexes.
- [37] J. BRUNET-JAILLY, A. ROUGEMONT, M. AUDIBERT : *Evaluation du système de formation médicale du Sénégal : son adaptation aux objectifs du système de santé*, Centre d'Economie de la Santé, Aix-en Provence, 1984, 678 p.
- [38] *Ten-Year Social and Health Development Plan for Mali, 1981-1990*, Ministry of Public Health and Social Affairs--DNPFS, November 1983, 159 p.
- [39] *Dépenses de santé en Haute-Volta selon l'origine du financement : évolution, structure, analyse*, Ministry of Health of Upper Volta, General Secretariat, April 1983, 36 p.
- [40] *Upper Volta: Review of the Health and Nutrition Sector*, World Bank document, no. 3926-UV, November 12, 1982, 70 p.
- [42] *Expériences des soins de santé primaires*, WHO-UNICEF Joint Committee, Ministry of Public Health and Social Affairs, June 1980, 85 p.

[43] *La couverture collective des dépenses de santé*, Office of the Minister of Health, undated (1988), 23 p.

[44] *Séminaire sur l'ajustement structurel des services de santé*, May 13-16, 1987, Ministry of Public Health and Social Affairs, Health Development Project, Coordination Unit, 31 p.

[45] *Five-Year Economic and Social Development Plan, 1987-1991, vol. I : Le diagnostic de la situation socio-économique et les grandes orientations*, February 1988, 86 p.

[46] *L'Essor*, July 2, 1987, p. 6; *L'Essor*, April 12, 1988, p. 3.

[47] *Dépenses de santé 1979 à 1984*, Ministry of Public Health and Social Affairs, Office of the Minister, undated, 3 p. + tables.

[48] *Mise au point émanant de l'Ordre des Médecins*, *L'Essor*, March 23, 1988.

[49] Dr. Souleymane GUINDO : *Rôle de la Pharmacie Populaire du Mali dans la politique de distribution des médicaments*, communication to the National Workshop on Pharmaceutical Policy (January 12-17, 1987), 5 p.

[50] Professor B. SALL : *Place de l'exercice privé dans la politique pharmaceutique*, communication by the Orders of Health Professionals to the National Workshop on Pharmaceutical Policy (January 12-17, 1987), 4 p.

[51] *Diagnostic de la situation du secteur de la pharmacie au Mali et orientations proposées pour son organisation*, Study for consolidation of the Mali Pharmacy Office, February 6, 1982, 42 p.

[52] *Analyse financière des bilans arrêtés aux 31 décembre 1982, 1983, 1984, 1985, 1986 et 1987*, State Companies and Enterprises Supervisory Ministry, Pharmacie Populaire du Mali, undated (1988), 47 p.

[53] *Five-Year Economic and Social Development Plan, 1987-1991, vol. I : Le diagnostic de la situation socio-économique et les grandes orientations*, Ministry of Planning, National Directorate of Planning, February 1988, 86 p.

[54] *Propositions pour l'installation de médecins de campagne*, National School of Medicine and Pharmacy, November 1988, 17 p.

[55] *Note sur les possibilités d'installation des médecins en dehors du secteur public au Mali*, National School of Medicine and Pharmacy, November 1988, 13 p.

[56] *Activities Report 1987*, Ministry of Public Health and Social Affairs, Health Shops Project, Médecins sans Frontières, Belgium, 1988, 102 p.

[57] *L'Essor*, October 16, 1987, p. 3.

[58] Dr. G. KEGELS-CORNELIS : *Analyse de l'organisation et du fonctionnement des centres de santé de la zone du projet de développement sanitaire, années 1986-1987*, Health Development Project, Medicus Mundi, Belgium, Kita, May 1988, 82 p. + annexes.

- [59] *Projet de consolidation de l'Office Malien de pharmacie dans le cadre d'un système pharmaceutique national*, Summary Report, Ministry of Public Health and Social Affairs-DNPFSS, June 1982, 22 p.
- [60] Dr. G. KEGELS : *Les prescriptions à la consultation externe "adultes" du CSC de Kita*, 1986, unpublished, 14 p. (kindly communicated by the author).
- [61] Dr. G. KEGELS : *Les prescriptions à la consultation externe de Kéniéba*, 1986, unpublished, 9 p. (kindly communicated by the author).
- [62] Dr. G. KEGELS-CORNELIS, G. CARRIN : *Etude de la prescription médicale dans les deux principales formations sanitaires de Kita-ville (centre de santé de cercle, dispensaire de la mission catholique)*, Health Development Project, Medicus Mundi, Belgium, February 1988, 36 p.
- [63] *Rapport annuel des magasins santé, Cercle de Bankass, du 1er octobre 1986 au 30 septembre 1987*, Médecins du Monde, Mopti, undated (January 1988), 9 p.; *Rapport annuel des magasins santé, Cercle de Koro, du 1er octobre 1986 au 30 septembre 1987*, Médecins du Monde, Mopti, undated (January 1988), 11 p..
- [64] Bakary Lamine DOUMBIA : *L'approvisionnement en produits pharmaceutiques de l'hôpital du Point G en 1987*, pharmacy thesis, ENMP, Bamako, 1989, 80 p. + annexes.
- [65] Mantala SANGARE : *Prescription, achat et utilisation des médicaments dans le cercle de Niono*, pharmacy thesis, ENMP, Bamako, 1989, 91 p. + annexes.
- [66] *Recensement général de la population et de l'habitat (du 1er au 14 avril 1987)*, preliminary census results, Ministry of Planning, July 1987, 70 p.
- [67] Sidy TRAORE : *Etude de la consommation médicamenteuse dans le quartier de Bankoni*, medical thesis, ENMP, 1989, 86 p.
- [68] Dr. Michel BRUGIERE : *Installation des magasins santé dans les cercles de Koro et de Bankass, 5ème région*, Mopti, October 1986.
- [69] *The Bamako Initiative*, The Lancet, November 19, 1988, pp. 1177-8.
- [70] *The Bamako Initiative*, The Lancet, January 21, 1989, pp. 162-3.
- [71] *The Bamako Initiative*, The Lancet, December 10, 1988, pp. 1366-7.