# *Analysis of HIV/AIDS Expenditures in Senegal: from Pilot Project to National Program*

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KEY WORDS: Senegal; antiretroviral treatments; HIV/AIDS; cost; funding; public spending.

## *Abstract*

This paper describes and analyzes the financial resources devoted to combating HIV/AIDS in Senegal, distinguishing between state resources and foreign aid. The funding of antiretroviral drugs is a special focus of attention. The results show that the development of actions in the field of HIV/AIDS has not led to massive absorption of Health Ministry resources to the detriment of other health care priorities. Public spending has been sufficient to ensure that dependency on foreign aid is comparable to that of the nation's overall health budget. The costs of treatment (antiretroviral drugs, reagents and certain drugs for opportunistic infections) have increased relative to other activities (especially prevention) but remain below 40%. An ambitious program designed to decentralize patient management is planned for 2003-2006, with the support of new funds (World Bank, Global Fund to Fight AIDS, Tuberculosis, and Malaria, etc.). This upscaling will probably profoundly modify the distribution of spending, relative to both State budgets and the funding structure.

## *Résumé*

*Ce texte décrit et analyse les ressources financières consacrées à la lutte contre le sida au Sénégal, en distinguant les ressources mobilisées par l'État,*

*de celles provenant de l'aide extérieure ; une attention particulière est portée sur le financement des médicaments antirétroviraux. Les résultats présentés montrent que le développement des activités VIH/sida n'a pas entraîné un captage massif des ressources du ministère de la Santé, aux dépens d'autres programmes de santé. Le niveau des dépenses publiques engagées a permis de maintenir un degré de dépendance vis-à-vis de l'aide extérieure comparable à celui de l'ensemble du budget de santé du pays. La part des dépenses liées à la prise en charge thérapeutique (médicaments antirétroviraux, infections opportunistes et réactifs) par rapport aux autres activités de la lutte (notamment la prévention) a augmenté mais est resté inférieure à 40 %. Un ambitieux programme de décentralisation de la prise en charge thérapeutique est planifié pour les années 2003-2006, avec l'appui de nouveaux financements (Banque Mondiale, Fonds Global), ce changement d'échelle entraînera probablement une profonde modification dans la répartition des dépenses, dans leur place relative au sein des budgets de l'État et dans la structure des financements.*

## *Introduction*

In view of the catastrophic spread of HIV/AIDS through Africa, the persistently low prevalence observed in Senegal (about 1.4% of the adult population) is often attributed to successful public health initiatives [1-3]. Since 1998, a pilot antiretroviral treatment program – one of the first African programs of this type – has demonstrated the feasibility and efficacy of such interventions, and has bolstered the reputation of the Senegalese "success story". Activities targeting HIV/AIDS received major funding from both the State and foreign donors. Funds from various sources are now set to increase substantially with the aim of reinforcing prevention campaigns and offering access to antiretroviral treatments (ARV) throughout Senegal.

Meanwhile, however, the Senegalese economy continues to deteriorate. In July 2000, Senegal was added to the list of heavily indebted poor countries; the national debt, already 77% of Gross Domestic Product (GDP), continues to grow [4]. Average per capita GDP is estimated at US$545 (1996-1998) [5], and 65% of the population live below the poverty line (defined as 392 FCFA[1] per day per adult-equivalent) [5]. The public health situation is critical in many respects: the infantile and infantile-juvenile mortality rates are respectively 70 and 145.3 per 1000 (year 2000), the maternal mortality rate is 510 per

1. Francs CFA (100 FCFA = 0,15 €).

100,000 live births (year 2000) [6], and the estimated vaccine coverage rate, based on the Extended Vaccination Program, is 42% [7].

The contrast between the size of Senegal's financial commitment to combat AIDS and the many other health emergencies confronting this country has kindled a heated debate on the optimal distribution of available resources: what place should be given to the fight against AIDS relative to other health priorities [8, 9], and how should funds devoted to HIV/AIDS be distributed between prevention and treatment [10]? In a country with what is considered to be a low prevalence, and where the total number of HIV-seropositive persons is still relatively small (75,000 in 2002), what share of available human and financial resources is devoted to fighting AIDS? Is the choice to fund an extension of the ARV treatment program compromising other public health interventions that would benefit far larger populations? And will the Senegalese experience risk, sooner or later, becoming a victim of its own success, absorbing a growing part of the country's financial and health infrastructure capacities?

It is too early to assess the precise impact of the different components of the current AIDS program, but it is nonetheless useful to examine the share of available resources devoted to each component by the Senegalese health authorities and foreign donors. The importance given to fighting AIDS relative to other public health priorities is sometimes overestimated because of its strong media impact. Conversely, at the same time, there is a tendency to underestimate these resources, because some spending that is more or less directly linked to HIV/AIDS management is not always taken into account.

After describing the aims and obstacles of this funding analysis of the fight against AIDS in Senegal, we offer a synthesis of the resources devoted to it by the State and foreign donors, focusing particularly on ARV financing. Finally, 2003 being a watershed year in the fight against AIDS in Senegal, we examine likely future spending trends.

## I
## AIMS OF THE ANALYSIS

### *Analysis of the literature*

Many teams have studied the impact of AIDS on the health care sector in African countries [11] and the cost-efficiency of the different possible actions [12]. Models have been developed to forecast future needs [13]. In contrast, few analyses have focused on actual public spending on the fight

against AIDS in Africa. Studies conducted in Thailand, Tanzania and Côte d'Ivoire [14] have compared funding by the private and public sectors, and the distribution of funds between curative and preventive actions. These studies provided comparative data on State funding of programs targeting AIDS relative to other health concerns. Finally, other studies have compared annual spending by foreign donors and national governments [15]. However, all these studies were done before 1996, *i.e.* before the arrival of antiretroviral treatments in the relevant countries.

UNAIDS has undertaken global analyses of national spending and funds promised by the principal foreign donors [16]. Some recent surveys, in Vietnam for example, analyzed the aid offered by the different foreign donors [17]. However, in the numerous evaluations of public health spending in African countries, including Senegal's most recent done in 1999 [18], the functional analysis grouped together the different levels and types of intervention but did not break down spending according to strategic priorities.

*Conditions of the analysis*

Analyses of public AIDS expenditures are more important than ever before, but are also becoming more difficult. The international "aid market" in this area has grown significantly. The increasing number of donors and operators (projects, NGOs, private sector initiatives, etc.) has made the situation more complex. Striking gaps between promised investment and actual spending are frequent in this increasingly mediatized field. Complex funding operations, and especially joint funding projects, increase the risk that the same donation will be counted twice. Furthermore, institutional reforms (multisector approaches, decentralization, etc.), budgetary changes (*e.g.* the new Senegalese nomenclature adopted in 2002) and more global approaches (budgetary aid, sectorial approach, Sector-Wide Approach) make it even more difficult to analyze spending on a specific health problem. In Senegal, the steady growth of the Fonds de Dotation pour la Décentralisation (FDD, Decentralization Endowment Fund) further hinders analyses based on central budget documents.

In contrast, the program-based approach adopted by the health authorities facilitates health spending analyses in Senegal. After lengthy discussions with all its partners, the Health Ministry launched a Programme National de Développement Sanitaire (PNDS) for the period 1998-2007. An Integrated Health Development Program (Programme de Développement Intégré de la Santé – PDIS) covers the first five years of the PNDS [19] and groups together

the different funding sources (State, population, local government, and foreign donors). A public spending review has already analyzed the baseline situation (1998-1999), and a new one is being prepared for 2003. It will set the groundwork for the second PDIS (2003-2005) and fix objectives for 2015 (and even 2025!). These documents provide useful points of comparison when analyzing the proportion of total Senegalese health spending devoted to AIDS.

### *Limitations of the analysis*

We were only able to analyze funds transiting via PNLS (*Programme National de Lutte contre le Sida*/National AIDS Program) within the framework of the Strategic AIDS Program. Some foreign donors (especially NGOs) sponsor projects directly, but the vast majority of foreign aid is recorded by the Health Ministry. These data do not underestimate the place of NGOs, because almost all active local NGOs in Senegal receive foreign aid. A detailed analysis of each NGO's expenditures would be very useful to compare their interventions. But such a study would necessitate a specific survey covering a very large number of stakeholders and is outside the scope of the present study.

Only a part of all research spending is centralized by the Health Ministry. A study of institutions that fund AIDS research (French National Agency for AIDS Research-ANRS, Centers for Disease Control, European Commission, Institut de Recherche pour le Développement, etc.) would yield not only an estimate of total spending, but also the fractions that specifically benefit Senegal versus the scientific community as a whole. And while research sometimes provides supplementary resources, it can represent an added burden for a particular program.

State spending on patients with HIV/AIDS is distributed among a variety of public structures. Because of the limited information system developed in these facilities, only by studying the mean costs per structure can one measure the human and financial resources dedicated to managing a particular patient sample. Moreover, it is impossible to determine the total number of seropositive patients (diagnosed and undiagnosed) who have developed opportunistic diseases and to measure the precise proportion of AIDS spending attributed to them.

Patients themselves pay for some of these costs in Senegal. Cohort studies of treated patients [20] have previously estimated the mean cost of prescriptions for opportunistic diseases (600 to 3,500 FCFA per month according to the disease), examinations (1,200 FCFA per month) and hospitalization (15,000 FCFA per event). Information is lacking on the health status of

seropositive persons and on how often they seek medical care. However, based on surveys of recourse to care [21], total spending on the estimated 75,000 HIV-seropositive Senegalese persons no doubt reaches several hundred million FCFA. It should also be noted that further large sums of money that would theoretically be necessary are not spent by households, for lack of sufficient income.

In Senegal, the public sector only accounts for about half of all national health spending [22] which itself only represents 4.5% of GNP (US$23 per capita per year). The spending analyzed here is therefore just the "tip of the iceberg", and funding requirements must be interpreted within this general context. Spending by individual households can of course be influenced by public policies, especially those concerning drug prices and payment. However, this analysis will be limited to spending over which the Senegalese health authorities have more direct control and are able to make strategic choices (whatever the origin of available funds).

## II
## STATE SPENDING

### *Budgetary follow-up*

Until 2000, public spending on AIDS was recorded as part of the Health Ministry budget, partly under the fight against sexually transmitted diseases (122 million FCFA for functional costs) and partly under the Social Hygiene Institute (75 million FCFA for salary costs). Other spending was dispersed among the different health care structures, such as the Blood Transfusion Center. It is difficult to estimate how much of these individual budgets were devoted to combating AIDS. As some AIDS-related activities are integrated (especially in the countryside, where they are becoming increasingly important), part of the functioning and salary budgets (and even the cost of equipment use) of many other structures (National Supply Pharmacy, laboratories, hospitals, dispensaries, etc.), and services (regions and districts) can be devoted to the fight against AIDS.

In 2001 a National AIDS Program (PNLS) was attributed 575 million FCFA in the national operating costs budget. The majority of salary costs are now included in the Health Department budget. In 2003, PNLS became the Division de Lutte contre le Sida (DLS). Salary and functioning costs were integrated into those of the Health Department.

In 2002, the *Conseil National de Lutte contre le Sida* (CNLS) was created under the authority of the Prime Minister. The budget of the Executive Secretariat (SENLS) is therefore no longer managed by the Health Ministry. Moreover, the multisectorial nature of the fight against AIDS requires that several ministries other than the Health Ministry must also set aside certain resources for this purpose. "Budgetary authorizations for health purposes" already existed in the armed forces (4.3 million FCFA in 1999), the Ministry of the Interior (174 million FCFA) and the Ministry of Education (73 million FCFA). The new program also seeks to involve the Ministries of Family, Youth and Employment, among others. These ministries have not, however, created specific budgets.

A proportion of State spending is also imputed to the Consolidated Investment Budget (BCI). In 2002, 180 million FCFA was budgeted for PNLS (mainly to combat STDs), to which 500 million FCFA was added for the AIDS/Drugs Program.

### *Changes in funding distribution*

It is therefore difficult to provide a precise summary table of total spending on AIDS. However, based on the PNLS budget, it can be estimated that public funding of this program rose from 400 to 2,475 million FCFA over the last five years.

*Table 1: Evolution of operational budgets*

Millions FCFA

| | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|
| State Budget | 267 000 | 295 600 | 321 300 | 373 900 | 419 700 |
| Health budget | 18 444 | 20 643 | 23 280 | 25 821 | 30 912 |
| PNLS-State | 400 | 500 | 550 | 1 300 | 2 475 |
| ISAARV | 250 | 250 | 300 | 600 | 975 |
| Health/State | 6.9% | 7.0% | 7.3% | 6.9% | 7.4% |
| PNLS/Health | 2.2% | 2.4% | 2.4% | 5.0% | 8.0% |
| ISAARV/PNLS | 62.5% | 50.0% | 54.5% | 46.2% | 39.4% |

*Source/Finance Law, PDIS, PNLS.*

During the same period, the proportion of the health budget allotted to PNLS rose from 2.2% to 8%. This increase is even larger in real terms, as total health spending also increased to meet the authorities' objectives for 2003: more than 9% of the Ordinary Expenditures Budget *(Budget des Dépenses Ordinaires)* was allotted to health (although with a slightly different method of calculation from that used in Table 1). In real terms the health budget increased by more than 20% in 2002, while the PNLS budget doubled. At the same time, spending on other health priorities also greatly increased. Hence, it is difficult to pretend that HIV/AIDS spending has occurred to the detriment of other health concerns.

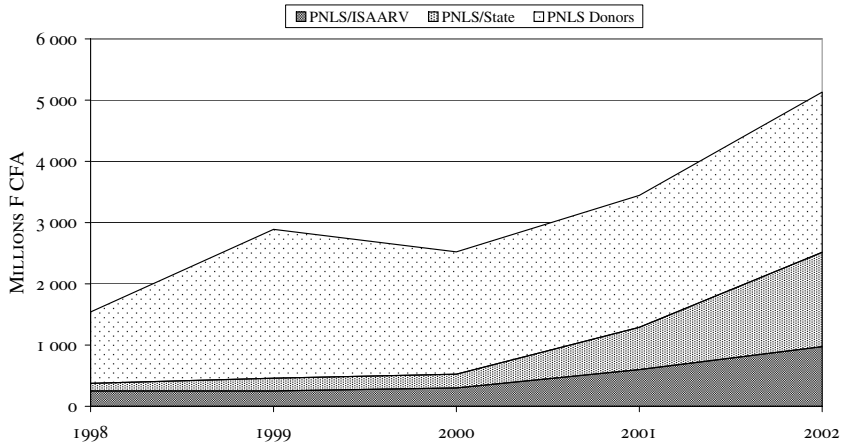
This increase in the PNLS budget is not solely explained by increases in ARV and reagent purchases, which are key ISAARV(*Initiative sénégalaise d'accès aux antirétroviraux* – Senegalese Antiretrovirals Access Initiative) expenditures still fully met by the State. Despite a tripling of purchases in three years, the share of ISAARV in the National AIDS Program declined from 62.5% to less than 40%. The Program's other activities therefore increased in parallel, and were publicly funded.

The PNLS operational budget remains large relative to other programs (835 million FCFA was budgeted to PEV (*Programme élargi de vaccination* – Expanding program on immunization) in 2002 for vaccines) and also relative to grants to districts (about 5 million FCFA annually on average) and regional hospitals (about 150 million FCFA). These comparisons offer a basic picture of the order of spending, as they obviously concern very different operations. These structures'own resources, and foreign aid for programs, must also be taken into account.

## III
## FOREIGN AID

Like other programs, PNLS has received funds from foreign donors (Figure 1).

*Figure 1: PNLS financing*




Foreign aid, which was already high in 1998, increased in 1999. This funding source stabilized in 2000, and the increase in foreign aid now parallels that in national funding.

### *Comparison of AIDS funding with total health spending*

Senegal is a moderate-income country (GNP US$545 per capita). It continues to receive large amounts of foreign aid, although the trend is currently downwards. Public development funding corresponded to 8.1% of GDP in 2000, *i.e.* US$37.5 per capita [23]. The health sector received 12.6% of all international aid granted to Senegal in 2000, a major increase over 1999 (8%).

In this general context of health prioritization by the Senegalese authorities and international donors, it is interesting to compare AIDS funding with total health spending. PDIS summary accounts show that the health sector receives about half its funds from national and local government (Table 2A).

*Table 2: PNLS and overall health sectorfunding sources*

| | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|
| *A. Total health spending* | | | | |
| FOREIGN DONORS | 23% | 33% | 37% | 34% |
| POPULATION | 15% | 12% | 12% | 15% |
| NATIONAL / LOCAL GOVERNMENT | 62% | 56% | 51% | 51% |
| *B. PNLS spending* | | | | |
| FOREIGN DONORS | 75.4% | 83.9% | 78.9% | 62.1% |
| POPULATION | 0.4% | 0.3% | 1.0% | 1.0% |
| STATE | 24.3% | 15.9% | 20.7% | 37.2% |

*Sources: PNLS and PDIS.*

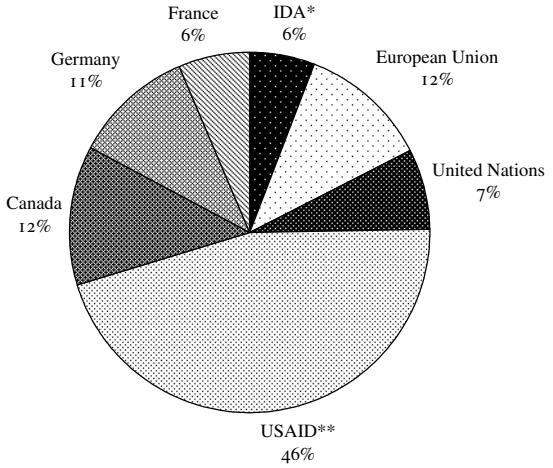
PNLS funding (Table 2B) thus appears to be more dependent than the overall health sector on foreign donors (62% of total spending), although this discrepancy became less marked between 1998 and 2001. Indeed, the part represented by foreign aid in PNLS spending decreased, whereas it increased as a part of overall health spending. This clearly shows that the fight against AIDS in Senegal is not artificially sustained by foreign aid.

The specific nature of PNLS funding (which explains the difference between the two tables) is related to the financial contribution of the population. This contribution is far higher in the health sector as a whole, with the general application of payment systems (often to the detriment of treatment accessibility). In contrast, the only household contribution to PNLS funding is the amount paid by patients for their treatment within the ISAARV program (or for the sale of ARV outside the program, by Fann Hospital pharmacy [24]). These sums remain modest, although they have increased in recent years. The receipts, which now total 85 million FCFA, have not yet been used.

### *Funding sources*

Most foreign funding received by PNLS comes from bilateral aid, mainly from the United States (Figure 2). A few other countries, such as Canada, Germany and France, account for most of the rest.

*Figure 2: Budget spending by PNLS 1998-2001*




*International Development Agency (World Bank).
**US Agency for International Development.

Multilateral aid comes mainly from the European Union (EU). United Nations funding comes from several different institutions (WHO, UNDP, UNICEF, FNUAP and UNAIDS). The following table compares foreign aid for the fight against AIDS with total aid received by the Senegalese health sector (Table 3).

*Table 3: Pledged aid, by donor; 1998-2001*

Millions FCFA

| | Overall Health sector | PNLS | PNLS/Health |
|---|---|---|---|
| IDA | 16,030 | 414 | 2.58% |
| EU | 2,761 | 829 | 30.03% |
| United Nations | 6,755 | 514 | 7.61% |
| USAID | 14,371 | 3,268 | 22.74% |
| Canada | 900 | 882 | 98.00% |
| Germany | 1,821 | 778 | 42.71% |
| France | 6,144 | 452 | 7.36% |
| Others | 24,924 | 0 | 0.00% |
| TOTAL | 73,707 | 7,137 | 9.68% |

*Sources PDIS, PNLS.*

Canada devotes almost all its aid to combating HIV/AIDS. PNLS receives about one-quarter (or sometimes one-third) of the aid provided by the main foreign donors, such as USAID, Germany and the European Union. In contrast, many other foreign donors make little or no contribution to the fight against AIDS. On the whole, 9.7% of foreign aid is devoted to the PNLS operational budget, representing a sum similar to that allotted to PNLS in the state budget. Contrary to the impression created by the visibility and concomitance of AIDS projects, foreign aid to Senegal has so far not been particularly targeted at AIDS.

While the proportion of international aid pledges actually disbursed is often low in Senegal (only 47.7% of aid pledged for the entire health sector), the proportion received by PNLS is relatively high (80% on average), despite strong variations among projects and foreign donors. For example, from 1998 to 2001, the average execution rate of EU-sponsored AIDS projects was only 67%. By comparison, the execution rate of publicly funded PNLS projects was about 90%.

*Distribution according to the type of spending*

The distribution according to the type of spending also varies according to the funding source (Table 4).

*Table 4: Actual PNLS spending in 1998-2001*

| | State | Foreign aid | Total |
|---|---|---|---|
| Investment | 1.5% | 12% | 10% |
| Operations | 94% | 72% | 78% |
| Salaries | 4.5% | 16% | 13% |
| Total | 94% | 100% | 100% |

*Source: PNLS.*

Most PNLS spending is devoted to operations (excluding salaries) which represented 78% of all funding received. This is particularly the case of state funding, as salaries for PNLS personnel (a dozen staff, including 6 doctors) are not taken into account. The 36 million FCFA spent each year on salaries allow the recruitment of contractual technicians within the framework of

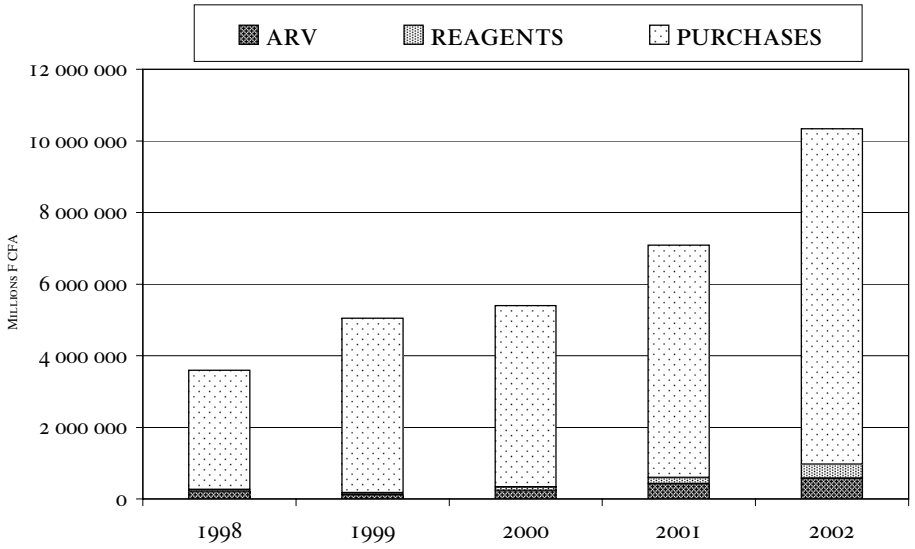
projects. In contrast, international donors pay for salary costs (16%). They also devote a relatively large part of their aid to investments (12%), although so far this has mainly been limited to office equipment. Vehicle purchases are not included in these data, being part of the Health Ministry budget.

It would be interesting to analyze the distribution of funds according to the type of activity (transfusion safety; Information, Education, Communication [IEC]; STD, etc.) and operator (NGOs, programs, decentralized structures), but we do not yet have access to operational tools (such as strategic plans) for the years in question. We therefore limit this analysis to purchases of antiretroviral drugs.

## IV
## PURCHASES OF ARV AND REAGENTS

Since 2000 the Pharmacie Nationale d'Approvisionnement (PNA - National Supply Pharmacy) has exerted an effective monopoly on ARV importation (including for the private sector, which is supplied within the "out-of-program" framework). Purchases of ARV have grown significantly, but not as rapidly as total PNA purchases (Figure 3).

*Figure 3: Evolution of PNA purchases*



The increase in PNA purchases in 2002 was due to the creation of a 6-month strategic stock of all products. PNA is also taking over a growing proportion of vaccine purchases. In 2002, ARV and reagents represented 10% of all PNA orders. Total annual purchases rose from 261 to 969 million FCFA between 1998 and 2002. The price cuts negotiated with suppliers in 2000 did not slow this progression. Almost all orders were placed with patent holders. Only one "test" order was placed with a generics manufacturer, in 2002 (for 38 million FCFA, *i.e.* 3% of the year's orders).

But PNA still plays a limited role in the national drug supply chain, its turnover representing only 8.4% of the overall pharmaceutical sector. In Senegal, half of all national health spending (about US$23 per year per inhabitant) takes place in the private sector, and 90% of household spending is devoted to buying drugs from the private sector or the "informal" market. ARV therefore constitutes only 0.3% of the overall pharmaceuticals market. Although this share has increased considerably, pharmaceutical companies' chief concerns are their patents' rights and public image.

Since the PNA will likely transform into an autonomous public establishment, its role in the ARV supply chain must be discussed. For the moment, 80% of PNA receipts come from direct purchases by health care structures (through cost recovery). Following decentralization, some structures will deal more with the private sector. Does this mean PNA should specialize in supplying drugs of "public interest" (vaccines, ARVs, etc.) and be funded mainly by the State? One drawback is that this might carry a risk of cash-flow problems due to inadequate debt recovery. Or, on the contrary, with the development of AIDS management on the periphery of the private sector, should the drug supply circuit be opened up to the private sector? Ultimately, what impact would this have on the continuity of price control, quality assurance and availability?

## V
## EVOLUTION BETWEEN 2003 AND 2006

2003 is a watershed year in the fight against AIDS in Senegal, with major institutional reorganization (creation of CNLS and SENLS) and the release of new funds, especially by the World Bank (Multi-Country HIV-AIDS Program, MAP) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).

*"The watershed year"*

In 2003, it is also planned to significantly develop ISAARV decentralization and to launch new activities such as voluntary screening centers. This change in the scale of actions against HIV/AIDS translates into a large increase in resources, as listed in the first-year budget of the new strategic plan (Table 5)

*Table 5: Provisional budgets of PNLS then DLS (division de lutte contre le sida)*

Millions FCFA

| | PNLS 2002 | DLS 2003 | VARIATION |
|---|---|---|---|
| ISAARV State | 975 | 1,428 | 46% |
| ISAARV Donors | 0 | 3,131 | |
| Total ISAARV | 975 | 4,559 | 368% |
| State Program | 2,475 | 3,418 | 38% |
| Foreign aid | 2,617 | 6,585 | 152% |
| Total Program | 5,092 | 10,003 | 96% |
| Total Health Ministry | 30,912 | 35,343 | 14% |

| | | |
|---|---|---|
| ISAARV/Program | 19% | 46% |
| Donors/Program | 51% | 66% |
| Program/Ministry | 8% | 10% |

Thus, between 2002 and 2003, the Program's total budget has doubled, from 5 to 10 billion FCFA, while the ISAARV budget has been multiplied 4.6-fold, and the share of ISAARV in PNLS has risen from 19% to 46%. Foreign aid now meets two-thirds of the ISAARV budget. Public funding of ISAARV increased by only 46%.

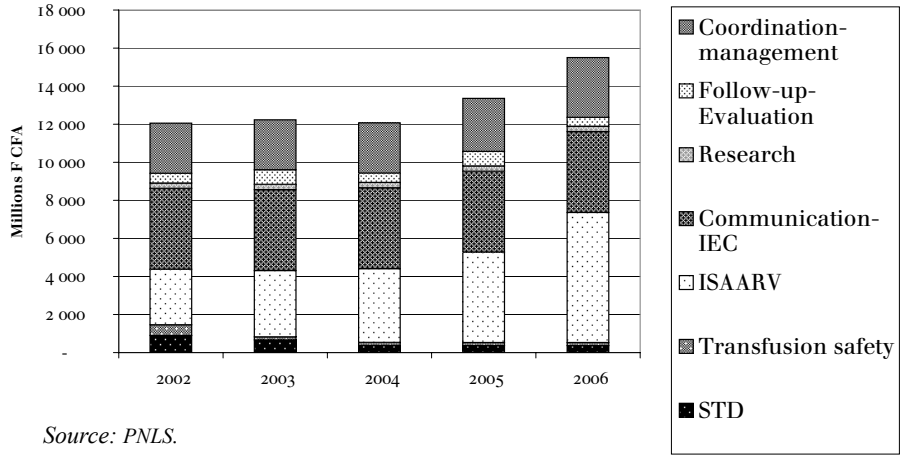
The State budget for other items of the Program showed similar growth (38%), but the contribution of foreign aid has considerably increased here, too. Globally, the program represents a reasonable part of the Health Ministry budget (10% instead of 8%), but dependence on foreign aid has increased (66%).

This increase in total resources has thus been accompanied by a change in the distribution of funding sources. The Program has not only seen an increase in its budget but also a change of philosophy, which is most evident with regard to the distribution of resources according to the type of activity.

*Five-year forecasts according to the type of activity*

It is also interesting to analyze mid-term estimates based on the strategic plan of the CNLS (Figure 4). This plan was to cover the period 2002-2006 but, because of delays in foreign aid, a shift of about a year is anticipated.

*Figure 4: Budget of the strategic HIV/AIDS plan*




*Source: PNLS.*

After major transformations linked to this new plan's implementation, its total resources and their distribution will evolve more gradually. The total budget will be stable for the first three years and then increase slightly. The largest share of available resources will be equally devoted to the two main items (IEC and ISAARV). From 2004 onwards the ISAARV budget will exceed the IEC budget, but, in absolute terms, spending on IEC will not fall. Thus, the increase in the Program's total budget during the last two years can be attributed to the extension of patient management.

Funds reserved for STDs and transfusion safety will decline, but part of these activities will be gradually integrated into existing structures. The research budget is modest, but significant resources will be devoted to follow-up and evaluation. "Coordination and management" will receive a large share, in order to ensure that the expansion of activities, and especially their decentralization, takes place in favorable conditions. This part of the budget will cover unforeseen contingencies related to organizational problems. Indeed, during the period concerned, this budget will remain relatively stable despite the expansion of the program, and this implies the need for major gains in efficiency and productivity.

*Funding of the strategic plan*

For the 5-year period, the program will cost nearly 65 billion FCFA. Existing funds cover 81% of this sum (53 billion FCFA).

*Table 6: Strategic plan, 2002-2006*

Millions F CFA

| **Funding source** | Current budget | % |
|---|---|---|
| State | 7,150 | 13.5% |
| United Nations | 692 | 1.3% |
| GFATM | 8,300 | 15.7% |
| IDA | 21,647 | 40.9% |
| HIPC Initiative* | 5,000 | 9.4% |
| EU | 855 | 1.6% |
| USAID | 4,167 | 7.9% |
| Germany | 3,000 | 5.7% |
| Canada | 1,064 | 2.0% |
| France | 1,050 | 2.0% |
| GSK** | 36 | 0.1% |
| **Total** | **52,961** | **100%** |

* Heavily Indebted Poor Countries Initiative.
** Glaxo Smith Kline.

The share of state funding, which was 37% in 2002 and 34% in 2003, will fall to 13.5% for the entire period of the plan. These figures are solely indicative, because state commitments are not fixed mid-term, but are voted each year.

Long-standing foreign donors to the National AIDS Program continue to finance the plan, but the distribution is appreciably modified and far more concentrated. The World Bank will finance 41% of the plan, but in the form of loans (IDA), compared to the previous 4 years when 96% of foreign aid came in the form of donations. It is somewhat paradoxical that the program should be financed through both a substantial increase in debt and debt relief. It is true that in Senegal, these latter resources (HIPC Initiative funds, which represent nearly 10% of the total budget) still depend on negotiations with the IMF.

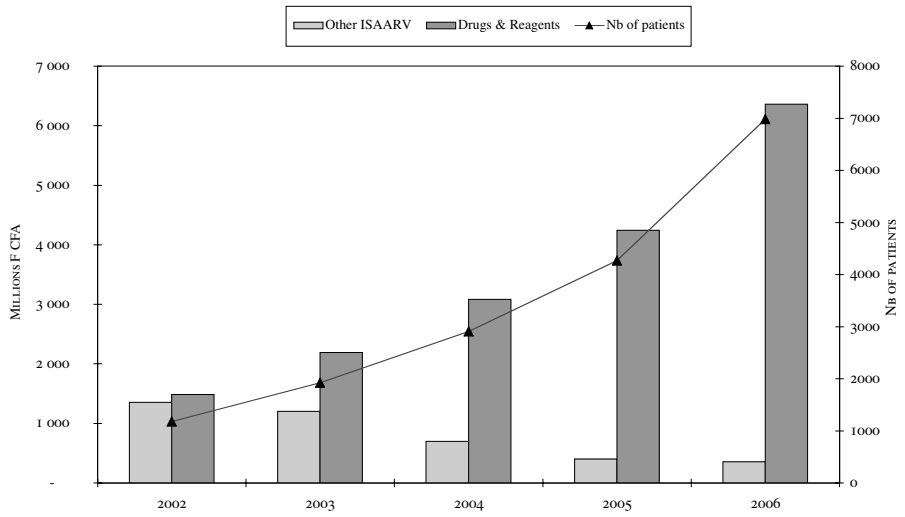
A new donor, the GFATM, now provides almost 16% of funds. Aid from all other foreign donors has appreciably decreased in relative value. But the

average annual funding by France and Germany has increased considerably compared with the previous period (two-fold and three-fold, respectively). Canada and the United Nations will maintain their funding at stable levels in absolute values, while the contribution of the European Union is shrinking.

### *Development of ISAARV*

Patient management is a major feature of the new plan and, as such, warrants special attention. The share of ISAARV will increase significantly, because it is planned to gradually expand treatment from 1,177 patients to 6,982 patients, *i.e.* a year-to-year increase of more than 50%. As an estimated 15,000 persons in Senegal qualify for treatment from a medical standpoint, the program would only meet half the theoretical needs. The objective is nonetheless ambitious, and explains the relative increase in the pharmaceuticals budget (Figure 5).

*Figure 5: Evolution of the provisionnal budget for 2002 to 2006*




The pharmaceuticals budget also comprises a growing proportion of drugs for opportunistic diseases. During the first years of the plan, half the ISAARV budget will be devoted to investments (computers, diagnostic devices, refurbishment of health care centers) and to training, which is necessary for successful decentralization. Gradually, the bulk of the budget will be devoted to purchasing the drugs required to meet the growth in demand as the program expands.

However, the decline in both the relative and absolute value of other ISAARV expenditures is potentially worrisome. Major funding will probably be required for on-the-job training and equipment maintenance. Despite the multiple funding sources, peripheral structures may not be able, within such a short time span, to support these services at the same level of technical quality and administrative efficiency.

Regarding the funding of ARVs, reagents and certain drugs for opportunistic infections (OI), estimated needs, although significant, are more or less covered (Table 7).

*Table 7: provisional budget, 2002-2006*
Millions F CFA

| | **ARV** | **Reagents** | **Drugs for OI** |
|---|---|---|---|
| STATE | 2,575 | 3,700 | 225 |
| IDA | 3,087 | 182 | – |
| HIPC INITIATIVE | 5,000 | – | – |
| GFATM | 1,500 | 365 | – |
| FRANCE | 283.5 | 44 | 50 |
| EU | – | 9.5 | 14.6 |
| WHO | 7 | – | – |
| GSK | – | 6 | – |
| TOTAL ACQUIRED | 12,452.5 | 4,306.5 | 289.6 |
| TOTAL REQUIRED | 12,575.9 | 4,780.1 | 499 |

As HIPC Initiative funding is uncertain, the World Bank is the principal funding source for ARV purchases (budget of three billion FCFA). The State finances a similar amount but also pays for the bulk of reagents (budget of 3.7 billion F CFA). This provisional public spending is considerably higher than that represented by current drug purchases by the Health Ministry.

These budgets are based on a yearly ARV treatment cost of US$700 to 1000 per patient, which is itself based on prices negotiated with pharmaceutical firms in 2000. This cost could potentially be halved by the use of generics, although this would require changes in the habits of Senegalese health care professionals, and also a generic supply chain.

The organization and management of drug purchases may also become a key problem. Total ARV and reagent orders are scheduled to increase to more than 6 billion F CFA in 2006, *i.e.* almost half current total orders by the National Supply Pharmacy. Will PNA be in a position to control the supply and distribution of products required for the program while fulfilling its other roles? The place of ARV in the Senegalese drug market will also change radically, posing new challenges for the private drug distribution sector.

## *Conclusion*

Many previous economic analyses have focused on the unit cost of treating HIV-seropositive patients or on costs per avoided infection [25]. Because of the low prevalence and the relatively small number of patients requiring treatment, these unit costs appear far higher in Senegal than those of other health care interventions (before even attempting to measure the impact of the different types of intervention). Adopting a different perspective, we attempted to measure the global cost of an HIV/AIDS program, to estimate what proportion of Senegal's overall health spending is devoted to combating AIDS, and to determine whether spending on AIDS compromises other health priorities.

Our results show that the growth of HIV/AIDS programs has not massively absorbed the resources available to the Senegalese Health Ministry. Indeed, the growth of spending on the National AIDS Program remained relatively under control until 2002. In addition, the national effort on AIDS, and on all other health sectors, has been reinforced. The AIDS program has probably had a "mobilizing" effect, especially in terms of prevention. Public spending has ensured that dependence on foreign aid remains at a reasonable level. This relative independence is also ensured by the diversity of external funding sources. The fight against AIDS has attracted a variety of funds that are not always fungible and therefore readily attributable to other health actions. Yet the fight against AIDS does not seem to have received special status relative to other health care priorities.

Cost-efficiency analyses of the different possible actions on HIV/AIDS haves led some authors to propose focusing on prevention and to consider treatment as "experimental" pending the success of prevention programs [10]. However, it is difficult to define a "satisfactory" level of prevention and debatable whether such a level could be reached without expanding treatment simultaneously. Senegalese experience in coming years may throw light on this discussion. For the time being, it seems that treatment has not expanded to the detriment of prevention, at least as regards funding. However, analysis

of the impact, positive or negative, of the treatment of seropositive persons on a country's overall health care system is a far more complex task.

The Senegalese experience has already led the national health authorities and foreign donors to propose a far more ambitious strategic plan for the coming years. This plan does not simply represent a change of scale but also implies a profound modification in the distribution of spending, in its relative place within the different state budgets, and in the funding structure. It is of course difficult to anticipate the chances of success of this strategic plan in light of previous experience, because the challenges are of a different order. They include the training of health care personnel, the administrative capacities of the different services, the place of the private sector, and the degree of dependency on foreign aid. The philosophy of intervention has changed in many areas (especially financial considerations). The implementation of this program must be closely monitored (and budgeted). Foreign donors will be required to adapt their funding pragmatically to foster a more gradual and progressive evolution, perhaps not as rapid as currently anticipated, in the face of these new stakes.

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