

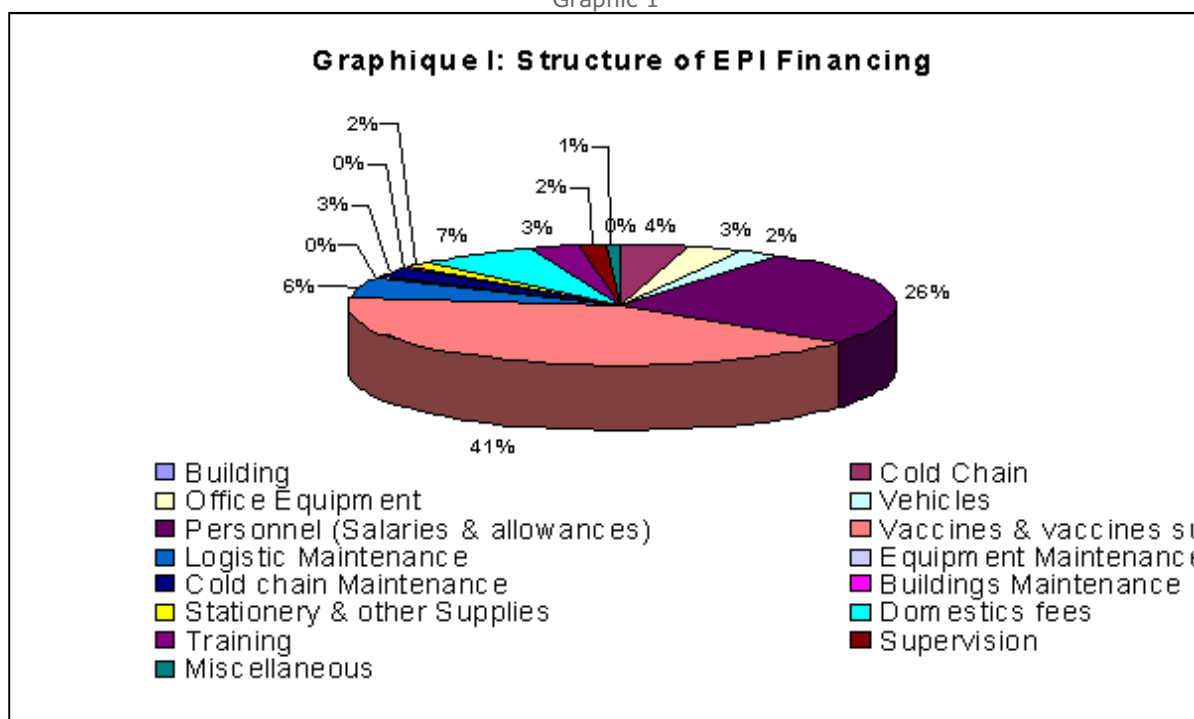
## EVALUATION OF THE FINANCING AND THE COST OF THE EXPANDED PROGRAMME ON IMMUNIZATION IN THE GAMBIA

### 1. Financing of the EPI over the past years

The EPI was implemented in 1979, after an epidemic of yellow fever. The period going from 1979 to 1994 has been characterised by the mobilisation of substantial resources and the achievement of the most important part of investment thanks to the highest priority granted to EPI by external donors. Besides, these pioneers donors provided the essential of EPI financing such as refrigerators (WHO, USAID); cold boxes and vaccines carriers (WHO), vaccines (WHO, USAID), generators and technical assistance (USAID), buildings (Italian Government). UNICEF provided Vehicles, fuel and particularly solar refrigerators in 1988, 1989 and 1990 intended to replace those using kerosene.

The Government was in charge of personnel, maintenance, fuel and kerosene. Nevertheless, from 1986 to 1990, the Government implemented a project which provided an ambulance to each health facility. That constitutes a helpful act which permit a better organisation of the outreach strategy. The following graphic present the structure of funds used to finance routine EPI activities during the last 5 years, going from 1996 to 2000.

Graphic 1



All sources confounded, the total amount of EPI financing for the last 5 years is US\$ 1,853,084.36 ; , the yearly average of the funding is up to US\$ 370,600. The most important part of this amount is recurrent. Indeed, recurrent expenditures represent 90.6% against 9.40 % for capital ones. The relative low rate of capital expenditures is explained by the fact that, as we indicated, most of them have been done during the previous period; besides, it could be due to an underestimation of some items, in particular buildings and sheds.

Vaccines and materiel of vaccination are predominant ; they mobilise 41% of the financing. Personnel expenses follow with 26%. 7%,. Domestic fees and logistics maintenance account respectively for 7 % and 6 % of the total funding. The weakness of financing part attributed to training (2.8) and supervision (1.6%) is due to the priority given - for these expenditures - to the National Immunization Days (NIDs), during the period considered. The investment items such as cold chain, office equipment and logistics counted respectively for 4%, 3.2% and 2.3%.

As we can see on the graphic II hereafter, yearly contributions of each actor is not regular. The period following the coup (1994) has been marked by a progressive disengagement of some of the program's traditional partners.

So, in 1996, there was a strong ownership of program by the Government which is demonstrated by the high proportion of funds allocated (up to 55.3% of the funding). A decrease in Government contribution has been observed in 1997 because of a substantial effort of African Development Bank (ADB) and UNICEF. In 1998, Although WHO is back in the program financing, there was a diminution in the total annual financing with the result that the Government supported 57.06%. This is due to the end of ADB project and funds provided by UNICEF decreased up to 75% in comparison with the last year 1997. The decrease of donors contribution could be due to the highest priority given to NIDs.

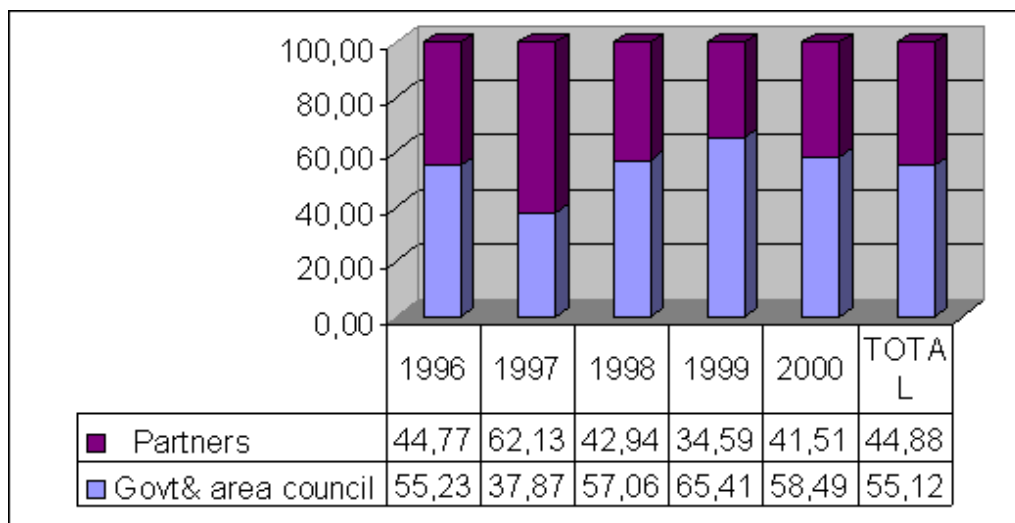
From 1999, there is a renewal of the program's financing which reaches US\$ 512,777.57 in 2000. This important financial effort is, in one hand, essentially the fact of Government; the implementation of Vaccine Independence Initiative and consequently the purchase of vaccines and consumables for routine EPI by the Government with the budgetary support of EDF have increased the government financing up to 65.41% in 1999 and 57.49% in 2000. On the other hand, donors community has recorded the arrival of MRC (2000); besides, some investment was done by WHO, UNICEF and MRC . Finally, over the period, Government and Areas councils supported 55.12% of the financing of the routine EPI activities against 44.88% for Their Partners.

97.7% of the Government contribution is recurrent and is allotted mainly to Personnel, logistics and cold chain maintenance, domestics fees expenditure. The importance of the Government effort expresses in a sense its ownership on the program.

UNICEF is the main partner of The Gambia Expanded Program on Immunization with 24.4% of the total financing, used mainly for vaccines, consumables, cold chain, office equipment and fuel. WHO contributed for 10.4% to the financing despite its funding priorities for the NIDs; 74.5% and 25.5% of this funding have been respectively devoted to recurrent expenditures (training, stationery, fuel, etc...) and investment (vehicle, computer, etc...). The ADB and Medical Research Council (MRC) projects supported around 7% and 1.9% of the financing respectively. Finally, Areas councils provided personnel (labourer for cleansing service) for health services and chairs, tables and benches for outreach stations. Due to lack of information, the estimation of their contributions concerned only the year 2000; thus, these contributions could be underestimated.

The availability of the financing for The Gambian EPI is real and important, and there is some potential ways to increase this financing. But the lack of co-ordination of funding efforts leads sometimes to inefficient resources utilisation: some items are over-financed while others need to be finance.

Graphic 2



## 2. The cost of the EPI routine activities

### A) Structure of the program cost

#### i. Structure of the cost of both Base and outreach strategies

The cost evaluation of the program points out that the total cost of EPI implementation is around D 1.0 million

(D.9,626,562 equivalent to US\$ 720,551.05). About 38 percent of the resources allocated to the EPI were consumed by the Base or fixed strategy while the share of Outreach strategy is 62.0%. The Health facilities, central and the divisional levels, count respectively for 88%, 9% and 3% of the overall cost. Vaccines and supervision expenses are charged for health facilities and divisional levels respectively, while most of equipment maintenance and Training (65%) is attributed to the central level.

All strategies confounded, the major part of the total cost of the program is recurrent (60%) and capital cost represents 40%. The distinctive feature of The Gambian Immunization program is the predominant part of vaccines and vaccines supplies (33% of the overall cost and about 55% of the operating cost). The explanation is, in one hand, that besides the traditional vaccines of every National Immunisation Program, The Gambian EPI provides Hepatitis B (Hep B) and Haemophilus Influenzae B (Hi B) vaccines. In the other hand, populations affinity with vaccination and immunisation culture within the Gambian society may play a major role, as expressed by the high coverage rates. However, the relatively high levels of vaccines wastage (particularly in rainy season), is becoming a major concern.

Personnel follows with 15% of total cost and 25% of recurrent cost. These rates are in accordance with the relatively low salaries and the integration of the program with MCH and Family Planning. Both cold chain and buildings represent around 14% of overall cost and respectively 36% and 34% of capital cost. The availability of solar panels and refrigerators in all facilities and some outreach stations explain the importance of the cost of cold chain equipment. The cost of the buildings increase because of amortisation of the numerous outreach stations.

Then, the annual amortisation of logistics (due essentially to the outreach strategy) represents 8% to the program cost. Lastly, the following items (: equipment, logistics maintenance, domestic fees) are accounted for 4% each and the expenditures which are devoted to support the routine activities like training and supervision are both under 1%.

ii. **The structure of EPI cost by strategy**

The Base strategy costs 3,669,942 Dalasis and represents 38.1% of the total EPI cost. Close to 65% of this strategy's cost is recurrent , in which vaccines count for over 54.4% against 17.9%, 5.1%, 2% , 1.5%, 0.6%, 0.3% for personnel, Domestic fees logistic maintenance , cold chain maintenance, training, supervision . Capital cost represents 35% of the base strategy's cost. Around 15%, 14%, 4% and 2% of this strategy were attributed to the annual depreciation charges of cold chain, buildings, equipment, and logistics respectively.

The Outreach strategy consumed 5,956,620 Dalasis, that is to say close to 62% of the total cost of the program. Recurrent costs are the most important part of the Outreach strategy (56.9%). Vaccines represent almost 31% of the strategy's cost. Cold chain equipment holds the second position and the relative importance of these costs is due to the necessary use of more vaccines carriers, cold boxes and ice packs. Buildings amortisation and personnel follow with 13.4% and 13% respectively.

As we could expect for the Outreach strategy, depreciation of the logistics (12%) and logistics maintenance (5.1%) hold an important position in the cost of this strategy. Both count for around 20% and the cost of these item could be even higher without the integration of the program with MCH and Family Planning activities.

**B) Cost - Effectiveness Analysis**

Two indicators have been chosen to evaluate the program's cost-effectiveness: the cost of an administered dose and that of a Fully immunised Child (FIC) by Age 12 months measured by the number of children having DPT3.

Table 1 : The cost effectiveness ratios found for different strategies  
(the change rate used for 2000 is US \$ 1 for 13,36 Dalasis)

Strategies	Cost-effectiveness ratio			
	Cost (dalasis/dose)	Cost (USD/dose)	Cost (in dalasis) FIC (nb of DPT 3)	Cost (in USD) FIC (nb of DPT 3)
Both Base and Outreach strategy	8.6	0.64	499	37
Base strategy	8.0	0.60	371	28

Outreach strategy

9.0

0.67

633

47

The average cost is US \$0.64 per dose and US \$37 per FIC. In Base strategy, a FIC costs US \$28 opposed to US \$47 for the Outreach strategy. These costs are high and are the consequence of the number of antigens delivered (9) and the high cost of Hep B and Hib vaccines.

As we could expect, the Base strategy is more cost-effectiveness; this strategy should be reinforced. But it is still necessary to continue to implement the outreach strategy because it plays an important role in improving the EPI coverage rates, and therefore the prevention of diseases. It also contributes to strengthen the equity in health care delivery.

### 3. Sensitivity Analysis

Like every evaluation, this study contains some degree of uncertainty and there is a need to verify the relevance of the assumptions made initially, particularly for factors influencing notably the results. This sensitivity analysis was done on the five following parameters: the quantity of vaccines effectively used during vaccination, the time devoted by the personnel to the National Immunization Days (NIDs), change of the discount rate, the useful life of logistics, the useful life of EPI goods stocked.

Results of the sensitivity analysis confirm the previous conclusions.

### 4. Recommendations

It is essential :

- To maintain the outreach strategy. However, it is recommended to reinforce social mobilisation in order to improve its effectiveness
- To think of putting either a volunteer or contractualise with workplace, NGOs and religious health facilities for the management of some outreach stations
- Department of State for Health shall develop a multiyear financing plan to insure better coordination
- To implement a social health insurance which will generate additional resources
- To reinforce the EPI maintenance service
- To improve the monitoring, social mobilization and vaccines management, procurement, forecast and timely delivery capacity
- To use cost-effectiveness analysis to advocate for an increase in EPI Financing

Heading	1996	1997	1998	1999	2000	Total	%
<b>Bulding</b>	-	-	-	-	-	-	0.0
<b>Cold Chain</b>	6,034.61		9,034.40	24,535.60	33,007.98	72,612.59	3.9
<b>Office Equipement</b>	4,681.94	5,116.68	3,072.03	3,690.81	42,890.28	59,451.74	3.2
<b>Vehicles</b>	14,137.09				28,019.00	42,156.09	2.3
<b>Subtotal</b>	24,853.64	5,116.675	12,106.43	28,226.41	103,917.26	174,220.42	9.40
<b>Personnel (a*)</b>	87,098.48	91,347.92	96,685.23	102,881.86	107,098.18	485,111.66	26.2
<b>Vaccines &amp; VS*</b>	95,538.14	237,263.90	34,156.10	198,820.00	194,627.10	760,405.24	41.0
<b>Logistic M*</b>	14,835.86	15,976.82	29,416.83	23,731.24	28,528.92	112,489.67	6.1
<b>Cold Chain M*</b>	9,319.60	9,461.53	9,730.22	9,928.80	10,080.00	48,520.15	2.6
<b>Buildings M*</b>					4,484.24	4,484.24	0.2
<b>Stationery &amp; OS*</b>			7,800.00	8,000.00	13,241.56	29,041.56	1.6
<b>Domestics fees</b>	25,777.93	26,271.92	26,584.45	28,428.93	28,491.21	135,554.44	7.3
<b>Training</b>			22,800.00	25,000.00	4,024.70	51,824.70	2.8
<b>Supervision</b>			26,918.00		2,151.35	29,069.35	1.6

Miscellaneous			1,900.00		15,000.00	16,900.00	0.9
Subtotal	233,613.89	381,403.83	257,084.61	397,901.26	408,860.35	1,678,863.94	90.60
Total	258,467.53	386,520.50	269,191.04	426,127.67	512,777.61	1,853,084.36	100.00

(a\*) = Salaries & allowances

VS\* = Vaccines supplies

M\* = Maintenance

OS\* = Other supplies

This evaluation has been conducted in April-June 2001, with the collaboration of Mrs Alpha NJIE (EPI National Manager), Tchernon DIALLO (Principal Planner/ Department Of State for Health and welfare) and Pa Lamine BEYAI (WHO) and with the financial support of ARIVAS project.

*NB : Le rapport de cette étude est disponible auprès de la CATR à l'adresse suivante :*

Projet régional FED ARIVA  
 08 BP 11030 Ouagadougou 08  
 Tél. : +226 31 69 16  
 Fax : +226 31 69 18  
 E-mail : [info@fedariva.org](mailto:info@fedariva.org)

*ou auprès du Service de la Direction Nationale du PMI et du PEV à l'adresse ci-après :*

National EPI Manager Banjul Gambie  
 Tél. : +220 22 73 90  
 Fax : +220 22 58 73  
 E-mail : [Alphanjie@hotmail.com](mailto:Alphanjie@hotmail.com)