Financial Sustainability Plan of the National Immunization Programme of the Republic of Uzbekistan

This document was prepared by the members of the Working Group on the Drafting of the National Immunization Programme's Financial Sustainability Plan:

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In addition to the persons mentioned above, the Government of the Republic of Uzbekistan would like to express its thanks to the National State Sanitary and Epidemiological Surveillance Centre, the Representative Office of the United Nations Children's Fund (UNICEF) in Uzbekistan, the Representative Office of the World Health Organization (WHO) in Uzbekistan and the Ministry of Finance, for their contributions in drafting the Financial Sustainability Plan of the National Immunization Programme, as well as to the members of the Interdepartmental Coordinating Committee, for their support for the Plan and the invaluable ideas that they have expressed in this document.

Signatures of members of the Government

The Ministry of Health and the Ministry of Finance of the Republic of Uzbekistan hereby express their interest in ensuring the financial sustainability of the National Immunization Programme, in accordance with the current Plan. By signing this document, the Parties call upon the other departments of the Republic of Uzbekistan involved in health funding and international donor organizations to join forces in meeting the financial needs of the National Immunization Programme by allocating appropriate funds on a reliable basis.

(signed)

Feruz Gafurovi Nazirov
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November 2003

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SUMMARY

The main aims and tasks of the National Immunization Programme of Uzbekistan for the period from 2003 to 2009 are:

- to maintain a high (over 97 per cent) coverage rate of the target population with the traditional vaccinations: BCG, DTP and OPV, and the measles vaccine;

- to reduce measles morbidity to less than one case per million population;

- to reduce as far as possible the level of postvaccinal complications;

- to increase mumps vaccination coverage to over 90 per cent;

- to introduce the hepatitis-B vaccine and achieve a coverage of 99 per cent with this antigen;

- to ensure that loss (wastage) of vaccines is kept to a minimum;

- to ensure reliable functioning of the cold chain;

- to ensure that vaccine injections are performed safely through universal introduction of auto-destruct syringes and skill enhancement of NIP personnel;

- to ensure the safe disposal of used injection supplies.

Main problems and funding possibilities of the National Immunization Programme in the context of the country situation and its health system

In the past five years, Uzbekistan has experiences stable annual growth in Gross Domestic Product (GDP) of between 4.0 and 4.4 per cent.

The portion of State spending on health amounted to 2.4 per cent of GDP in 2002, or 9.3 per cent of overall spending from the State budget.

The current reform of the health system, in particular of the primary health care system, can have a real impact on the organization and functioning of the Immunization Programme. On the one hand, funding is provided from local budgets for health institutions. On the other hand, the advantages for the NIP of centralized procurement and delivery of vaccines have been demonstrated over the period 1995-2000. These two factors have raised the question of how to improve existing national budget appropriation mechanisms for the centralized purchase of vaccines and for their subsequent distribution to the regions. A productive dialogue between the Ministries of Finance and Health is crucial to establishing a separate item in the available budget of the State Sanitary and Epidemiological Surveillance System for the centralized acquisition of vaccines for the NIP, and it is also crucial to agreeing upon procedures for the procurement and use of such funds. If not given due attention,

these problems could in the near future lead to breakdowns in the supply of vaccines and in the immunization process, and to a waste of very limited resources.

Within the health system itself, over and above improving the mechanisms that ensure and control the quality of general health services and the NIP in particular, the main task is to further improve upon a system for effective interaction between the elements of the State Sanitary and Epidemiological Surveillance Service responsible for supply and distribution of vaccines, and those treatment and preventive establishments in which the vaccinations actually take place. Donor organizations can and must provide effective assistance in the drafting, adoption and introduction of such mechanisms.

Current expenditure for Programme implementation and funding sources

Overall expenditure on the National Immunization Programme (excluding the value of vaccines used in response to epidemiological indicators) stood at US$ 5.7 million in 2000 and US$ 7.1 million in 2002 (Tables 3.1 and 3.2). Of this, Government funding (from the national and local budgets) covered 98 per cent of all the Programme's expenditure in 2000 (Table 3.1) and 68 per cent in 2002 (Table 3.2), while donors covered 1.5 per cent and 32 per cent, respectively.

Among donors, the leading roles were played by the Government of Japan and the Global Alliance for Vaccines and Immunization (GAVI). In 2002, the former provided 17 per cent of the overall financing (Table 3.2), thus funding the purchase of US$ 922 000 worth of vaccines, US$ 105 000 worth of injection supplies and US$ 302 000 worth of cold chain equipment. The Global Alliance for Vaccines and Immunization Vaccine Fund in the same year accounted for 13 per cent of overall financing (Table 3.2), funding the purchase of US$ 714 000 worth of vaccines and US$ 128 000 worth of injection supplies.

In 2002, the total Programme cost amounted to 3.9 per cent of overall State health expenditure.

In 2000, the cost of vaccines for the entire Programme amounted to US$ 1.29 million, or 23 per cent of the Programme's total expenditure (Figure 3.1). In 2002 funding for procurement of vaccines came to US$ 2.13 million, or 30 per cent of overall expenditure on the Programme (Figure 3.2).

Expenditure for the acquisition of vaccines for one fully immunized child (FIC)[1] was US$ 2.33 in 2000 and US$ 2.29 in 2002.

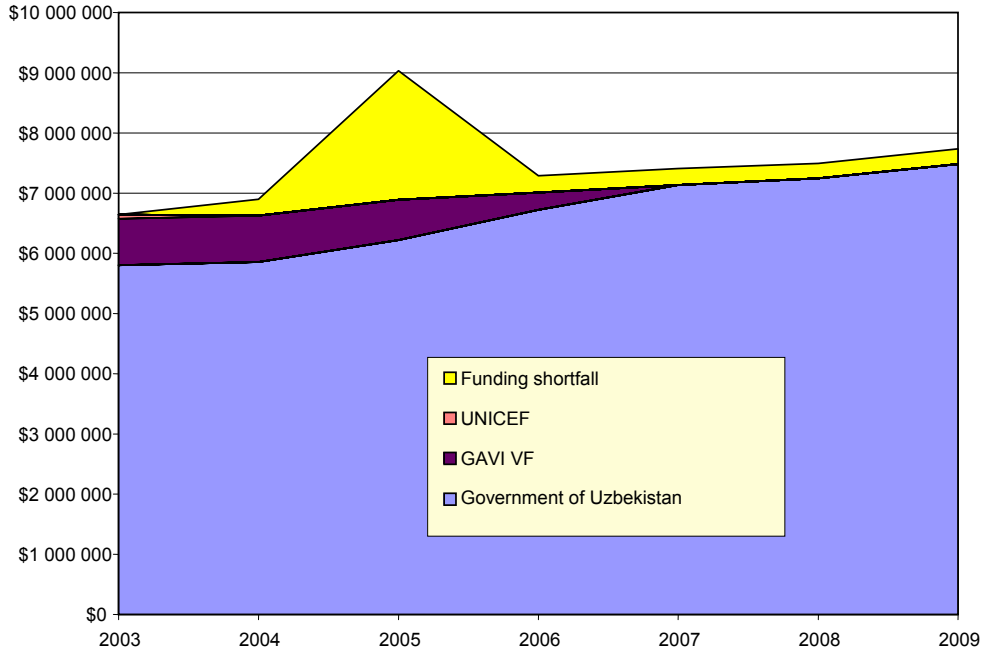
Funding forecast for the immunization Programme while assistance is provided by the Vaccine Fund and beyond

[1] The fully immunized child index (FIC) is a measure of the per capita expenditure for vaccines for the target population, and includes only the vaccines usually administered, i.e., those for which the coverage rates are 40 per cent or greater. In this study the FIC index was calculated by taking the sum costs of a full set of immunization programme vaccines (all vaccines given to children by the age of two): one dose of BCG vaccine, five doses of OPV vaccine, four doses of DTP, two doses of measles vaccine, three doses of hepatitis-B vaccine and one dose of mumps vaccine.

Overall expenditure on the National Immunization Programme will gradually increase from US$ 6.64 million in 2003 to US$ 7.74 million in 2009 (Table 4.1), with the exception of 2005 when a mass measles immunization campaign is planned. That will require additional purchases of 8.3 million doses of measles vaccine, thus driving the cost of the Programme up to US$ 9 million.

The overall long-term funding prospects and forecast shortfall between requirements and available funding,[2] by year, are presented in Figure 1.

Figure 1. Forecast of reliable funding by source, and shortfall (million $)



It is clear from Figure 1 that the shortfall is relatively small during the period, with the exception of 2005 when the mass measles immunization campaign will require significant expenditure for the acquisition of measles vaccines. The total funding shortfall will thus rise to US$ 2.14 million.

The forecast of the share of vaccine expenditure in relation to the overall funding shortfall from 2004 to 2009 is presented in Table 1.

[2] The funding shortfall was defined bearing in mind that the State budget provides funding only for the acquisition of those vaccines that fall under the NIP schedule, while those vaccines used for NIDs and sub-NIDs are generally purchased using funds from donor organizations. In this study, the shortfall in funding is attributable to the amounts forecast between 2003 and 2009 for OPV vaccines for the sub-NID programme against poliomyelitis, for measles vaccines for the 2005 NID measles control programme, for short-term training of medical workers and for IEC (information, education and communication) activities and social mobilization, and for the acquisition and installation of incinerators. The corresponding figures appear in Table 4.1 of Section 4 of this report.

Table 1. Forecast funding gap in absolute terms (thousand US dollars) and expenditure on vaccines as a percentage of the overall gap[3]

	2004	2005	2006	2007	2008	2009
Overall funding gap (thousand US dollars)	268	2,142	282	272	249	253
Funding gap as a percentage of overall Programme expenditure	3.9%	23.7%	3.9%	3.7%	3.3%	3.3%
Share of expenditure on vaccines in relation to the overall gap (%)	49	93	48	50	56	56

The part of the funding shortfall attributable to the vaccine procurement is not related to EPI vaccines, but to vaccines required for supplemental immunization activities (SIAs) under the poliomyelitis eradication and measles elimination programmes. Such activities have traditionally been carried out with the support of donors.

For the period from 2004 to 2009, the overall shortfall forecast between funding needs and funds available for the National Immunization Programme is about 0.1 per cent of the forecast total of the country's health spending, with the exception of 2005 when the gap is forecast at about 0.9 per cent of total health spending.

Strategic priorities in ensuring reliable funding, based on an assessment of key funding problems

- Establishing a separate item in the budget of the State Sanitary and Epidemiological Surveillance Service to the centralized acquisition of vaccines for the NIP will make it possible to procure vaccines centrally, i.e. more efficiently, providing better supervision of the vaccines' quality and distribution;

- Regularly monitoring the status of the cold chain and ensuring that it functions uninterruptedly will make it possible to avoid vaccine wastage in storage;

- Enhancing staff skills and providing vocational training will make the immunization process safer and reduce the number of postvaccinal complications;

- Improving the NIP management system will make it possible to obtain better quality information, which also means better planning and implementation of NIP measures, with less wastage of limited resources;

- Ensuring the effectiveness and quality of immunization will make it possible properly to support the immunity of the target population, and will consequently reduce the need for supplemental immunization activities.

[3] The 2004-2009 funding gap calculation in Table 1 is presented in the attached electronic tables, in the "Annex II Financing Projection Gap Analysis Tables (r)" file: the corresponding values appear in cell D49 of each tab for the years from 2004 to 2009. The amount in this cell results from a combination of the expenditures for *short-term training* (line 6), *IEC/social mobilization* (line 7), *other capital expenditures* (meaning spending on incinerators, line 12), *polio-NID and sub-NID* (line 13) and *measles campaign* (line 14). The share of expenditure on vaccines as a percentage of the overall gap (the third row of Table 1) was calculated by dividing the amount spent for the acquisition of NID and SNID vaccines (i.e., OPV and measles vaccines) by the overall amount of the gap in a given year.

The Programme's aims may be modified in response to funding risks.

Short- and medium-term measures to ensure financial sustainability

Timeframes for specific measures to implement NIP basic strategies

	Measure	Institution	Persons responsible for implementation	Timeframe
1	Establish a separate item in the budget of the State Sanitary and Epidemiological Surveillance Service for the acquisition of EPI vaccines	Ministry of Health Ministry of Finance	B. A. Hashimov S. K. Mansurov	November 2003
2.	Develop a mechanism for the centralized acquisition of EPI vaccines	Ministry of Health Ministry of Finance	B. A. Hashimov L. N. Ambarcumova	December 2003
3.	Develop a structure for monitoring the cold chain	Ministry of Health National State Sanitary and Epidemiological Surveillance Centre	D. A. Tursunova U. Guljamnazarova	December 2003
4.	Perform quarterly monitoring of the cold chain	National, regional and district State Sanitary and Epidemiological Surveillance Centres	NIP coordinators at national, regional and district levels	Quarterly
5.	Present the results of the cold chain monitoring activities at the economic planning departments of the Ministry of Health, National State Sanitary and Epidemiological Surveillance Centre, OZO and regional State Sanitary and Epidemiological Centres	National, regional and district State Sanitary and Epidemiological Surveillance Centres	NIP coordinators at national, regional and district levels	October, November 2004
6.	Allocation of funds for cold chain equipment	Economic Planning Department, National and Regional State Sanitary and Epidemiological Surveillance Centres, OZO	Senior economists of the OZO and the State Sanitary and Epidemiological Surveillance Centres	December 2004
7.	Training for NIP personnel	Department of	D. A. Tursunova	Annually

		the Ministry of Health, National State Sanitary and Epidemiological Surveillance Centre	B. D. Matkarimov K. M. Mustafaev U. Guljamnazarova	
8.	Define aims and tasks for the State Sanitary and Epidemiological Surveillance Service's participation in the "Health-2" Project.	Main Sanitary and Epidemiological Administration Department of the Ministry of Health	N. S. Atabekov B. D. Matkarimov D. A. Tursunova	March-April 2004
9.	Improve the immunization reporting information system. Draw up the required standard-setting documents for the adoption of State immunization reporting forms.	Ministry of Health; State Department of Statistics; National State Sanitary and Epidemiological Surveillance Centre	D. A. Tursunova K. A. Maksudova K. M. Mustafaev	December-January 2003
10	Carry out a systematic study of the immunization service	Ministry of Health; National State Sanitary and Epidemiological Surveillance Centre	D. A. Tursunova K. M. Mustafaev	Monthly

Benchmarks for financial sustainability goals

1. A separate item has been established in the National State Sanitary and Epidemiological Surveillance Service's budget for centralized acquisition of vaccines;

2. A mechanism has been developed and is functioning for the centralized procurement of EPI vaccines, and the quantity of vaccines delivered to the country is commensurate with its needs;

3. A cold-chain monitoring system has been developed and is functioning at all levels of the State Sanitary and Epidemiological Surveillance Centres;

4. A system has been developed for the annual financing of cold chain equipment requirements;

5. Every year, some NIP personnel receive vocational training;

6. A computer information system for NIP reporting has been introduced and is functioning in the country.

I. THE INFLUENCE OF POLITICAL AND ECONOMIC FACTORS AND OF THE STATUS OF THE COUNTRY'S HEALTH SYSTEM ON THE COST OF THE NATIONAL IMMUNIZATION PROGRAMME (NIP), ITS VOLUME OF FINANCING AND ITS FINANCIAL MANAGEMENT

Political, economic, demographic and institutional factors have a serious impact on the status and dynamics of the National Immunization Programme (NIP).

A. Political and economic factors

The World Bank has classified Uzbekistan in the group of countries with low per capita income (under US$ 735) and with a moderate foreign debt burden. According to its estimates, Uzbekistan's per capita gross national product has evolved as follows:

Table 1.1. Average per capita GDP of the Republic of Uzbekistan between 1996 and 2001, US dollars[4]

Index	1996	1997	1998	1999	2000	2001
Official rate	1,010	1,010	870	720	620	540
Indicative rate*	620	490	480	410	360	320

* The indicative exchange rate is defined as a weighted average of the official rate (60 per cent), the commercial rate (10 per cent) and the maximum market rate (30 per cent).

The noticeable drop of national per capita income expressed in dollars between 1996 and 2001 is a reflection not so much of a real economic recession as of the Government's exchange rate liberalization policy, which resulted in a declining gap between artificially bloated figures for GDP and its real levels. This interpretation is borne out even by official economic growth indicators for the period from 1996 to 2002, as follows:

Table 1.2. Trend in GDP of the Republic of Uzbekistan between 1996 and 2001

	1996	1997	1998	1999	2000	2001	2002 (forecast)
Average annual GDP growth (per cent)	1.7	2.5	4.3	4.4	4.0	4.2	4.2

According to a moderately optimistic forecast of economic development, the real increase in GNP is expected to be around 2.0 per cent per year from 2003 to 2005, which will translate into per capita growth of 0.7 per cent. Yet according to a more optimistic prognosis, real economic growth will be between 4 and 5 per cent per year. These figures bear witness to the potential for a certain increase in health spending on the part of both the Government and the private sector thanks to real GDP growth, with no corresponding reduction of allocations to other sectors.

Budget allocations for health. The bright prospects for State financing of health do not obviate the need for the Ministry of Health to make a well-reasoned, convincing case to both the Government and members of parliament for the need to increase the share of health allocations in State budget expenditures. Health expenditures

[4] Data in this section are taken from the World Bank report, *Republic of Uzbekistan: Country assistance strategy*, 22 February 2002.

represented 8.7 per cent and 9.3 per cent of the consolidated State budget in 2000 and 2002, respectively, corresponding to 2.6 per cent and 2.4 per cent of the country's GDP. Indices that low are characteristic of economies with far less developed social spheres, and may be considered to be a temporary consequence of the budget crisis that struck Uzbekistan and other Central Asian countries after independence. In the early 1990s subsidies from the USSR budget were discontinued, but the country's taxation and budgetary system had not yet become established. The crisis led to the hyperinflation of the period from 1992 to 1994, a large budget deficit and a decline in allocations to the social sphere, as the Government was forced to impose strict budget discipline in order to stabilize the economy. (In many countries of the Commonwealth of Independent States, the share of social and cultural expenditure increased in that period in relation both to GDP and to budget expenditure as budget allocations declined sharply.)

Uzbekistan's foreign debt increased from 1996 to 2001, and according to World Bank forecasts, should stabilize in the period from 2000 to 2005 at about US$ 4.5 thousand million. The cost of servicing the foreign debt peaked in 2001 and will in the future decline slightly, both in absolute terms and as a percentage of national export receipts (Table 1.3). Despite the fact that the volume of foreign trade was lower in 2002 than in 2000, mainly owing to unfavourable terms of trade for major exports such as cotton fibre and copper, it remained positive, and in 2002 increased by US$ 242.9 million over the figure for 2000.

Table 1.3. Foreign debt of the Republic of Uzbekistan from 1996 to 2002.

	1996	1997	1998	1999	2000	2001	2002
Foreign debt in million US$	2,389	2,778	3,221	4,737	4,344	4,533	4,500[a]
Foreign debt as a percentage of GDP[a/]	17	19	21	28	32	41	
Foreign debt as a percentage of GDP[b/]	17	26	30	55	57	62	66[b]
Foreign debt servicing expenses as a percentage of goods and services exported	8	13	10	18	26	29	27

[a/] Using the official exchange rate
[b/] Using the indicative exchange rate[1]

These figures show that while in coming years the country's export potential will not be capable of ensuring a significant increase in hard-currency receipts, Uzbekistan's payment of its foreign debt obligations should not be an excessive burden on the State budget and on the implementation of social programmes, including the National Immunization Programme.

The **inflation rate** remains relatively high, which demonstrates that the stabilization in the financial and economic sector has been incomplete:

Table 1.4. Inflation rate in the Republic of Uzbekistan from 1996 to 2001.

	1996	1997	1998	1999	2000	2001	2002
Inflation rate	64	50	26	26	28	27	

According to World Bank forecasts, assuming a moderate economic development, for the next three years average annual inflation will remain between 20 and 25 per cent. If a more optimistic view is taken, it will decline to 10 per cent. One reason that

development has been held back in the country's health services is that there are insufficient incentives to raise productivity. Public sector wages lag behind cost of living increases, causing serious problems.

B. The state of the country's health system[5]

The health care system in Uzbekistan is currently undergoing reform, with the main thrust being a move from centralized planning and financing to a mixed system financed from local budgets and from contributions from the population. A presidential decree issued in 1996 signalled the beginning of a shift away from hospital-based assistance in favour of primary health care. The reforms called for the multiple-tiered structure of health establishments to be reduced to a leaner, two-level structure, particularly in rural areas. The Government established emergency care hospitals (or centres) in each region, and took a series of measures to introduce a mixed financing system for specialized health care.

At the same time the Government pursued the objectives of relieving the financial burden on the budget, codifying current out-of-pocket payments by patients, and encouraging additional investment in the health sector. Overall, from 1990 to 2000, significant progress was made in various areas. The number of hospital beds per 10,000 population was reduced from 122 to 53; the number of hospitalisations declined from 24 to 13 per 100 population, and the average length of stay for in-patients fell from 15 to 12 days. However, the transformation process has not always been smooth and transparent, and it has often raised questions for medical workers and patients alike. This points to the need to perfect the transformation's assessment and monitoring processes by improving policy-making and planning capabilities in the country's Ministry of Health and further developing health information systems.

In the **primary health sector**, the key infrastructure and management reforms have been aimed at condensing the referral chain to three levels: rural medical centres (SVPs), central district hospitals and regional hospitals. These reforms were introduced with the support of the World Bank's Health-I project, mainly in three pilot regions: Ferghana, Navoi and Syr Darya, and encouraged efficiency in this sector by improving service offered to patients through lower-cost outpatient resources.

However, further action is required to address such key issues as the mix of physicians and nurses and general practitioners and specialists, the improvement of training programmes, the introduction of financial management mechanisms and tools and the improvement of diagnosis and treatment procedures.

In the light of the positive experience in the pilot regions, the Ministry of Health is now certain of the need to extend the reforms to the entire country and to develop the primary health care model for the urban population so as to ensure universal access to health care through general practitioners.

[5] This subsection is based on the World Bank document, *Uzbekistan - Second Health*, Initial Project Information Document (PID), 28 May 2003.

The concept of general practitioners is becoming more widely accepted. One of the most obvious successes of the reforms was the retraining of doctors at the rural medical centres (SVPs) in the pilot regions, which in the final analysis made it possible to reduce referrals to specialists and to ensure greater patient satisfaction with the assistance provided at such centres. The forthcoming Health-II project includes plans to increase the number of clinical training centres so as to meet the health system's needs for the training of general practitioners.

While the project has paid somewhat less attention to the further training and skill enhancement of nurses than to physicians' training, it can be expected that the emphasis in principle and in practice of the use of general practitioners will place the need for the further training of nursing staff on the agenda.

Relationship between national and local budget financing. Under the budget system in Uzbekistan, most health establishments are financed from local budgets. However, since 1995 the purchase of DTP, OPV and measles vaccines has in fact been done centrally, not because of a clearly-defined mechanism for interaction between the national and local budgets, but rather because of an agreement concluded in 1995 between the Governments of Japan and Uzbekistan on assistance provided to Uzbekistan in the procurement of EPI vaccines. The agreement provided for the establishment of a special fund financed between 1995 and 1999 by contributions from the two Governments. It stipulated that the respective amounts contributed by the Governments of Japan and Uzbekistan would gradually decrease and increase, respectively, until 2000, when Uzbekistan would be able independently to finance the purchase of EPI vaccines. The fund was managed by UNICEF, which also handled the purchasing of the vaccines.

The parties to the agreement fulfilled their obligations, and the fund successfully operated between 1995 and 1999. At the same time, in the second half of the 1990s the number of births declined from 678 000 in 1995 to 528 000 in 2000. As a result, overall allocations to the fund exceeded actual needs for the purchase of vaccines between 1995 and 1999, and the accumulated reserve from the resulting surplus was sufficient to continue funding the purchase of these vaccines from 2000 to 2003.

In addition, in 2001 Uzbekistan received a grant from the Government of Japan, the management of which was awarded through a competition to the Japan International Cooperation Agency (JICA). Among the various types of medical assistance covered by the grant was the purchase of vaccines.

Over the last nine years, there was thus centralized procurement of Uzbekistan's EPI vaccines, which made it possible to save a significant amount of funds and to make more effective use of limited resources. This was the case not because of a clearly-defined, functioning internal budget mechanism, but rather because of external factors.

The budget mechanism is still inadequate for the purchase of vaccines. This can be seen from the status of procurement of the mumps vaccine, which has been included in the national immunization schedule.

The purchase of this vaccine is currently funded from regional budgets, and is carried out through Uzmedeksport, of the Ministry of Health. After sorting applications and contributions from the regions, it converts the funds into convertible currency and purchases the vaccines directly from the producer. The process is not always smooth, as local budgets lack funds and the collection and conversion processes are lengthy. As a result, in 2002 the mumps vaccine coverage was only 50 per cent.

The practicality and advantageousness for the NIP of the centralized procurement of vaccines was demonstrated by the experience of vaccine deliveries and distributions between 1995 and 2002. The only weak link in this system is the lack of a clearly-defined, smoothly running allocation mechanism at the national level.

B. Demographic factors

Uzbekistan still has a relatively high natural population growth rate of about 1.5 per cent, with a moderately high birth rate (20/1000), which call for a steady but moderate increase in current resources for the acquisition of vaccines and supplies.

C. Medium-term tasks for the Government

The most important medium-term tasks for the Government in the economic and social sphere are to liberalize the foreign exchange market and foreign trade legislation, to provide for further financial stabilization (reduce inflation and ensure favourable conditions for internal investment), to improve State administrative institutions and to combat poverty. According to the World Bank, 31 per cent of the population is poor. Co-payment mechanisms thus do not have very much potential for the financing of immunizations. Government participation in implementing the NIP's aims and tasks is of prime importance.

D. Uncertainty, obstacles and proposed solutions

The most important political and economic factors that will influence the sustainable financing of the National Immunization Programme are the following:

- The dependence of the treasury's foreign currency export receipts on the economic situation in a small number of export markets;

- Progress in further economic liberalization: investment incentives and the development of entrepreneurship and competitiveness as preconditions for economic growth and replenishment of the budget; agrarian reform;

- Military and political stability in the region, to permit the unhindered realization of the economic growth strategy and of budget policy priorities;

- Coordination of the work of international credit and donor organizations;

- Stability in the health and epidemiological situation, and the absence of major outbreaks of diseases in the region;

- A continuation of the reforms in health care, in particular the strengthening of the role of primary health care; updating of assistance provision standards and staff training programmes; and the development of an incentives system (both remunerative and non-remunerative) for health workers.

II. NIP IMPLEMENTATION - PARTICULARITIES, TASKS AND STRATEGIES

2.1 Management and functioning of the NIP

The National Immunization Programme (NIP) brings together and coordinates institutions, resources and activities for the reduction of morbidity, invalidity and mortality from infections preventable through vaccination.

The following functions are performed as part of the National Immunization Programme:

- purchase of vaccines and immunobiological agents;
- purchase of injection supplies and other means of immunization;
- maintenance and development of the cold chain;
- provision of transport;
- training (basic and post-diploma) and staff skill enhancement;
- general functions, including social awareness, sanitary and epidemiological surveillance and monitoring, scientific research and development, Programme management and administration, and the administering of vaccinations and associated medical assistance.

At the level of the Ministry of Health, the coordination of the NIP's work is carried out by the Department of State Sanitary and Epidemiological Surveillance and the National State Sanitary and Epidemiological Surveillance Centre. At the regional and district levels, the vaccine delivery process, maintenance of the cold chain, epidemiological surveillance and monitoring of appropriate immunization practices are implemented by the State Sanitary and Epidemiological Surveillance Centres of the corresponding levels, while the organization of the immunization process itself and social awareness measures are the responsibility of the curative and preventive health service, i.e., the senior regional and district paediatricians or immunologists. The inoculations are done by the personnel of the curative and preventive polyclinic medical establishments, rural dispensaries, rural medical centres (SVPs) and medical attendant-midwife stations. The NIP is thus an integral part of the provision of curative and preventive health care to the population.

2.2 NIP content

The NIP vaccination schedule currently covers the following vaccines:

1) vaccines falling under the EPI schedule: tuberculosis, diphtheria, whooping cough, tetanus, measles, poliomyelitis, mumps and hepatitis-B (see Table 2.1);

2) vaccines given according to a vaccination schedule for children over two: BCG at ages 7 and 16; DTaP at ages 15-16, 26 and 46, and OPV at age 7.

Table 2.1. Immunization schedule for traditional and new vaccines under the NIP

Age	Visit	Traditional antigens				New vaccines
Birth	1	BCG1	OPV0			Hep.B-1
6 weeks	2		OPV1	DTP-1		Hep.B-2
10 weeks	3		OPV2	DTP-2		
14 weeks	4		OPV3	DTP-3		
9 months	5				Measles-1	Hep.B-3
16 months	6		OPV4	DTP-4	Measles-2	Mumps

Beginning in January 2004, the immunization schedule against measles will change. Children will receive their first vaccine at 12 months and the second at 6 years. This schedule change will be taken into consideration when determining expenditure for the acquisition of vaccines for the forecast period from 2004 to 2009.

In addition, there is a list of vaccines that are employed in response to epidemiological indicators in endemic regions: vaccines against rabies, typhus, plague, tularaemia, brucellosis, anthrax and tick-borne encephalitis. A relatively small portion of the NIP's funding will be devoted to these vaccines.

An assessment of the need for Hib vaccines has been conducted in the country, but at the time of writing of this report the study's final findings were not yet ready, and the decision on whether to introduce such a vaccine was still pending.

The introduction of other types of vaccines and of new combination vaccines is not under consideration for the time being.

The target coverage indices for the EPI vaccines in Table 2.1 are shown in Table 2.2.

Table 2.2. Initial levels and target coverage with traditional and new antigens

Coverage rate->	Initial level	Target coverage rates					
Antigens	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
BCG	98%	98%	98%	98%	98%	98%	98%
DTP	97%	97%	97%	97%	97%	97%	97%
OPV	98%	98%	98%	98%	98%	98%	98%
Measles	98%	98%	98%	98%	98%	98%	98%
Hepatitis-B	95%	99%	99%	99%	99%	99%	99%
Mumps	50%	75%	90%	90%	90%	90%	90%

The target wastage rates for EPI vaccines are shown in Table 2.3.

Table 2.3: Initial wastage levels and target rates for vaccines

Wastage rate->	Initial wastage rate	Target wastage rate					
Antigen	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
BCG	25%	15%	15%	15%	15%	15%	15%
DTP	25%	15%	15%	15%	15%	15%	15%
OPV	25%	15%	15%	15%	15%	15%	15%

Measles	25%	15%	15%	15%	15%	15%	15%
Hepatitis-B	25%	15%	15%	15%	15%	15%	15%
Mumps	25%	15%	15%	15%	15%	15%	15%

2.3 Basic tasks of the NIP

The National Immunization Programme has the following basic tasks:

- Maintaining high coverage with traditional vaccines and attaining high coverage levels with new vaccines;

- Reducing measles morbidity to less than one case per million population;

- Ensuring safe injection practices during vaccinations through the universal introduction of auto-destruct syringes and vocational training of NIP personnel;

- Minimizing loss (wastage) of vaccines;

- Ensuring that the cold chain functions reliably.

The task of ensuring safe vaccination practices will require appropriate training and the preparation of information material.

2.4 Possible changes in Programme aims in the light of financial constraints

In the event that there are not sufficient funds to achieve the vaccine coverage rates mentioned above for the target population and other tasks assumed by the NIP, the Programme will probably continue to use disposable syringes for injections instead of the auto-destruct syringes, and will reduce the target coverage rates for mumps vaccinations.

In addition, it is possible that financial difficulties in implementing the Programme will lead to a limitation of the scope of the sub-NID for poliomyelitis and the NID for measles, as such activities are essentially supplementary in nature and can thus be scaled down or postponed.

2.5 Roles and duties of the Programme's financing partners in vaccinations and in the implementation of other aspects of the Programme

The actual and planned financial obligations of donors are presented in Table 2.4.

Table 2.4 Actual and planned financial obligations of donors, in US dollars

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
GAVI								
Vaccines		411 200	713 930	542 271	571 951	569 708	283 732	
Syringes and boxes		108 767	127 701	343 907	323 649	220 574	58 749	
Other forms of support			30 000					
TOTAL		**519 967**	**871 631**	**886 178**	**895 599**	**790 281**	**342 481**	
UNICEF								
NPI management	12 000	9 000	15 992	13 000				

Capacity building	75 036	37 000		50 404				
Monitoring and assessment			19 258	5 922				
TOTAL	**87 036**	**46 000**	**35 250**	**69 326**				
Government of Japan								
Cold chain equipment			302 259					
Syringes and boxes			104 629					
Vaccines		753 041	817 379					
TOTAL		**735 041**	**1 224 268**					
World Bank								
Vaccines		330,908	69,549					
TOTAL	**87,036**	**1,603,916**	**2,131,148**	**955,504**	**895,599**	**790,281**	**342,481**	

III. Basic and current expenses for programme implementation and financing

Table 3.1
Basic expenses for Programme implementation and its financing (2000)

	Cost Category	Total US$	State budget	Local budget	Private sector	UNICEF	GAVI-VF
Required Information							
[A]	**Routine Recurrent Cost**	**US$**	**US$**	**US$**	**US$**	**US$**	**US$**
	Vaccines (routine vaccines only)						NA
	-Traditional 6 antigens	522 780	515 298	7 482			NA
	-New and underused vaccines	150 517		123 325	27 192		NA
	Injection supplies	340 112		340 112			NA
	Personnel						NA
	-Salaries of full-time NIP health workers (central, provincial and district levels)	2 580 417	5 799	2 574 618			NA
	-Per-diems (other incentives) for outreach vaccinators/mobile teams	2 234	753	1 481			NA
	Transportation	82 762	6 588	76 174			NA
	Maintenance and overhead	1 182 876	5 356	1 177 520			NA
	Short-term training	12 000				12 000	NA
	IEC/social mobilization						NA
	Monitoring and disease surveillance						NA
Subtotal Recurrent Costs		**4 873 698**	533 794	**4 300 712**	**27 192**	**12 000**	
[B]	**Routine Capital Cost**						
	Vehicles	33 309		33 309			NA
	Cold chain equipment	75 036				75 036	NA
	Other capital costs (please specify)						NA
Subtotal Capital Costs		**108 345**		**33 309**		**75 036**	
[C]	**Supplemental Immunization Activities**						
	Polio NID-SNID						NA
	Vaccines	436 342	436 342				NA
	Measles Campaigns						NA
	Vaccines						NA
	Injection supplies						NA
	Other (MNTE, Yellow Fever, Meningitis…)						NA
	Vaccines	181 270		181 270			NA
	Injection supplies	119 912		119 912			NA
	Per diem						NA
Subtotal Supplemental Immunization Activities		**119 912**		**119 912**			
							NA
Optional information		**737 524**	**436 342**	**301 182**			
	Shared personnel costs						NA
Subtotal Capital							
GRAND TOTAL ($)		**5 719 567**	**970 136**	**4 635 203**	**27 192**	**87 036**	
GRAND TOTAL (%)		**100%**	**17.0%**	**81.0%**	**0.5%**	**1.5%**	

Table 3.2
Current expenses for Programme implementation and its financing (2002)

	Cost category	Total	State budget	Local budget	Gvt. of Japan	GAVI-VF	UNICEF	World Bank
Required information								
[A]	**Routine Recurrent Cost**	**US$**	**US$**	**US$**	**US$**	**US$**	**US$**	**US$**
	Vaccines (routine vaccines only)							
	- Traditional 6 antigens	485 476	174 592	34 355	276 529			
	- New and underused vaccines	871 046		87 567		713 930		69 549 $
	Injection supplies	552 173		319 843	104 629	127 701		
	Personnel							
	- Salaries of full-time NIP health workers (central, provincial and district levels)	2 580 417	5 799	2 574 618				
	-Per diems (other incentives) for outreach vaccinators/mobile teams	2 234	753	1 481				
	Transportation	82 762	6 588	76 174				
	Maintenance and overhead	1 182 876	5 356	1 177 520				
	Short-term training	25 992				10 000	15 992	
	IEC/social mobilization	-						
	Monitoring and disease surveillance	39 258				20 000	19 258	
Subtotal Recurrent Costs		**5 822 234**	**193 088**	**4 271 558**	**381 158**	**871 631**	**35 250**	**69 549**
[B]	**Routine Capital Costs**							
	Vehicles	33 309		33 309				
	Cold chain equipment	349 759			302 259	47 500		
Subtotal capital costs		**383 068**		**33 309**	**302 259**	**47 500**		
[C]	**Supplemental immunization activities**							
	Polio NID-SNID							
	Vaccines	540 850			540 850			
	Per diems							
	Measles Campaigns							
	Vaccines							
	Injection supplies							
	Other (MNTP, Yellow Fever, Meningitis,,,)							
	Vaccines	235 017		235 017				
	Injection supplies	122 961		122 961				
	Per diems							
Subtotal Supplemental Immunization Activities		**898 828**		**357 978**	**540 850**			
Optional information								
	Shared personnel costs							
Subtotal capital								
GRAND TOTAL ($)		**7 104 130**	**193 088**	**4 662 845**	**1 224 268**	**919 131**	**35 250**	**69 549**
GRAND TOTAL (%)		**100%**	**2.7%**	**65.6%**	**17.2%**	**12.9%**	**0.5%**	**1.3%**

3.3 Trends in State and foreign financing of the NIP

The data in Tables 3.1 and 3.2 point convincingly to a significant decrease in the proportion of Government budget allocations (both national and local) in the overall financing of the National Immunization Programme. However, this trend should not be taken out of context.

Between 1995 and 1999 the purchase of DTP, OPV and measles vaccines for the NIP was financed by a fund established by an international agreement between the Governments of Japan and Uzbekistan. Contributions to the fund between 1995 and 1999 were made by both Governments. The agreement stipulated that the amounts contributed by the Governments of Japan and Uzbekistan would gradually decrease and increase, respectively, until 2000, when Uzbekistan would be able independently to finance the purchase of EPI vaccines. At the same time, during the second half of the 1990s the number of births declined from 678 000 in 1995 to 528 000 in 2000 in Uzbekistan.

As a result, overall allocations to the fund exceeded actual needs for the purchase of vaccines between 1995 and 1999, and the accumulated reserve from the resulting surplus was sufficient to continue funding the purchase of these vaccines from 2000 to 2003. This was further facilitated by the fact that in 2001 and 2002 Uzbekistan received assistance from the Government of Japan to help it overcome the economic effects of a drought. This assistance included, among other things, the provision of vaccines and cold chain equipment.

The marked increase in the proportion of donor funding of the NIP from 1.5 per cent in 2000 to 29.6 per cent in 2002 alleviated the shock of the currency liberalization and gave the Government of Uzbekistan more time to adapt its budget system to the Programme's new conditions of financing.

It should be noted that between 2000 and 2002, allocations for the health system as a whole increased from 8.7 per cent of overall State budget spending to 9.3 per cent. The Government is still committed to the development of the health sector.

3.4 Initial data analysis, with an assessment of long-term expenditure and financing

Tables 3.1 and 3.2 indicate that the largest budget items of the NIP in 2000 and 2002 were health workers' salaries, vaccine purchases, building maintenance and repair and expenditure on injection supplies. The proportions of the overall Programme cost spent on these items are shown in Table 3.3 and Figures 3.1 and 3.2:

Table 3.3. Breakdown of expenditure by budget item, per cent

	2000	2002
Personnel salaries	45.1	36.3
Vaccine purchases	22.6	30.0
Building maintenance and repair	20.7	16.7
Injection supplies	8.0	9.5
Other budget items	3.6	7.5

Overall Programme expenditure in 2000 came to US$ 5 719 567, or 1.6 per cent of overall spending on health from the State budget (which amounted to about 2.6 per cent of GDP, or US$ 358 million). In 2002 these expenditures came to US$ 7 104 130, or 3.0 per cent of overall spending on health from the State budget (which amounted to 2.4 per cent of GDP, or US$ 195 million).

Figure 3.1. Breakdown of budget items for the NIP in 2000.

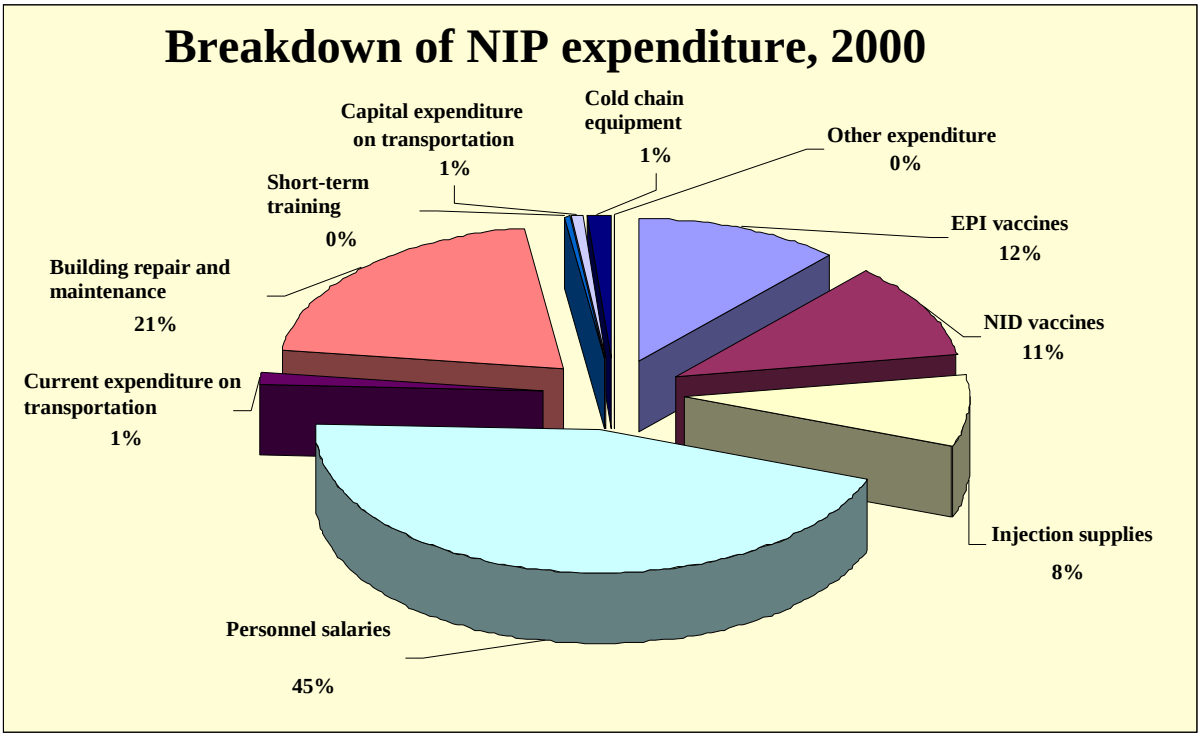
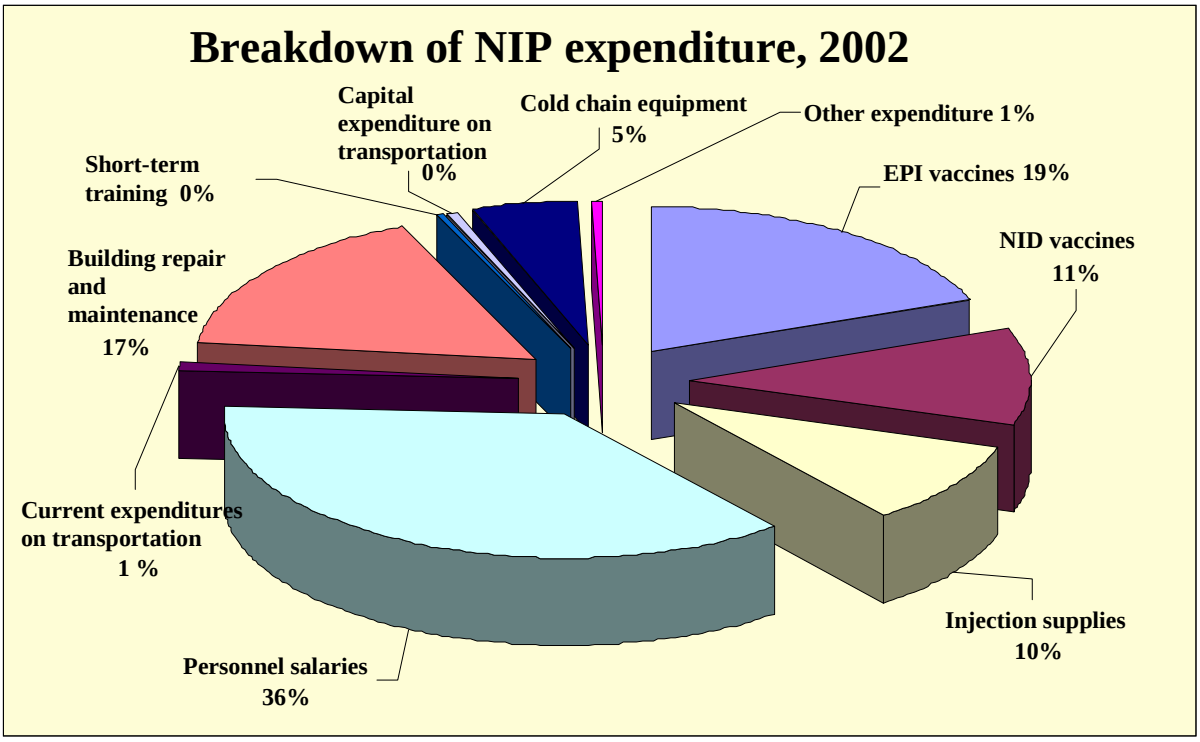


Figure 3.2. Breakdown of budget items for the NIP in 2002.



The main funding sources of the NIP in 2000 were local budgets, which covered 81.0 per cent of all expenditure, and the national State budget, which covered 17 per cent. Their shares of the funding burden had fallen by 2002 to 65.6 per cent and 2.7 per cent, respectively, as donors played a significantly larger role, providing 31.6 per cent of the financing, as follows: Government of Japan, 17.2 per cent; GAVI-VF, 12.9 per cent; World Bank, 1 per cent; and UNICEF, 0.5 per cent.

The proportion of financing from the national State budget fell sharply because of significant donor assistance, which was provided for the reasons mentioned above. Actual outlays by local authorities for building repair and maintenance did not decline (and it was this budget item that represented the lion's share of the NIP budget in 2000, but expenditure for the acquisition of the hepatitis-B vaccine increased sharply. The provision of assistance from the GAVI Vaccine Fund is linked specifically with the introduction of that vaccine.

On the whole, expenditure for the purchase of EPI vaccines doubled (from US$ 673 000 to US$ 1 357 000), and for all NIP vaccines it increased by 65 per cent (from US$ 1 291 000 to US$ 2 132 000). While all the vaccines were purchased using domestic funding in 2000 (funds from the national State budget and the private sector), in 2002 foreign funding covered 78 per cent of EPI vaccine purchases, and the overall expenditure from domestic sources fell to US$ 377 000.

Expenditure for the acquisition of vaccines for each fully immunized child (FIC)[6] stood at US$ 2.33 in 2000 and US$ 2.29 in 2002. The fact that this index remained

[6] The fully immunized child index (FIC) is a measure of the per capita expenditure for vaccines for the target population, and includes only the vaccines usually administered, i.e., those for which the

stable while expenditure for the acquisition of vaccines was changing rapidly is simply attributable to the fact that in 2000 far fewer children received the hepatitis-B vaccine.

coverage rates are 40 per cent or greater. In this study the FIC index was calculated by taking the sum costs of a full set of immunization programme vaccines (all vaccines given to children by the age of two): one dose of BCG vaccine, five doses of OPV vaccine, four doses of DTP, two doses of measles vaccine, three doses of hepatitis-B vaccine and one dose of mumps vaccine.

IV. LONG-TERM MEANS AND FINANCING REQUIRED FOR THE PROGRAMME. ANALYSIS OF THE EXPECTED FINANCIAL SHORTFALL

4.1 Forecast funding needs

The forecast need for funding to implement the NIP in 2003 and 2004 is presented quantitatively in Table 4.1, and graphically in Figure 4.1.

Table 4.1. Forecast NIP funding needs for 2003 and 2004.

[A]	Operational expenditure	2003	2004	2005	2006	2007	2008	2009
1	Vaccines	$ 1 772 546	$ 1 807 380	$ 1 806 406	$ 1 833 032	$ 1 860 051	$ 1 887 468	$ 1 981 196
1.1	*Traditional vaccines*	$ 861 455	$ 819 692	$ 804 158	$ 816 012	$ 828 040	$ 840 245	$ 918 537
1.2	*New vaccines*	$ 911 091	$ 987 689	$ 1 002 247	$ 1 017 021	$ 1 032 011	$ 1 047 223	$ 1 062 659
2	Injection supplies	$ 627 611	$ 611 430	$ 604 012	$ 612 916	$ 621 950	$ 631 117	$ 679 633
3	Personnel	$ 2 165 555	$ 2 208 866	$ 2 253 043	$ 2 298 104	$ 2 344 066	$ 2 390 947	$ 2 438 766
4	Transportation	$ 79 310	$ 80 896	$ 82 514	$ 84 164	$ 85 847	$ 87 564	$ 89 316
5	Servicing and repair of equipment	$ 1 182 876	$ 1 206 533	$ 1 230 664	$ 1 255 277	$ 1 280 382	$ 1 305 990	$ 1 332 110
6	Short-term training	$ 16 707	$ 66 476	$ 69 964	$ 73 375	$ 60 714	$ 61 928	$ 63 167
7	IEC/social mobilization	$ 11 070	$ 44 280	$ 45 166	$ 46 069	$ 46 990	$ 47 930	$ 48 889
8	Monitoring and disease surveillance	$ 41 790	$ 42 625	$ 43 478	$ 44 348	$ 45 234	$ 46 139	$ 47 062
Subtotal		**$ 5 897 464**	**$ 6 068 487**	**$ 6 135 246**	**$ 6 247 284**	**$ 6 345 236**	**$ 6 459 085**	**$ 6 680 138**
[B]	**Capital expenditures**							
6	Vehicles	$ 57 120	$ 58 262	$ 59 428	$ 60 616	$ 61 829	$ 63 065	$ 64 326
7	Cold chain equipment	$ -	$ 42 375	$ 229 457	$ 225 239	$ 229 744	$ 215 257	$ 219 562
8	Other capital expenditures, total	$ -	$ 26 010	$ 26 530	$ 27 061	$ 27 602	$ -	$ -
Subtotal		**$ 57 120**	**$ 126 648**	**$ 315 414**	**$ 312 916**	**$ 319 174**	**$ 278 322**	**$ 283 888**
[C]	**Supplemental immunization activities (SIAs)**							
9	Polio NID-SNID	$ 129 333	$ 131 240	$ 133 174	$ 135 137	$ 137 129	$ 139 150	$ 141 201
10	Measles campaigns	$ -	$ -	$ 1 866 831	$ -	$ -	$ -	$ -
11	Other SIAs	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal		**$ 129 333**	**$ 131 240**	**$ 2 000 005**	**$ 135 137**	**$ 137 129**	**$ 139 150**	**$ 141 201**
[D]	**Optional information**							
12	Shared costs (personnel, other)	$ 559 667	$ 570 860	$ 582 278	$ 593 923	$ 605 802	$ 617 918	$ 630 276
13	Buildings							
14	Other (specify)							
Total requirements		**$ 6 643 584**	**$ 6 897 235**	**$ 9 032 944**	**$ 7 289 260**	**$ 7 407 341**	**$ 7 494 475**	**$ 7 735 504**

The spending levels for the acquisition of EPI vaccines from 2003 to 2009 take into account the fact that the immunization schedule for measles will change as of January 2004: children will thereafter receive their first shot at 12 months and the second one at 6 years. The second shot will therefore no longer fall under EPI.

Inflation has not been taken into consideration when calculating vaccine expenditure. The increase in expenditure for this budget item from 2003 to 2009 reflects an increase in the NIP target population.

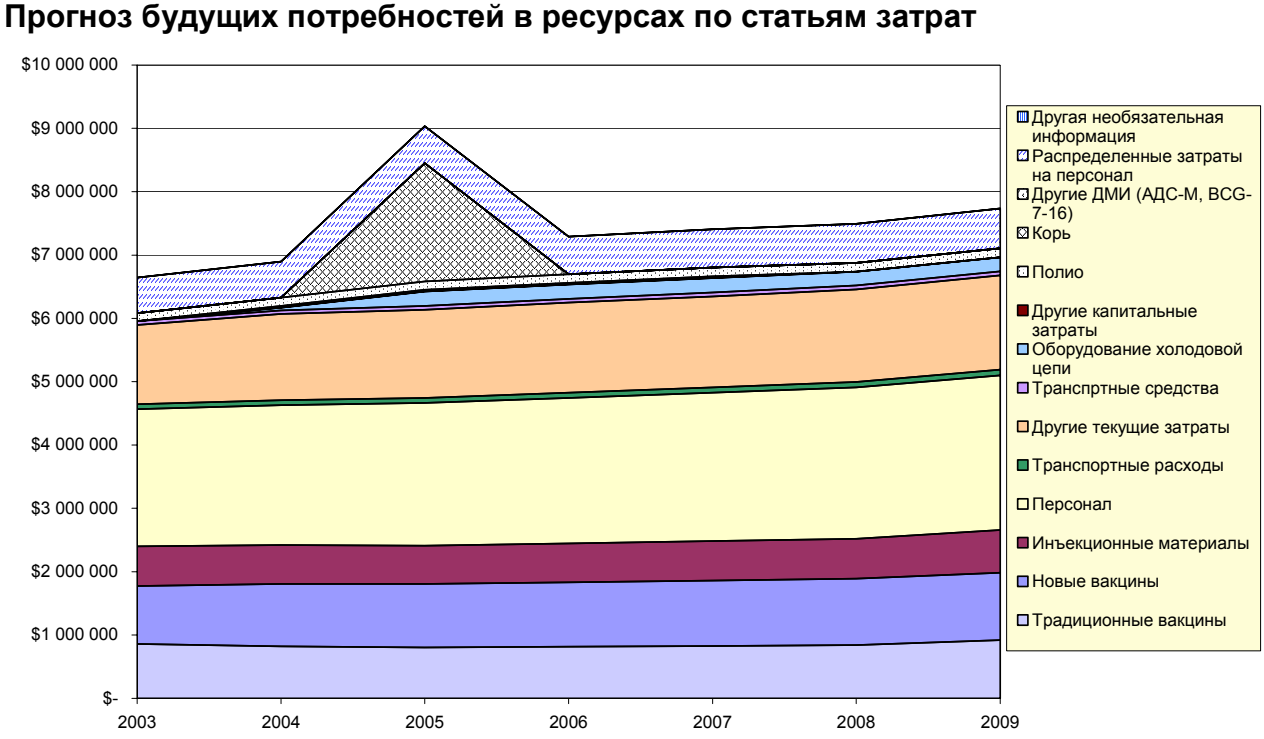
Of prime importance in figuring the amount of expenditure for the purchase of vaccines in the forecast period was the proposal to centralize purchasing, which will make it possible to ensure significant savings while providing better quality materials, with less wastage. An example of the possible savings is illustrated by the delivery of the DTaP vaccine, which until now has cost US$ 0.25 per dose, while the UNICEF price for a single dose is 4.3 cents, including shipping.

Spending for acquisition of vaccines is also influenced by vaccine wastage rates. If wastage increases from 15 to 20%, spending for the acquisition of routine immunization vaccines increases by 6.2 per cent, which in monetary terms corresponds to US$ 110 000 (at 2003 prices).

As can be seen from Table 4.1, personnel salary expenditure represents a significant part of the Programme cost. Yet personnel salary levels remain quite low and are clearly insufficient as a productivity incentive. The question of increasing salaries thus arises, along with the influence this would have on the overall Programme cost. However, wage increases in the public sector will only take place to the extent that the corresponding budget receipts increase. Funding for the Programme's other budget items would therefore not be jeopardized by a possible increase in the wage bill.

The overall volume of spending on the National Immunization Programme will gradually increase from US$ 6.64 million in 2003 to US$ 7.74 million in 2009, with the exception of 2005, when a mass measles immunization campaign is planned. That will necessitate additional purchases of 8.3 million doses of measles vaccine, thus driving up the Programme cost to US$ 9 million.

Figure 4.1. Forecast need for funding of the NIP for 2003 and 2004 by budget item



(Translator's note: I am unable to edit this figure. Figure 4.1's title should read: "Forecast of future funding needs, by budget item". The 14 symbols in Figure 4.1 should be labelled as follows, from top to bottom.)

1: Other optional information
2: Shared personnel costs
3: Other supplementary immunization activities (DTaP, BCG-7-16)
4: Measles
5: Polio
6: Other capital expenditure
7: Cold chain equipment
8: Vehicles
9: Other current expenses
10: Transportation
11: Personnel
12: Injection supplies
13: New vaccines
14: Traditional vaccines

Under the current agreement between the Government of Uzbekistan and the GAVI Vaccine Fund, the latter will finance deliveries of the hepatitis-B vaccine from 2003 to 2006 and injection supplies for the vaccinations mentioned in Table 4.2. The same Table presents the actual amount of UNICEF commitments related to EPI implementation for 2003.

Table 4.2. Forecast financing levels and models

[A]	**Reliable funding**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
	National Government and local administrations	$ 5 800 122	$ 5 852 055	$ 6 218 961	$ 6 723 888	$ 7 134 905	$ 7 245 465	$ 7 482 247
	GAVI Vaccine Fund	$ 773 896	$ 777 173	$ 672 319	$ 283 732			
	UNICEF	$ 69 325	$ -					
	Total	**$ 6 643 343**	**$ 6 629 228**	**$ 6 891 280**	**$ 7 007 620**	**$ 7 134 905**	**$ 7 245 465**	**$ 7 482 247**
	Financial shortfall	**$ 241**	**$ 268 008**	**$ 2 141 664**	**$ 281 641**	**$ 272 436**	**$ 249 010**	**$ 253 257**

The Ministry of Finance, when assessing the financial prospects of the NIP, confirmed that the State budget is indeed capable of funding the following Programme budget items (items with reliable funding):

(a) acquisition of vaccines for routine immunization (i.e., all vaccines except those intended for supplementary immunization activities - NID and SNID) in amounts supplemental to the GAVI deliveries from 2003 to 2006, and fully from 2007 to 2009;

(b) acquisition of injection supplies in amounts supplemental to the GAVI deliveries from 2003 to 2006, and fully from 2007 to 2009;

(c) personnel salaries (including shared expenses);

(d) transportation;

(e) building repair and maintenance;
(f) monitoring and disease surveillance;

(g) capital expenditure on vehicles;

(h) capital expenditure on cold chain equipment.

Overall commitments from the State budget for NIP financing in 2003 and 2004 are also shown in Table 4.2.

The following budget items are still not covered:

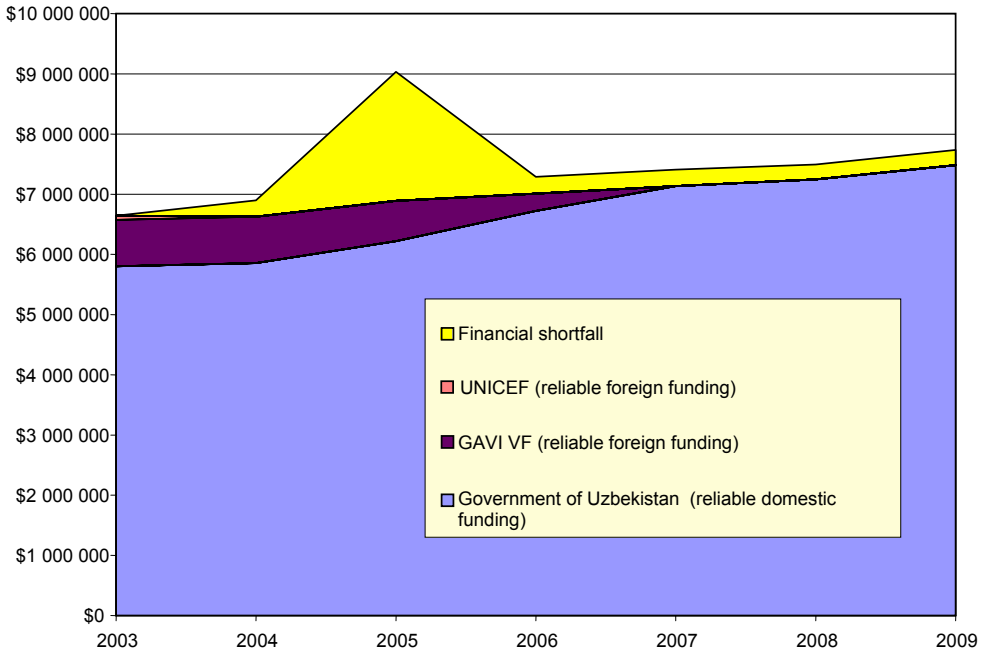
(a) acquisition of vaccines for supplementary immunization activities - NID and SNID for poliomyelitis and measles;

(b) short-term training;

(c) IEC/social mobilization;

(d) capital expenditure for the acquisition and installation of incinerators.

Figure 4.2. Forecast of reliable funding by source, and shortfall



The forecast shortfall between needs and reliable funding (i.e., from the State budget, the GAVI Vaccine Fund and UNICEF) is shown in Figure 4.2, by year.

As can be seen from the Figure, the funding gap is relatively small throughout the forecast period, with the exception of 2005, when the mass measles campaign will require significant spending for the acquisition of measles vaccines. The overall funding gap will thus increase to US$ 2.14 million.

Table 4.3 shows the forecast, for the period from 2004 to 2009, of the share of spending on vaccines as a percentage of the overall gap between funding requirements and available funding.

Table 4.3. Forecast funding gap in absolute terms (thousand US dollars) and as a percentage of overall Programme cost; share of expenditure on vaccines as a percentage of the overall gap[7]

	2004	2005	2006	2007	2008	2009
Overall funding gap (thousand US$)	268	2142	282	272	249	253
Funding gap as a percentage of overall Programme expenditure	3.9%	23.7%	3.9%	3.7%	3.3%	3.3%
Share of expenditure on vaccines as a percentage of the overall gap (%)	49	93	48	50	56	56

It is worthy of note that the portion of the funding gap attributable to the acquisition of vaccines is not related to EPI vaccines, but to vaccines required for supplemental immunization activities against poliomyelitis and measles. Such activities have traditionally been conducted with donor support.

From 2004 to 2009, the overall gap forecast between funding needs and available financing for the National Immunization Programme will be around 0.1 per cent of the forecast overall health expenditure, with the exception of 2005, when the gap will be about 0.9 per cent of overall health expenditure. (The forecast of health spending for 2003 is about 230 thousand million som. At a rate of 975 sum to the US dollar, this comes to US$ 236 million; US$ 268 000 divided by US$ 236 million is 0.11 per cent. It is assumed that this ratio will remain relatively stable throughout the forecast period.)

While at the time of writing of this report there were no convincing signs in the offing of other reliable funding sources, previous cooperation between the Government of Uzbekistan and UNICEF and the Fund's preliminary plans point to the possibility of UNICEF participation in the funding of short-term training and in the purchase and installation of incinerators for used supplies.

Also of great importance is the fact that the representative office of the World Bank and Uzbekistan have agreed in principle to discuss with the NIP administration the possibility of addressing Programme management through the Health-II project. Participation in the project could facilitate improvements in the Programme management system and in the quality of information received and processed under the NIP, help reduce unjustified wastage and assist in introducing new approaches to wages and a greater integration of the immunization process in the primary health care system. This in turn would improve the prospects of achieving the NIP's goals.

[7] The 2004-2009 funding gap calculation in Table 4.3 is presented in the attached electronic tables, in the "Annex II Financing Projection Gap Analysis Tables (r)" file: the corresponding values appear in cell D49 of each tab for the years from 2004 to 2009. The amount in this cell results from a combination of the expenditures for *short-term training* (line 6), *IEC/social mobilization* (line 7), *other capital expenditures* (meaning spending on incinerators, line 12), *polio-NID and sub-NID* (line 13) and *measles campaign* (line 14). The share of expenditure on vaccines as a percentage of the overall gap (the second row of the Table) was calculated by dividing the amount spent for the acquisition of NID and SNID vaccines (i.e., OPV and measles vaccines) by the overall amount of the gap in a given year.

V. STRATEGY FOR ENSURING FINANCIAL SUSTAINABILITY, MEASURES AND INDICES

The strategy for ensuring the financial sustainability of the National Immunization Programme was drawn up based on the following assumptions:

1. On the whole, the Republic of Uzbekistan has sufficient economic and human potential to ensure the financial sustainability of the National Immunization Programme using its own resources. Moderate but stable growth will allow Uzbekistan to avoid significant deficits in funding the NIP, to gradually increase Programme expenditure and to fund most of the Programme's budget items on its own, keeping the funding gap at between 3.3 and 3.9 per cent of overall Programme spending.

2. During the forecast period, there will be no drastic change in annual demographic growth, which will remain at 1.4 to 1.5 per cent. This will give the NIP administration the opportunity to improve Programme quality in a planned and rational manner, without having to tackle urgent problems associated with a sharp rise in the target population.

3. The system for the centralized procurement and delivery of most NIP vaccines that has in practice been in operation from 1995 to 2003 has demonstrated its effectiveness, and should in the future be given a legal basis, as a separate item of the budget of the State Sanitary and Epidemiological Surveillance Service will be established for NIP vaccine procurement. This is an important condition for ensuring the financial sustainability of the NIP.

4. Expenditure on vaccines as a proportion of overall NIP expenditure will not increase during the forecast period as the legislative basis is established for centralized vaccine procurement. Other Programme component costs, such as salaries, will rise only to the extent that State budget funding can support such increases.

5. The NIP administration will make a serious effort to improve Programme management on the whole, and in particular vocational training activities. Such efforts will play a decisive role in achieving the Programme objectives for vaccination coverage, vaccine consumption and a reduction in postvaccinal complications, and will require substantial financial resources.

6. The NIP administration considers cold chain maintenance to be no less important to the Programme than the provision of vaccines and injection supplies. It is one of the main factors that ensures the Programme's effectiveness and financial sustainability. The improvement of the cold chain that has been achieved in recent years thanks to donor support will continue to be supported independently by the Government, with a full understanding of the enormous role played by a reliable cold chain in achieving the Programme's aims and objectives.

7. The current reform of the country's health system, in particular transformations in the primary health care sector, will make it possible to introduce

new wage policies for health workers and to establish incentives for greater productivity in the NIP.

8. Information, education and communication activities will make it possible to ensure greater social mobilization and assist in improving Programme performance.

Strategies for achieving NIP objectives

1.
According to Ministry of Finance forecasts, the following NIP budget items will be funded entirely from the State budget:

- procurement of NIP vaccines (except vaccines for NID and SNID for poliomyelitis and measles);
- injection supplies;
- personnel salaries;
- current transport expenses and capital expenditure on transport;
- building repair and maintenance;
- monitoring and disease surveillance;
- acquisition of cold chain equipment.

Every year except 2005, the Government budget will thus cover 96 per cent of Programme expenditure.

During the forecast period the following NIP budget items will not be provided with Government funding:

- purchase of vaccines for NID and SNID for poliomyelitis and measles;
- short-term vocational training;
- IEC and social mobilization;
- purchase and installation of incinerators.

These budget items will represent from 3.3 to 3.9 per cent of the Programme cost, with the exception of 2005, when they will account for 23.7 per cent of overall Programme expenditure. The NIP administration plans to mobilize funding support from donor organizations to fill this financial gap.

In order to ensure a rational use of limited resources, the Ministry of Finance, together with the Ministry of Health, will take the necessary measures to establish a separate item in the budget of the State Sanitary and Epidemiological Surveillance Service for the centralized acquisition of NIP vaccines. Specifically:

- The Ministry of Finance will inform the Ministry of Health of the list of documents that need to be presented to it in order to establish a separate item for the acquisition of NIP vaccines in the budget of the State Sanitary and Epidemiological Surveillance Service. The Ministry of Health will present the required list of documents to the Ministry of Finance (Ministry of Health, head of the Economic Planning Administration, Ministry of Finance, head of the Social Assistance Administration, *November 2003*);

- The Ministry of Health and the Ministry of Finance will adopt a methodology for the payment of annual needs for purchased NIP vaccines and a procurements procedure and a procedure for the payment of delivered vaccine consignments (Ministry of Health, head of the Economic Planning Administration, Ministry of Finance, head of the Health Sector, *December 2003*).

2.
To ensure **an uninterrupted cold chain**, the Ministry of Health and the State Sanitary and Epidemiological Surveillance Centre will draw up a plan for the **regular monitoring of the cold chain**. Specifically:

- The State Sanitary and Epidemiological Surveillance Centre will, jointly with regional and district Sanitary and Epidemiological Surveillance Centres, draw up a monitoring form with which to collect information regularly on the state of the cold chain (State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, Immunization Department of the National State Sanitary and Epidemiological Surveillance Centre);

- On the basis of the data provided by the regular cold chain monitoring (NIP Coordinators at the national, regional and district levels, *quarterly*), once a year, the State Sanitary and Epidemiological Surveillance Centre, together with the regional and district State Sanitary and Epidemiological Surveillance Centres, will examine the cold chain and analyse reasons for any interruptions that are found. It will develop and introduce staff instructions on how to react to interruptions and eliminate them from the cold chain, and how to estimate the need to replace amortized equipment (NIP Coordinators at the national, regional and district levels). Together with the economic planning department of the Ministry of Health, it will monitor the replacement of equipment at the national, regional and district levels to ensure that it is done on time (Chief Economists of the Ministry of Health, National State Sanitary and Epidemiological Surveillance Centre, Regional Health Departments, regional State Sanitary and Epidemiological Surveillances Centres, *annually, during the reporting period*).

3.
Every year, the State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, together with the State Sanitary and Epidemiological Centre, will draw up an NIP staff training activities plan. The aim of this training will be to improve staff knowledge and skills in safe immunization practices, open-flask handling methods, the use of reporting documents, the treatment of postvaccinal complications and other matters related to the successful implementation of the NIP. Because of the lack of sufficient experience and means in the national immunization system for such training activities, the Ministry of Health, through the State Sanitary and Epidemiological Surveillance Department, will take a series of measures to mobilize donor support for such training. Specifically:

- Every year, the State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, together with the State Sanitary and Epidemiological Surveillance Centre, will carry out a discussion of the list of required vocational

training events with potential donors such as UNICEF, the World Bank, the Asian Development Bank, USAID and others, so as to attract donor funding for such training activities (State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, Organizational-Methodological Department and Immunization Department of the National State Sanitary and Epidemiological Surveillance Centre, *annually*).

4.
Also in the framework of donor cooperation, the subject of **improving the NIP management system** will be discussed, along with the possible integration of NIP functions with those of other elements of the country's health system. In particular, this will address ways of improving the interaction with the curative and preventive health care establishments of the primary health care system. Specifically:

- The State Sanitary and Epidemiological Surveillance Department of the Ministry of Health will hold discussions with the representatives of the **Health II** project on a possible strategy for including the State Sanitary and Epidemiological Surveillance Service in that project, define the aims and tasks of the Service's subdivisions within the project (for example, ways of improving the Service's organizational and administrative machinery) and agree upon concrete themes for the State Sanitary and Epidemiological Surveillance Centre's work under the project (State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, Director and Deputy Director of the Department, *March-April 2004*).

5.
To **ensure the effectiveness and quality of immunizations**, the State Sanitary and Epidemiological Surveillance Department of the Ministry of Health and the State Sanitary and Epidemiological Surveillance Centre, together with the Principal National Administration for Motherhood and Childhood Protection,-the National Institute of Epidemiology, Microbiology and Infectious Diseases, the National Paediatrics Scientific Research Institute, the Health Institute of the Ministry of Health and the regional health departments, will systematically analyse reporting information on immunizations, determine the underlying reasons for problems and draw up the necessary standard-setting documents (instructions) and recommendations to improve procedures related to immunization (State Sanitary and Epidemiological Surveillance Department of the Ministry of Health, State Department of Statistics, Health Department).

VI. PARTICIPANTS' COMMENTS AND OBSERVATIONS

The Government of Uzbekistan drew up this financial sustainability plan with the aim of coherently strengthening and expanding the National Immunization Plan and of introducing a strategy for resource mobilization. In drawing up this plan, statistical and demographic indices were used from the reports of several international organizations (the World Bank, the Asian Development Bank, UNICEF and WHO) and from Government reports. The drafting of the FSP was done with the participation of the Ministries of Health and Finance, with assistance from international organizations (UNICEF and WHO). The members of the Interdepartmental Coordinating Committee also introduced corrections.

Taking into consideration the increasing work performed by the immunization service in Uzbekistan and the need to maintain broad population coverage with safe vaccination services, the Government of Uzbekistan undertakes, with the financial support of donors, to carry out the following activities:

- To establish a separate item in the budget of the Ministry of Health to finance the centralized procurement of EPI vaccines;

- To continue purchasing EPI vaccines through UNICEF so as to guarantee the quality of the vaccines and a low initial cost;

- To mobilize resources to strengthen the cold chain, immunization service reporting systems and disease surveillance of infections resulting from specific preventive measures and postvaccinal reactions and complications, and to perfect safe vaccination practices;

- To conduct a mass campaign for the elimination of measles.

International organizations and Governments interested in the development of the immunization service in Uzbekistan have expressed their intention to invest in its support on the condition that the Government will undertake a long-term commitment to cover 100 per cent of the financing of basic operational expenditure for the centralized procurement of EPI vaccines and immunization syringes.

Annexes