I Situation Analysis

A. Overview

A-1 Background

Kyrgyz Republic is a Central Asian state, which has obtained independence after collapse of the Soviet Union in August 1991. It is located in the north-east of Central Asia and occupies some part of the Tien Shan mountains and the Pamir – Altai Northern ranges. Its borders mainly go along natural boundaries – mountain ranges and rivers, and only in some parts they descend to the Chuiskaya, Talasskaya and Fergana valleys.

The country has common boundary with Kazakhstan in the north and with Uzbekistan – to the west, it borders Tajikistan in the south and China – to the east. The territory of the country is 199 900 square kilometres. Bishkek – the capital of the country – is located not far from the northern border.

Kyrgyzstan is a mountainous country. About 90 percent of its territory is located 1 500 m over the sea level. The average is 2 750 m, and the highest peak is 7 439 m (the Victory peak), the lowest point is 394 m (in the south-west of the country).

Given the prevailing mountainous relief population is mainly settled along the river valleys and lakes. The average population density comprises 25 people/sq km.

By the end of 2006 the population of Kyrgyzstan comprised 5,164 million people, majority is rural population (65,2%). Kyrgyzstan is a multinational country – the main ethnic groups are represented by Kyrgyz (67,4%), Uzbeks (14,2%), Russians (10,3%), remaining 8,5% population include representatives of different other nationalities.

Despite scale migration the overall population of Kyrgyzstan has increased during the last 15 years, given to high birth rate. The population grew from 4,46 million in 1991 up to 5,4 million - in 2009. The population of the country is young: children and adolescents comprise 30,2% of the total, 65,1% - are able-bodied population and 4,7% - elderly people. The official literacy rate is very high – 98,7%.

A table of major indicators	
Territory (square kilometers)	*199,9*
Population (million people.)	*5,418 300*
0-14 years (%)	*30,2 %*
15-64 years (%)	*65,1%*
More than 65year (%)	*4,7%*
Birth rate (per 1000)	*25,2*
Natality	*18,5*
Life expectancy at birth	*68,6*

Infant mortality according to the official data for 2009 rates 25,0 per 1000 borne alive, child mortality in the age group < 5 years rates about 29,1. However there exist considerable discrepancies between the official data and estimates of international organizations. . Thus

MICS assessment (2006) has revealed that the factual rates exceed the official ones by 1,3 times and comprise 38,0 and 44,0 per 1 000 borne alive accordingly.

A-2 Political, social and economic tendencies

The political, social and economic situation in republic is characterized by high degree of instability.

It is should be noted that since declaration of republic independence reforms were carried out on a wide spectrum of directions, including privatisation, industry reforms, structural reforms in the field of public health services and education.

All this has led to increase in average annual economic growth, poverty reduction, which declined from 52% to 31.7% in 2009, increased GDP per capita.

However, the rapid reforms progress at the beginning did not find a logical continuation in the later stages of their implementation. Serious weakening of the political system, the growth of corruption in government structures, the deterioration of the vulnerable populations' situation, in 2005 led to social upheaval and to ousting government of Askar Akayev.

The election of Kurmanbek Bakiyev as a president and political changes the country's population brought new hopes and expectations. However, after five years the situation has repeated itself once again with the extreme weakening of the political system, the growth of corruption in state structures, and the deterioration of life of ordinary people, compelled migration and rising unemployment. This again led to the forceful removal of the second President of the country during the revolution in April 7, 2010.

President KB Bakiev left the country and after few days resigned. Interim Government took the power, dismissed the parliament and the Constitutional Court.

Currently the interim Government controls republic. Elections of the new president and Parliament tentatively scheduled for October 10, 2010. However, all government structures preserved, and directed by acting ministers, appointed by the interim Government.

A-3 Public Health Structure

Before independence the public health system was highly centralized and supervised by the Ministry of Public Health of the Soviet Union.

After obtaining independence Kyrgyzstan is targeted at development of a democratic state with a market economy. Destruction of economic links, established during the Soviet period, dramatic cut-back of production resulted in economic recession. The Public Health Section along with the others faced insufficient funding and resources, inability to sustain the powerful infrastructure with prevailing clinic sector and excessive specialization inherited from the Soviet period.

As in all sectors of Kyrgyz economics there appeared acute necessity to restructure the public health sector. The Manas National Programme of Reforms (1996-2006) in the public health sector of the Kyrgyz Republic has been developed with the support of the World Health Organization in 1994 -1996 (hereinafter the Manas Programme).

The development model for the Kyrgyz Republic Health sector has multistructural nature, it is targeted at formation of an infrastructure which is able to meet the demands of population in health care and fits with financial resources. The model is characterized by decentralization of management, development of managerial and financial independence of

health services and institutions. Health sector has been subdivided into "providers" and "consumers" of medical services. Development of primary health care, family medicine, freedom of choice of a family doctor, access to medical services for the population within the Programme of state guarantees have been considered top priorities for the country. New methods of funding targeted at outcomes have been introduced along with new system of remuneration of medical workers based on performance quality.

Major objectives of the public health system, approved by WHO:

- equity in resource distribution,
- effectiveness,
- accessibility of services of the health sector,
- system responsiveness to population demands

Complex structural changes of the public health sector, its funding and management have been initiated within the Manas Programme.

The main components of the reform are:

- Structural changes in provision of medical services: strengthening of primary health care (PHC), formation of family medicine institute, restructuring of the hospital network;
- Introduction of new methods of financing of the public health sector targeted at final outcomes;
- Up-grading quality of medical services;
- Strengthening of the public health sector;
- Introduction of new methods of management in the public health sector based on increased independence of medical institutions.

Primary health care has been legally separated from hospitals. Groups of family doctors and Centres of family medicine have been formed. In 2009, on the republic territory functioned 79 CFM, including in their structure 678 FPG, in addition, has 21 FPG, as independent legal entities, and 12 CGP. In every region of the country there are regional Centres of family medicine which coordinate activities of the primary health care sector. Training and re-training for family doctors and nurses has been organized. A principle of free choice of a group of family doctors has been introduced; registration of patients with Groups of family doctors has been performed for this purpose. Simultaneously new methods of per capita funding of primary medical care have been introduced to give an incentive to medical workers to up-grade their professional skills and quality of services.

During the reforms in the public health sector in the Kyrgyz Republic despite reduction of funding of the public health share in the structure of GDP from 4,0 % in 1991 to 1,9 % in 2002, several fundamental changes have taken place in the system of public health financing.

Taxes paid to the state budget presented the major resource for health sector funding during 1996-2004. In 1997 the process of gradual attraction of supplementary financing for the health and social sectors has been launched by introduction of mandatory medical insurance (MMI) and creation of the MMI Foundation. Technical and institutional capacity of the MMI Foundation to accumulate financial floods, introduce new remuneration schemes for medical services providers were utilized to create a system of a consolidated ratepayer in 2000–2004 represented by MMI Foundation and its offices in the regions. Financing of medical institutions became dependent on final outcomes of the services provided.

At present the Kyrgyz Republic has stepped forward into the next phase of health sector reform based on adopted five-year strategy of the health sector development "Manas Taalimi" for the period 2006 – 2010. During the first phase of reform ("Manas" Programme of Reforms in the Health Sector) many achievements were gained, especially in strengthening of efficiency of service delivery and quality of primary medical care. However quality of health of the population has not been improved considerably (including that of children and mothers), financial protection and equity is still lacking. These points became the main objectives for the second phase of the public health sector reform within the framework of the National programme "Manas Taalimi.

The public health sector reform strategy "Manas Taalimi" is being implemented on the basis of a sector-wide approach (SWAp), and this is for the first time that it is being implemented in the territory of the former Soviet Union. Financing of the National programme "Manas Taalimi" is implemented through an accumulated donor pool (the World Bank, DFID KfW, SDC, SIDA) and through parallel financing by other development partners (USAID, UNICEF, WHO). Government of the Kyrgyz Republic considers the public health sector reform strategy "Manas Taalimi" a key instrument for reduction of high poverty rate which comprised 41% in 2004. Despite the above SWAp in the health sector is still in its initial phase, however it has already considerably contributed to formation of political environment, including involvement and the feeling of ownership among officials of the Ministry of Health about the policy design, better harmonization of activities targeted at strengthening of the health system and implementation of the financial liabilities for 2006-2009 in the public health sector and in distribution of the budget allocations. As a result SWAp turns an effective design methodology and a framework for implementation of activities targeted at strengthening of the public health system.

A-4 Immunization services within the public health system

Before 1994 immunization services were managed and supervised according to a vertically structured system of sanitary epidemiological services (SES) of the Republican, regional and local level.

To strengthen immunization services in 1994 the Ministry of Health created a Republican Centre of immunoprophylaxis. Its functions were to shape policies of immunoprophylaxis, perform EPI monitoring, provide and procure vaccines, implement methodological management of the system, surveillance for vaccines preventable diseases.

The Republican Centre of immunoprophylaxis has its own budget and reports to the Ministry of Health.

Regional centres of immunoprophylaxis created within the regional SES (7) and SES in the city of Bishkek (1) have three professional positions: a specialist in epidemiology/immunology, a paediatrician-specialist in immunology and a specialist in cold chain. Relevant groups were created within regional SES.

In 1995 the Republican Centre of immunoprophylaxis has developed a new National programme "Immunoprophylaxis for 1995-2000" approved by the government. Deputy Minister of Public Health responsible for the surveillance service was assigned to be main coordinator of the implementation of the programme at the republican level. At the regional and local levels chief executives of the relevant SES were appointed coordinators of the programme implementation.

At present the third programme "Immunoprophylaxis for 2006-2010" is on-going in the Republic. Besides this leading programme there are several target programmes: «Viral

Hepatitis», «Polio Eradication», «Measles Elimination» and the National Strategic Plan on Measles Elimination and Prevention of Congenital Rubella in the Kyrgyz Republic».

During the recent years in Kyrgyzstan the structure and functions of the health sector institutions undergo certain changes in compliance with the National programme of reform of the health sector "Manas Taalimi" the years of 2006-2010.

In compliance with the above mentioned programme at the regional level at present main there function three autonomous medical institutions: a regional hospital, a Family doctors centre and a Surveillance Centre (a former SES). Besides that there are Groups of family doctors, both registered with the Centre and acting independently with there own budget, there also exist primary medical aid units associated with family doctors groups. Centres, groups and units together with maternity houses within the hospitals provide immunization services. They have specially equipped rooms for this purpose. Injections are performed by personnel who have relevant certificates. Immunization data is monthly presented according with the approved format to the regional SES and further to the next and republican level.

In compliance with the programme of the health sector reforms the major functions in immunization are assigned and integrated into activities of Primary health care services, in this connection position of a paediatrician-immunologist from the regional and local immunization centres was shifted to the Family medicine centres. At present the issues of immunization at the regional and local level are responsibility of an epidemiologist, specialist in vaccine monitoring and cold chain and immunization monitoring. Epidemiologist is responsible for all organizational activities including professional training for medical workers in immunoprophylaxis and surveillance of vaccine preventable diseases.

The Family Medicine Centre immunologist provides consultations o family for doctors on drafting schedules of vaccinations, reports, individual vaccination calendars for those patients who violated the vaccination schedule, organizes various activities jointly with an epidemiologist.

Given presence of vulnerable groups of population in the Republic due to remote places of living and migration the Republican Centre of Immunoprophylaxis has started designing within the GAVI component guidance for curator teams and on organization of mobile immunization teams.

The Ministry of Heal has established a forum for discussion of the issues of immunization – it is a Republican Committee on Immunoprophylaxis (RCI) - an advisory body comprised of representatives of various departments of the Ministry of Health, academia and Republican health structures and headed by deputy Minister of Health on public health. Similar Committees operate at regional and local levels.

Besides that for more than 10 years already an Intersectoral Coordinating Committee (ICC) on partner cooperation in the sphere of immunoprophylaxis is operational under the Ministry of Health.

On the basis of the situation analysis on immunoprophylaxis, taking into account achievements and problems revealed in republic for last five years, the main strategic directions for the cMYP on immunization on 2011-2015 have been defined:

- Strengthening political commitment to support immunization and its financial sustainability;
- Introduction of new vaccines against pneumococcal (2013) and rotavirus (2014) infections;
- Improvement in infrastructure and material base of system of transportation, storage and use of vaccines;

- Increase immunization services accessibility to population and maintenance of high immunization coverage level;
- Ensure immunization services quality and safety;
- Increase efficiency of monitoring and a data management on immunization;
- Continuation of actions complex aimed on achievement of the goals on measles and rubella elimination and maintenance of the country status, as a free from a poliomyelitis;
- Improving systems of control vaccine preventable infections;
- Providing immunization on epidemic basis (pandemic/seasonal flu and others);
- Increase knowledge and active involvement of the population in immunization process

B. National Immunization Programme

B-1 Provision of Services

In Kyrgyzstan procurement of vaccines for PHC is performed by RIC, regional and local SES. RIC procures vaccines for EPI from UNICEF, organizes primary storage, distribution and delivery to the regional and partially local SES storages, further vaccines are distributed to the PHC level.

Immunization is carried out by nurses having required certificates, in 1655 fixed vaccination points located in CFM, FPG, FAP, delivery rooms of TH. Practice of immunization of children by mobile teams was not widespread before and only in 2008-2009 regular work of mobile teams in 20 republics hard to reach rayons has begun.

B-1.1 Strategy, policy and immunization schedule

The immunization schedule/calendar in Kyrgyzstan was changed several times depending on a policy of immunization. Current National immunization calendar was accepted in 2009 in connection with introduction of new pentavalent vaccine (DTP+HepB+Hib), described below in Table 1.

Table 1. National Immunization schedule in the Kyrgyz Republic

Timeframe	Types of vaccines
First 24 hours after birth	HepB-1
At Maternity House	BCG, OPV-0
2 months	DPT+HepB+Hib-1, OPV-1
3,5 months	DPT+HepB+Hib-2, OPV-2
5 months	DPT+HepB+Hib-3, OPV-3,
12 months	MMR
2 years	DPT-4
6 years	DT, MR
11, 16, 26, 36, 46, 56 years	Td

Kyrgyzstan plans to introduce new vaccine - pneumococcal in 2013, therefore the vaccination calendar will be re-evaluated and will be change as it shown in Table 2 below.

Table 2. National Immunization schedule in the Kyrgyz Republic after introduction of pneumococcal vaccine in 2013

Timeframe	Types of vaccines
First 24 hours after birth	HepB -1
At Maternity House	BCG, OPV-0
2 months	(DPT+ HepB +HIB)-1, OPV-1, PCV-1
3,5 months	(DPT+ HepB +HIB)-2, OPV-2, PCV-2
5 months	(DPT+ HepB +HIB)-3, OPV-3, PCV-3
12 months	MMR
2 years	DPT-4
6 years	DT, MR
11, 16, 26, 36, 46, 56 years	Td

In 2014 introduction of rotavirus vaccine is planned, that will lead to calendar change again, as shown in Table 3 below.

Table 3. National Immunization schedule in the Kyrgyz Republic after introduction of pneumococcal vaccine in 2014

Timeframe	Types of vaccines
First 24 hours after birth	HepB -1
At Maternity House	BCG, OPV-0
2 months	(DPT+ HepB +HIB)-1, OPV-1, PCV-1, Rota-1
3,5 months	(DPT+ HepB +HIB)-2, OPV-2, PCV-2, Rota-2
5 months	(DPT+ HepB +HIB)-3, OPV-3, PCV-3, Rota-3
12 months	MMR
2 years	DPT-4
6 years	DT, MR
11, 16, 26, 36, 46, 56 years	Td

B-1.2 Immunization coverage and monitoring

After disintegration of the Soviet Union in the beginning of the 90ies of the last century the National Immunization Programme in Kyrgyzstan has faced several serious problems. Shortage of vaccines and consumables for safe vaccination, weak cold chain, absence of personnel motivation etc., resulted in reduction of immunization coverage and outbreaks of such diseases as measles, diphtheria, epidemiological parotitis, whooping cough. However the Government of the republic with assistance of various international

organizations managed to maintain the immunization services and facilitate continuous procurement of vaccines to the country.

According to the official data, immunization coverage rates for the last 5 years by all types of vaccines remain at the level higher than 95%. However for a long time figures used for denominator in calculating coverage level were taken from the medical census. Since 2005 in compliance with the regulation of the Ministry of Health demographic data of the State Committee on Statistics is used for this purpose. According to that the amount of children in the target group <1 year increased in 2005 from 98 043 to 106 581 and DPT-3 coverage decreased from 98,3% to 90,4%. The differences in calculations and indicators are presented in the Table below:

Table 4: Difference in vaccination coverage (в %) by certain antigens for 2005 calculated on the basis of old and new denominator

Vaccine	Year	
	2005 (medical census data)	2005 (National Statistics Committee data)
BCG	96,2	92,0
DPT 1	98,4	91,3
DPT 3	98,1	90,3
OPV 0	98,8	92,0
OPV3	98,5	90,7
HepB 1	98,8	92,1
HepB 3	97,4	89,6
Measles 1	98,9	90,8

Newly calculated coverage rates for the last five years with a new denominator are presented in the Table 5 below.

Table5: Vaccination coverage (in %) with antigens by years (2005-2009) with new denominator

Vaccine	Year				
	2005	2006	2007	2008	2009
BCG	92,0	98,6	97,7	98,8	97,9
DPT 1	91,3	95,8	98,1	99,5	41,9
DPT 3	90,3	92,6	94,1	95,3	40,2
OPV 0	92,0	96,4	98,1	99,6	97,9
OPV3	90,7	92,8	93,8	95,4	95,7
HepB 1	92,1	96,7	97,5	98,5	97,9
HepB 3	89,6	90,3	94,4	96,5	95,6
Measles 1	90,8	97,3	98,8	99,1	98,9
Measles 2	87,8	97,4	95,0	96,7	98,5
DPT+ HepB +Hib 1				-	57,3
DPT+ HepB +Hib 2				-	55,2

As shown in Table 5, during the last years level of immunization coverage was on stable raise by all vaccines. However the achieved results cannot completely ensure epidemiological well-being. Additional efforts on increasing immunization coverage of the population are necessary.

More detailed research of a situation on national coverage of children of the first year of life, during the last five years, shows the following:

a) Coverage with DTP 3 has slightly increased; from 90,3 % in 2005 to 95,3 % in 2008; in 2009 in connection with switching to pentavalent vaccine (DTP+HepB+Hib), coverage with DTP3 was 40,2 %, coverage with DTP+HepB+Hib3 was 55,2 %;

b) Level of national OPV3 coverage has increased from 90,7 % to 95,7 % in 2009;

c) In the republic there are no rayons with DTP3 coverage level lower, than 90 %

d) Coverage with the first dose of measles vaccine has increased from 90,8 to 98,9 % in 2009; with the second from 87,8 to 98,5 % accordingly;

e) Levels of vaccination coverage by HepB1 and HepB3 have considerably increased during the period since 2005 till 2009 – with 92,1 to 97,9 and with 89,6 to 95,6 % accordingly.

Low public awareness about advantages of immunization, presence of geographical and social barriers, high internal migration of population, home deliveries, unwillingness of medical workers to combine several antigens in one injection and refusal from vaccination for false contra-indications influence timely vaccination in childhood. The level of drop-outs (those, who have not completed vaccination according to an official reporting data) is not a substantial problem. At the national level this figure is as low as 4,3%.

B-1.3 Immunization services delivery strategy

Vaccination in the Kyrgyz Republic is conducted in 1655 fixed immunization points, including ones at:

- level of maternity houses and departments - 56
- level of FMC - 79
- level of CGP - 56
- level of FPG - 504
- level of FAP - 960

In the framework of strategy «reaching each district» - in 2008-2009 mobile teams were created in 20 hard to reach rayons, that has allowed to provide with immunization services and other types of medical help to more than 200 villages located in remote mountain areas. As a result, national coverage with all vaccines has increased by 2,2-2,4 %.

In the framework of EIW annually mobile teams organized for immunization of internal migrants, living in illegal settlements, around Bishkek (from 300,000 migrants annually immunized about 14,000 to 17,000; among them children till 2 years of age – 2000-3000 – increasing national coverage by 0,2-0,8 %).

B-1.4 Supplemental immunization strategies

In connection with importation of wild poliovirus on territory of Tajikistan in 2010, taking into account high risk of its spread in frontier territories of the Kyrgyz Republic, carrying out in 2011 of supplemental national or sub-national immunization campaign against poliomyelitis in 2 rounds among children from 0 till 5 years of age is not excluded.

B-1.5 New vaccines introduction strategies

The Kyrgyz Republic supports WHO strategy on the introduction of new vaccines. During the period 2011-2015 it is planned to introduce in the republic two new vaccines pneumococcal (in 2013) and rotavisrus (in 2014). The basis for introduction of pneumococcal vaccine are indicators of pneumonia disease in children till 1 year of age – 2807,8 and ARI with involvement of the lower lung parts - 6708,8 on 100,000, death rate from illnesses of respiratory organs in this age group is 14 % from a total number of deaths. Vaccination is planned with 3 doses of pneumococcal vaccines starting at 2 months age. For introduction of the given vaccine additional purchase of cold chain equipment in vaccine stores it is not necessary, as for today there are 40 % reserve cold chain capacities at (+2+8) cold rooms. However, before introduction of the given vaccine, it is necessary to conduct training of health care workers and social mobilization among the population. As in example of a pentavalent vaccine introduction, the success of a new vaccine mainly depends on it's acceptance by health care workers and the population.

Rotavirus vaccine introduction is based on the surveillance data which have shown that from 3,578 tested stool samples - 898 were positive for rotavirus infection, and represent 25 % of the acute gastroenteritis. Immunization is planned with 3 doses of vaccine, starting at 2 months of age. However, for rotavirus vaccine introduction it is necessary to increase positive cold chain volume by 140 %, i.e. it is necessary to buy additional cold rooms for national vaccine store, and additional refrigerators MK-304 for regional and rayon level vaccine stores.

Besides refrigerators it is necessary to procure at regional level 7 pickup trucks with refrigerators for vaccine transportation to rayons and health care units, cold boxes and vaccine carriers. Also it is necessary to buy an additional quantity of voltage stabilizers and electronic temperature indicators. Besides strengthening the cold chain, before rotavirus vaccine introduction it is necessary to implement complex of all actions, including training of health care workers, development of national guidelines, etc.

Overview of the problems in service provision:

PROBLEM OVERVIEW
Insufficient coverage with traditional and underutilized vaccines at national level
Low coverage with traditional and underutilized vaccines at rayon level, especially in hard to reach areas and migrant settlements
Weak organising potential of rayon managers in planning, realizing and control of immunization activities.
Lack of medical staff in the remote health care units
Unjustified use of contra-indications.
Low financial incentives and motivation (mainly because of the inadequate work compensation) of the health care workers, leads to drainage of staff in more favourable sectors.
Lack of resources for work at outreach and creating of mobile teams

Lack of proper and continuous training for staff of PHC

High internal population migration.

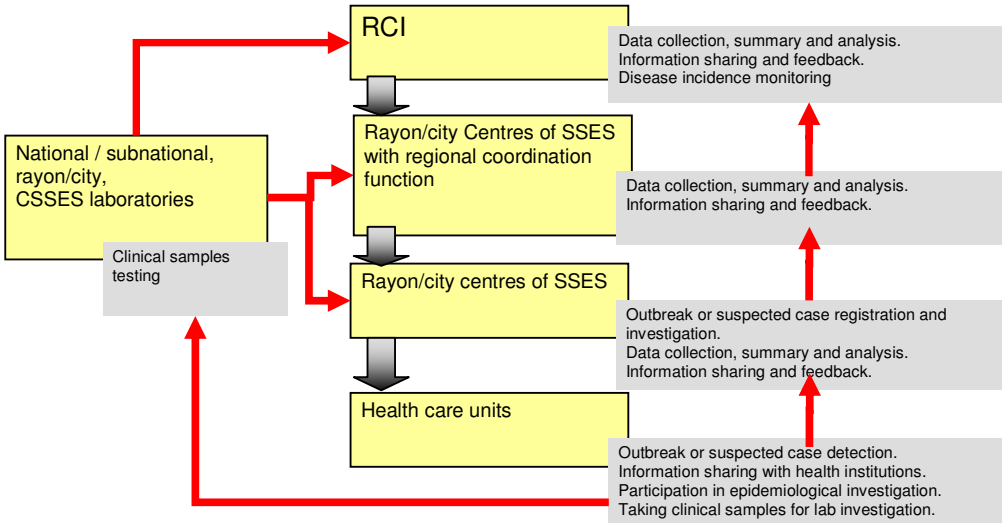
B-2 Surveillance

The epidemiological surveillance system of vaccine preventable infections in the Kyrgyz Republic functions according to presented below scheme (drawing 1) and is based on a standard case definition of disease, identification of epidemiological links and laboratory examination of clinical samples.

Concerning measles, rubella and poliomyelitis the surveillance system is based on the detection and registration of each suspected case with obligatory laboratory examination of clinical samples.

Concerning diphtheria, a whooping cough, an epidemic parotitis and a viral hepatitis B the surveillance system aimed on the surveillance of disease by registering number of cases and an identifying the immunization status.

Drawing 1. Vaccine preventable infections surveillance system



Main issues in the epidemiological surveil[illegible]ble infections are:

- Lack of the systematised approach in system of registration of cases of vaccine preventable infections (registration is done in a place of a case detection, it is not dependent on the epidemiological investigation data and a place of possible circulation of the agent)
- Lack of the developed surveillance systems for infections against which new vaccines are introduced (Hib, pneumococcal, rotavirus)
- Weak laboratory facilities and low readiness of laboratories for conducting investigations on detection of pathogens, causing vaccine preventable infections
- Insufficient training of laboratory workers on new methods of research

- Insufficient sensitivity of surveillance systems of OVP, measles and rubella, poor quality of epidemiological investigations, without an establishment of an infection source and chain of a virus transmission
- Obstacles for conducting virology tests on genotyping of measles and rubella viruses (problems with taking and transportation of clinical samples)
- Insufficient use of the computer module for surveillance of measles and rubella, poor quality of the entered data
- The incomplete and late reporting of disease cases
- Problems with the organisation of transportation of clinical samples, late arrival of samples in laboratory and the late report of the data after receiving results on health facility level.

B-2.1 Polio

Cases of polio have not been registered in the republic since 1993. Starting with 1997 the country with WHO support implements the global WHO polio eradication programme. Within the framework of this programme considerable efforts have been targeted to gain and sustain high coverage level both by routine polio immunization and organization of supplementary immunization (SIAs), along with mopping-up immunization.

Active epidemiological surveillance of all polio associated diseases, particularly the acute flaccid paralysis (AFP), is being carried out since 1997 in Kyrgyzstan and based on standard case definition. In 2005-2009 in republic detected from 22 to 37 cases of AFP each year, which confirms high sensitivity of surveillance system, functioning in the country. Thanks to a financial support of the WHO, stool samples from patients with AFP regularly sent for testing at the national virology laboratory and further to Moscow in Institute of a poliomyelitis and virus encephalitis.

Outcomes of immunization combined with effective polio surveillance system allowed the country to get on 21 June 2002 a WHO polio free certificate stating absence of wild polio virus circulation in the territory of Kyrgyzstan. With WHO technical assistance the country has developed, adopted and enacted a strategy of immediate response to a case of imported wild polio viruses from an endemic countries.

Diagram 1. Polio cases by years

According to WHO information, in Tajikistan in 2010 the outbreak of a poliomyelitis caused by wild poliovirus (I type) is registered. It is the first outbreak of the poliomyelitis

(by importation) in the WHO European region, from the moment of its certification. The European Region has been declared by WHO free from a poliomyelitis in 2002. Poliomyelitis outbreak in Tajikistan can have serious consequences for public health services and is a signal for initiating an increased epidemic readiness in all states neighbouring Tajikistan.

In connection with this and despite of the fact that in Kyrgyzstan in the last years national OPV coverage increased - from 92 % in 2006 to 95 % - in 2009, the big concern raised by the high population migration in the country, especially in the last years, which resulted for some children to have no opportunity to receive immunization on time. Especially it concerns children living in new rayons of the Bishkek and Osh cities.

Remaining not vaccinated, these children create potential threat of spread of the vaccine preventable infections. Special attention should be paid to probability of importation and spread of a wild poliomyelitis strain, which is not registered in territory of republic since 1993.

Besides, in 2009 due to insufficient budget funds allocation in republic during 2 months there were no polio, hepatitis B and DTP vaccines that also has led to increase in a proportion of not immunized children and children with incomplete vaccination. It mirrored in immunization coverage at rayon level, as a result in 2009 in 4 rayons and 2 cities of republic polio immunization coverage dropped below 90 %, and in two rayons - below 80 %.

In view of a near location and active interaction with the countries in which a wild polio still widespread (Afghanistan, Pakistan, India), and also with possibility of worsening of situation on a polio in Tajikistan and Uzbekistan, it is impossible to exclude probability of this infection importation again on territory of the country. In this case not immunized children will be affected first.

For prevention of such situation the WHO within the frame of Global strategy of polio eradication recommends to conduct national (in all country) or sub-national "mopping up" campaigns of immunization against a poliomyelitis among not immunized population, especially among the population of new rayons.

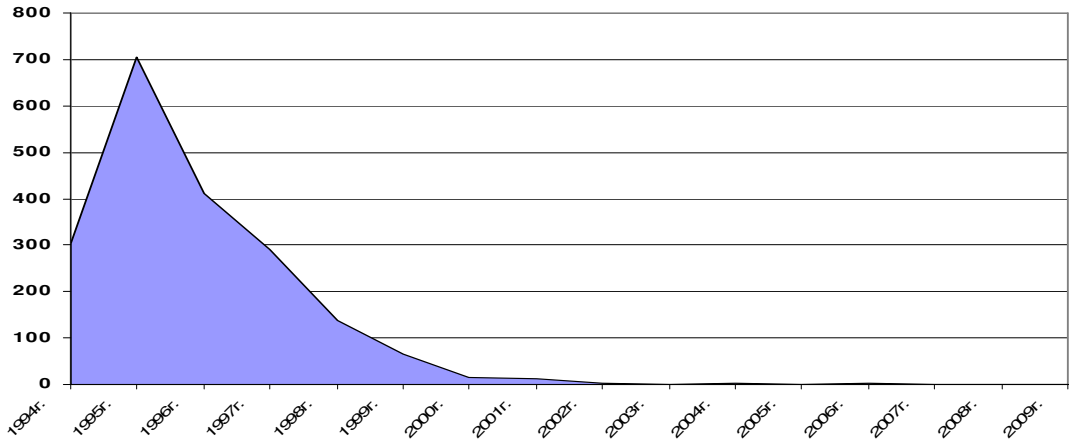
Since last similar campaign in Kyrgyzstan has been conducted in 2001 (in Batken region) during which additionally more than 50 000 children were immunized, it is possible to assume that during 8 years the sufficient layer of not immune children, capable to become a target for a poliomyelitis has been accumulated.

With the goal of children protection against potential threat of infection by a poliomyelitis, Ministry of Health considers possibility of conducting national immunization days in 2010, in two rounds among children of risk groups, i.e. at the age from 0 till 5 years.

B-2.2 DIPHTHERIA

An outbreak of diphtheria in Kyrgyzstan was affected by an epidemic in the European region. During that period 1980 persons were infected with diphtheria and 30 of them died. Adult population appeared to be the main risk group. Persons above 15 years old comprised 58,7%-64,2% of the total as a result of weakening of immunization work among adult population. The outbreak was stopped due to supplementary immunization campaigns with organization of SIAs all over the country and two rounds of sub-SIAs in Bishkek and the Chui region. After the above mentioned activities disease incidence caused by this infection has considerably reduced and in 2007 there was not a single case reported compared to 2 in 2006 (0,04 per 100 000 population).

Diagram 2. Diphtheria cases by years



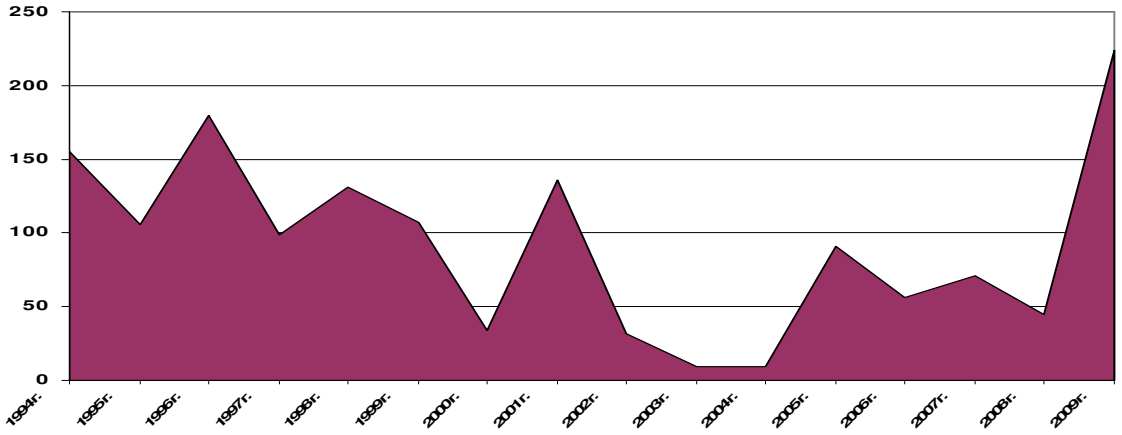
Sustaining safe epidemiological situation concerning diphtheria in the country is the major objective for the immunoprophylaxis services, it is provided by procurement of sufficient amount of diphtheria vaccines and immunization of population performed by the public health system institutions.

B-2.3 Pertussis

Incidence of a pertussis in republic in the last years has increased two times and has risen to 224 cases in 2009. It should be mentioned that mainly (up to 70%) this incidence level is registered in the city of Bishkek and Chui region, it may be a signal of under registration of this infection in the other regions where it might be registered and diagnosed as a bronchopulmonary disease. Extremely low bacteriological confirmation (1-2%) makes this infection a weak point in the surveillance system and demands additional work of bacteriological laboratories.

Whooping cough mainly affects children under one year old (174 cases-78.0%) who have not completed immunization in compliance with the national schedule, or those children who received DT and Td without a pertussis component.

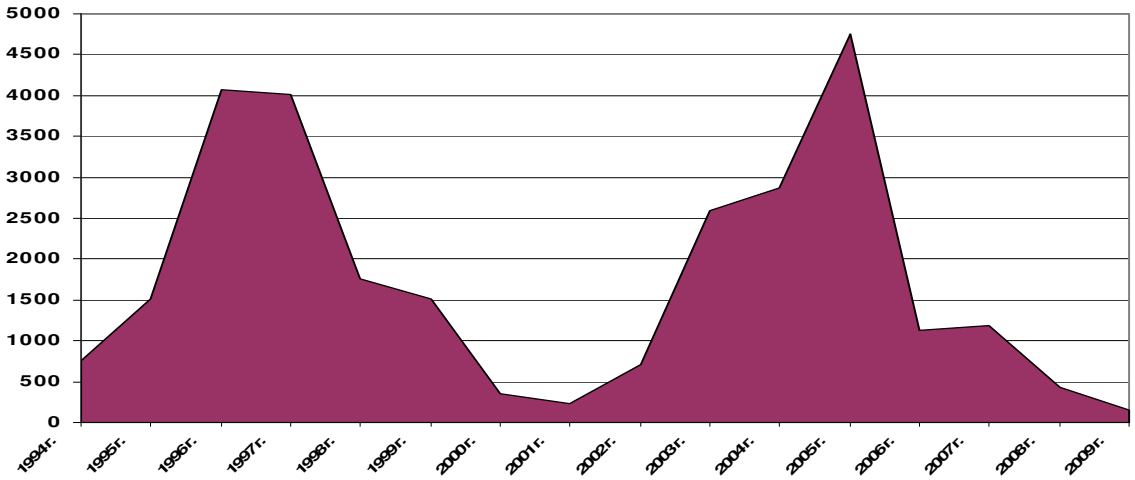
Diagram 3. Pertussis cases by years



B-2.4 MUMPS

From 2003 till 2007 in republic the outbreak of disease epidemic among the schoolboys was observed, caused by low immunization coverage against a parotitis in 1992 - 1995, in connection with lack of mumps vaccine in those years. More than 60 % of the sick children were from 5 till 14 years of age. The biggest percent of the disease has been registered among schoolboys. Due to additional immunization of contact persons by a monovaccine against a parotitis in 2007-2008, it was possible to reduce rate of a mumps from 1192 cases in 2007 to 160 cases - in 2009.

Diagram 4. Mumps cases



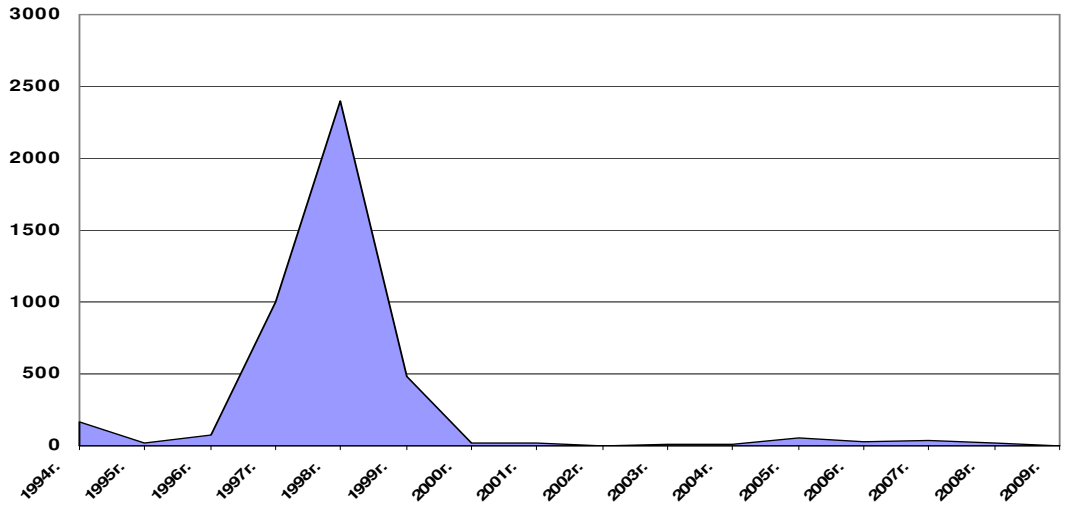
B-2.5 MEASLES

Measles elimination is one of the major objectives of immunization in the Republic, i.e. prevention of its circulation in case of importation from some other territories. For a long period measles occupied the leading position in infectious pathology of the population in the Republic. In 2001 due to support of the international partners (WHO, UNICEF, CDC and others) the National Mass Immunization Campaign against measles and rubella was organized, 2 million people were immunized during the campaign.

The fact that in 2002 there were only 2 cases of measles, in 2003 – 6 cases and in 2004 – 8 cases reported proves effectiveness of the campaign, as given the regularity and pattern of the epidemiological process in Kyrgyzstan there was a forecast of considerable incidence growth of the disease. In 2006 in connection with measles epidemics in the neighbouring states there were 27 reported measles cases, they were defined as imported from the Fergana Valley (Uzbekistan) and Kazakhstan.

In 2008 measles importation from Uzbekistan continued, and simultaneously a measles outbreak occurred in Jalalabad region among children of 7-9 years, it affected 22 children, it was epidemiologically linked with an outbreak. Measles outbreaks among schoolchildren reflect lack of attention on the part of medical workers to vaccination of schoolchildren especially among those belonging to migrating groups. Totally there were 40 reported measles cases in the republic in 2007 (0,9 per 100 000), 16 – in 2008 and 2 – in 2009.

Diagram 5. Measles cases



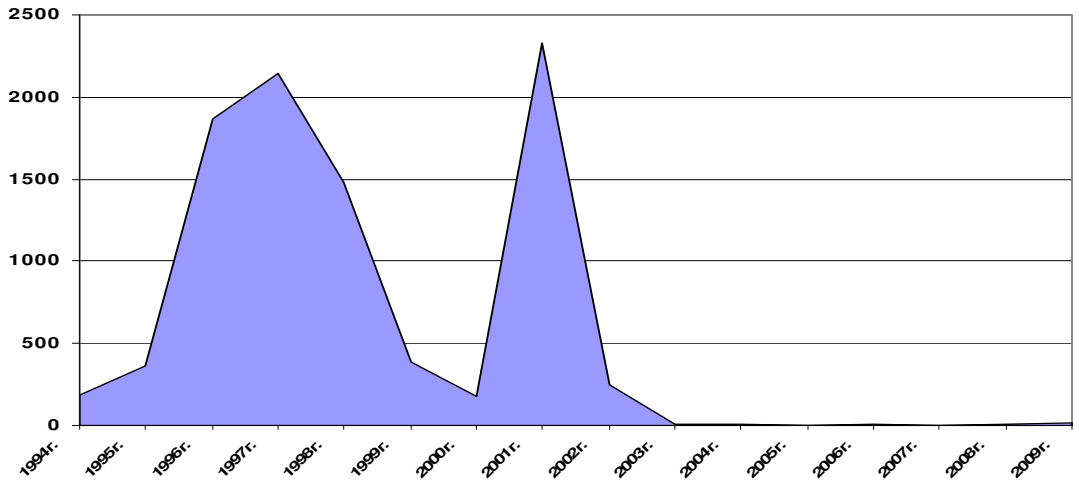
With WHO technical assistance an integrated epidemiological surveillance system for measles, rubella and congenital rubella has been designed and since 1 July 2002 introduced and empowered in the territory of the republic, as a result every single suspected case of measles, rubella and congenital rubella is being registered, investigated and confirmed by laboratory investigation at the National Viral Laboratory in compliance with the standard WHO definition.

B-2.6 RUBELLA

Rubella incidence is no longer a problem for the republic since 2001 when the last epidemic outbreak of rubella was reported. It has been achieved in the process of implementation of the Measles elimination and prevention of congenital rubella strategic plan in the Kyrgyz Republic. In compliance with the plan in the fall 2002 a routine immunization campaign targeted at women of the 26-35 age group was carried out in the country.

During this immunization campaign 291 494 women of reproductive age were immunized, they represent 97.1% of the target group. Due to successfully implemented rubella immunization campaigns stable decrease of incidence has been achieved in Kyrgyzstan. In 2007 only 3 cases caused by this infection were reported and confirmed by the National viral laboratory. In 2009 it is only 16 cases of this infection registered and confirmed by National virology laboratory.

Diagram 6. Rubella cases



B-3 Vaccine procurement, quality and logistics

Vaccine procurement is covered by the resources of international organizations and the government of Kyrgyzstan with gradual annual increase of the latter. Procurement is based on a co-financing principle. In 2007 expenses for vaccines were funded 50% by АБР and 50% from the republic budget. In 2008 40% of the total was funded by АБР and 60% by the government of the republic. Since 2009 all traditional vaccines are purchased at the expense of the republican budget. New pentavalent vaccines are purchased with a co-financing method, where the budgetary funds share is about 10 %.

Procurement of all vaccines follows mechanisms established by UNICEF. Expenses connected with logistics (vaccine transportation to the country, custom fees) are included into donor support.

Annual needs in vaccines are planned starting with the end of the previous year from the local level. Local plans (target groups to be vaccinated with a certain antigen) are prepared by a local EPI manager on the basis of the plans received from PHC organizations. Local plans are presented to the Regional Centre for immunoprophylaxis which considers it and presents further to the central level (RIC). RIC makes its amendments, evaluates buffer stocks and identifies annual and quarterly number of vaccine doses for each region.

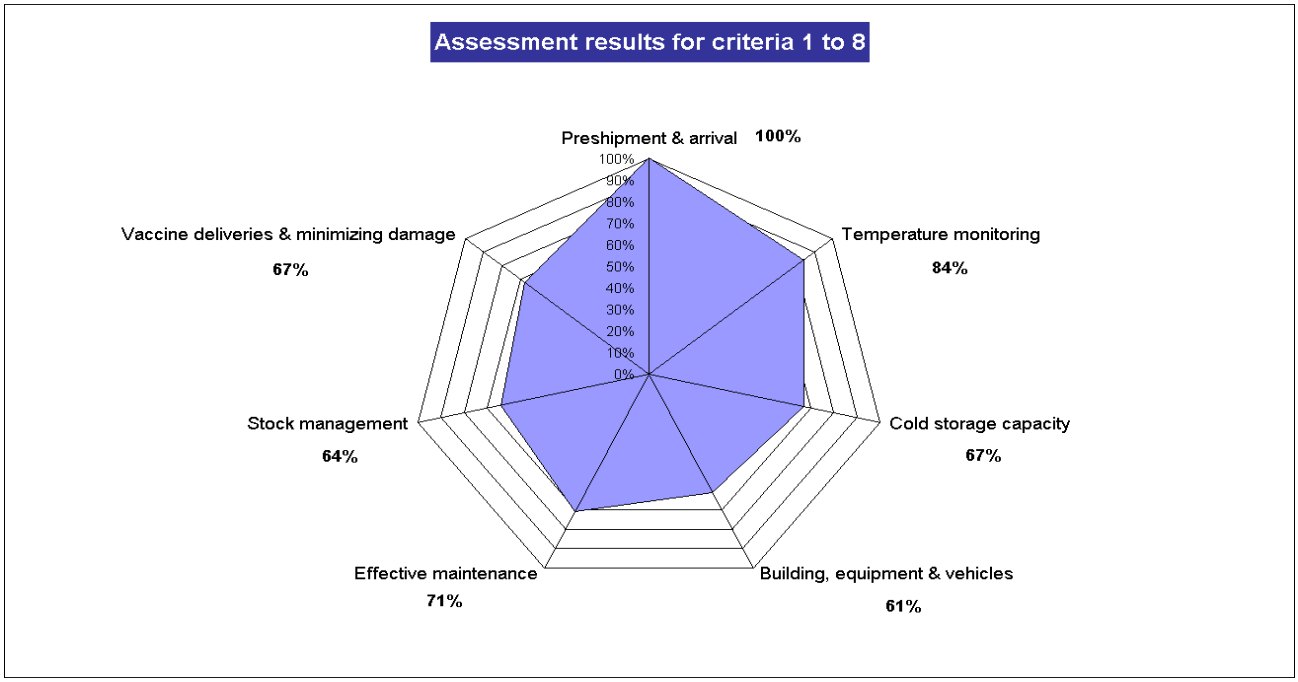
For vaccine transportation to the regional level in Kyrgyzstan there are two refrigerators, one of them based at RIC for three northern territories and the second - at the Osh regional immunoprophylaxis centre and provides vaccine transportation to three southern territories of the republic. There are plans to purchase 18 cars for the local level using HSS GAVI support. Stuff of the regional immunoprophylaxis centre is responsible for delivery of vaccines and equipment for injections from the central level. In general regions receive vaccines and disposables for injections quarterly.

Local SES personnel are responsible for vaccine and injection equipment delivery from the regional level. Local specialists in immunoprophylaxis receive vaccines monthly from the region at the time they present their reports; vaccines are transported in special thermo boxes.

Local FMCs receives vaccines from the local SES as needed as they are located in the same settlement with SES. Other PHC organizations (FDG and MAU) receive vaccines and equipment for injections for a certain vaccination session, because they can not keep vaccines for a longer time due to lack of cold chain equipment and electricity. FDG and MAU equipped with cold chain devises keep vaccines in the premises; others transport and store them in cold containers or refrigerator bags during 24 hours before the day of vaccination. There are no financial resources allocated for vaccine transportation, thus PHC personnel mainly uses public transport.

In 2004 an assessment of effectiveness of vaccine storage management was performed to evaluate vaccine storage at the national level as well as the cold storage condition and vaccine transportation in the region. The subject of the assessment starts from vaccine procurement up to the utilization and is performed in compliance with 10 specific criteria. Outcomes of the assessment are represented in Diagram 7 below:

Diagram 7: Vaccine storage management evaluation outcomes (EVSM), 2004



Basing on the EVSM outcomes, performed in 2004 it is recommended to reorganize and repair the national cold storage, to install reliable and effective equipment of an adequate volume (space), to organize and adequately utilize the packing-unpacking zone, it will provide for performance of the relevant standard operational procedures, stock-taking and will facilitate safe working conditions.

Part of the recommendations has been already considered, to implement others there is still need for additional resources.

The last inventory and assessment of the cold chain needs was performed in by UNICEF. The needs assessment base on the current level of the immunization programme performance. It does not cover introduction of new vaccines thus it is in compliance with the mail scenario of cMYP. The outcomes of the assessment demonstrated that vaccine storages of all levels have enough capacity of freezers, however capacity of refrigerators cover from 36% to 89% of the needs in the regions.

The assessment identified that modernization and the cold chain equipment replacement will cost 300 000 USD. This plan includes purchase of the cold chain equipment mainly for the national regional and local vaccine storages and immunization rooms during 2008 (cold rooms, generators of autonomous power supply MK-304 and MK-074 refrigerators), creation and operation of mobile teams to maintain cold chain equipment, purchase spare parts for the refrigerators, organization of relevant trainings for medical workers. All main components of the plan on strengthening of cold chain have been accomplished within 2008-2009. This allowed to increase volume of (+2+8) capacities in all vaccine stores of republic with 40 % of a reserve space, and their regular maintenance and repair support.

Safe vaccine management: Since 2000 procurement of safe injection equipment were introduced in the country scale. WHO performed assessment of vaccine safety in 2001. Major assessment outcomes are as follows:

- Safe AD syringes were used for vaccination in 100% cases
- Usage of the relevant diluents – 93% cases;
- Majority of vaccination rooms (94%) were equipped with safe containers and they were properly used in the most cases;
- Needle cup re-use was noticed in 26% of cases because the major complaint of the personnel was accidental needle prick (29%);
- Given the overall progress achieved since 2004 there is a need to further strengthen injection practices. Medical workers should be provided training in safe injections methods.

Waste management and disposal: There is a common for the whole country problem of medical waste disposal. Practically not a single region has special equipment for incineration. All vaccination rooms are equipped with safety containers for vaccination waste storage. On the whole about 1 700 000 vaccinations are being performed in the republic annually. Utilized syringes, sharps, vials and other small objects are placed into safety boxes for further disposal. The norm for one safety box is 100 syringes, they are burned in a special place approximately once a week. Annually about 20 000 safety boxes are purchased for syringe disposal.

Practices of burning wastes in the open fire need further improvement. A special working group to develop general country's strategy on medical wastes disposal including that of vaccination has been created under the Ministry of Health. Pilot project is implanting in one of Hospitals in Bishkek. According to the National Programme "Manas taalimi" there is a plan to purchase several incinerators.

B-4 Advocacy and communication

Advocacy and communication is one of the important components of the National Immunization Programme. This component is targeted at raising of population awareness of the advantages of immunization and behavioural changes and parents' attitudes to modern immunization services.

Several social mobilization strategies are being applied in Kyrgyzstan:

1. Development of materials from the AIEC (advocacy and information, education and communication), **and communication of the main messages:**

- To the entire population (including target groups) through mass media (TV, press and radio)

- To certain target groups via medical workers and/or volunteers from the community (if any)

2. Strengthening motivation of media in positive coverage of immunization impact on reduction and elimination of infectious diseases incidence

3. Raising awareness and understanding via links with PHC units, using medical workers as a source of information (passive or active distribution of information through recommendations and consultations).

The first strategy is more resource consuming but more efficient from the point of view of quicker outcomes. It is also an instrument to attract attention of policy-makers especially through events on advocacy and social mobilization such as the European immunization week which has been initiated by EURO WHO in 2005. Kyrgyzstan joined the EIW WHO initiative in 2007. In 2008-2009 EIW campaigns conducted in more expanded version. In 2007 actions were limited basically to the Bishkek city, in 2008-2009 regions have joined this action. Round tables with participation of the leaders, policy decision makers, press representatives and PHC experts have been conducted. 2000 posters, 8000 booklets were developed and published in support of EIW. Video clip was made which was broadcasted by the national TV during the whole week.

Migrants settled mainly around the capital city in dwellings with low level of sanitation were selected as a target group. They do not apply for medical prevented services partially because they are not aware about their rights.

During EIW 2007 PHC medical workers using door-to-door methodology identified and vaccinated with support of mobile teams about 3000 migrant children who were not immunized before or did not have any records of the previous vaccination. In compliance with the second strategy of EIW 2008 in order to raise awareness of journalists a new incentive was launched – a contest for journalists for the best coverage of the issues of Immunoprophylaxis within the framework of the EIW.

It should be mentioned that in mass media of Kyrgyzstan there were not so many negative publications concerning poor vaccine quality or hard post immunization effects and not mandatory vaccination.

This is reflection of really not very large amount of post immunization effects and periodical information provided to journalists via press releases on incidence of vaccine preventable diseases and measures of its control. These activities would not be possible on such a broad scale without external donor support (WHO, GAVI)

Provided assistance allowed strengthening of social mobilization and contributed to high level coverage of the target group by prevented vaccination.

The EIW objective – to increase vaccination coverage by raising awareness of importance of immunization. It initiated a broad spectrum of national events targeted at high risk population groups by means of advocacy, communication and supplementary immunization. Special attention is given to the activity targeted at vulnerable or hard-to-reach population groups. EIW promotes the key message

EIW feedback will be accompanied by a request to continue and develop this initiative, to provide technical assistance in planning and implementation of the future EIW.

The third strategy to convey the key messages to the population and specific target groups via PHC medical workers needs its further development. It is a less funds consuming activity which allows co-financing (covered by PHC financing), it is much more viable and may impact parents/population more than mere announcements communicated through mass media, given personal trust to medical workers. However, insufficient level of medical workers knowledge about vaccination efficiency in absence of communications concerning issues of immunization creates a need for special training for PHC medical workers. Activities on advocacy are regularly performed with partners through ICC and direct contacts with potential and/or exciting donors.

There is no exact plan on advocacy and communication in the National Immunization Programme.

Besides that here is Guidance for medical workers; no focal point on communication about immunization at the national level. Health care medical workers have not attended training in communication and social mobilization, all these activities are mainly funded by donors.

Problems, connected with the issues of social mobilization and communication may be summarized as follows :

PROBLEM OVERVIEW:

- Absence of a focal point on advocacy and communication
- Absence of a written plan and guidance for advocacy and communication
- Absence of financial resources for social mobilization
- Lack of medical workers' knowledge on communication
- Lack of public awareness and knowledge about immunization

B-5 Management

National Immunization Programme has organizational structures at the national, regional and local levels, as represented in A-4 «Immunization services in health care system ».

At the national and regional levels NIP is managed by the Republican Immunoprophylaxis Centre and its 8 regional departments (titled regional and Bishkek city centre of immunoprophylaxis), at the local level management is performed by immunologists and managers of vaccine stores. Totally 69 managers and 78 EPI medical professionals are employed in the system.

Major functions and responsibilities of the structure:

- Regular analysis of VPI surveillance outcome, incidence forecast and epidemiological interventions planning in the health care sector;
- Management/implementation of vaccination and vaccine management
- Surveillance of the development of NIP information system management
- Organization of monitoring and evaluation of quality and effectiveness of NIP
- Development of professional and human resources needed for NIP
- Management of interventions and activities and social mobilization
- Development of a Guidance and regulatory documents (for Ministerial ordinances), necessary for NIP implementation.

The Ministry of Health approved the overall strategic plan of management of the National Immunization Plan (2006-2010). Besides the strategic plan there are separate plans on certain components of the programme, which are in compliance with the WHO guidance. The strategic function of the programme planning is facilitated by the activities of the ICC as for coordination and interaction, however the ICC potential as a coordinating instrument is not fully utilized.

Human resources and training: medical workers training is mainly organized with donor financial support. Despite the fact that a part of medical workers participated in WHO trainings on immunization for the managers of intermediary level "Immunization in Practice" and «Reach every district», as well as on the issues of integrated epidemiological surveillance, capacity and potential of the human resources are not sufficient and should be strengthened.

Timeliness and completeness of reporting: reporting system given its timeliness and completeness works effectively at regional level. The problems exist in transfer of data from the local level to the higher level. It happens that reports arrive late and lack some information. Delays with reporting, accuracy and completeness of information are the issues which need further work.

Feed-back mechanism: Feed-back from the regional level to the national is provided but it should be better organized given its content and frequency. Organization of feed-back with other level needs strengthening through training based on analysis and provision of means of communication.

Supervisory visits: Well-disposed and supportive control was one of the weak points of the programme, mainly because of lack of financial resources and personnel mobility. Personnel at the local level was not entitled to business travels and supervisory visits. Local level specialists did not pay supervisory visits to health care institutions. However at present with the GAVI financial support these supervisory functions will be performed. At present a guidance for supervisory visits is being drafted and teams are being formed. It will allow to improve quality of performance and immunization services.

Vaccine management: See details in the Section "Vaccine procurement, their quality and logistics".

Problem overview connected with programme management are presented below:

PROBLEM OVERVIEW

- Lack of financial resources
- Considerable dependence on donor support
- Knowledge and skills of the intermediate level managers (at the local level) needs considerable up-grading
- Absence of systemic effectiveness of management evaluation
- High level of professionals' drain, especially from the local level

- Timeliness and completeness of medical reporting remains a problem
- Weak feed-back between the local level and PHC institutions
- Lack of supportive supervisory control
- Capacity and potential of ICC as an instrument for coordination are not fully utilized.

B-6 Problems overview and analysis of immunization programme

Key parameters of the national immunization system describing achievements and challenges are summarized in Table 5 and Table 6 below:

Table 5: Situational analysis by accelerated disease control initiatives

Component	Suggested indicators	National Status				
		2005	2006	**2007**	**2008**	**2009**
Polio	OPV3 coverage	90,7%	92,8%	**94,0%**	**95,3%**	**95,7%**
	% of districts with >80 percent coverage	100%	100%	**100%**	**100%**	**96,1%**
	Non polio AFP rate per 100,000 children under 15 years of age	2,15	1,72	**2,26**	**2,1**	**1,33**
	Immunization incompleteness rate at national level	2.7	3,6	**0,2**	**4,3**	**4,1**
	% of districts where number of OPV cases not associated with polio is less than 1 case per 100,000 children under 15 years of age	0%	22%	**11%**	**11%**	**33%**
	Adequate stool specimen collection rate (at least should be 80%)	97,1%	96,4%	**94,6%**	**100%**	**95,5%**
	The rate of AFP cases investigated within 48 hours of being reported	97,1%	92,9%	**86,5%**	**100%**	**100%**
	Follow -up AFP cases 60-90 days	100%	100%	**97,3%**	**100%**	**100%**
	Lab testing of OPV cases	100%	100%	**100%**	**100%**	**100%**
	Completeness of reporting	90%	90%	**85%**	**90%**	**90%**
	Classification of cases within 90 days	100%	100%	**81,1%**	**100%**	**100%**
	Timeliness of weekly reports by the deadline	70%	72%	**71%**	**64%**	**30%**
	% of health facilities exposed to active epidemiological surveillance	100%	100%	**100%**	**100%**	**100%**
	% of OPV cases detected through active surveillance	2,0%	1,3%	**6,8%**	**2,4%**	**4,5%**

		National Status				
	Number of health workers received training on OPV active epidemiological surveillance	0	0	**0**	**0**	**50**
	Number of curator visits at oblast and district levels	0	0	**0**	**0**	**0**
	Is there a risk of importing of wild polio virus from neighbouring countries	yes	yes	**yes**	**yes**	**yes**
Measles	1st dose vaccination coverage	**90,8%**	**97,3%**	**98,8%**	**99,1%**	**98,9%**
	2nd dose vaccination coverage	87,8%	97,4%	**95,0%**	**96,5%**	**98,5%**
	% of districts with >80 percent coverage	100%	100%	**100%**	**100%**	**100%**
	Number of registered measles cases	53	27	**40**	**16**	**2**
	Number of outbreaks	0	0	**1**	**0**	**0**
	Number of registered rubella cases	1	11	**3**	**6**	**16**
	Number of measles lab testing	281	245	**224**	**265**	**221**
	Number of lab confirmed measles cases	53	27	**40**	**16**	**2**
	% of lab tests	91,6%	92,0%	**87,2%**	**93,0%**	**98,6%**
	% of investigated cases within 48 hours	86%	87,1%	**85%**	**95%**	**96%**
	% of hospitalized cases	51%	36%	**40%**	**38%**	**50%**
	% of death cases	0	0	**0**	**0**	**0**
Diphtheria	DTP 3 coverage	90,3%	92,6%	**94,1%**	**95,4%**	**95,7%**
	% of districts with >80 percent coverage	100%	100%	**100%**	**100%**	**100%**
	% of received reports with zero diphtheria cases	70%	80%	**80%**	**80%**	**70%**
	% of urgent notification sent within 12 hours	100%	100%	**100%**	**100%**	**100%**
	% of investigate cases within 48% after receiving urgent notification	100%	100%	**100%**	**100%**	**100%**
	% of cases from total number of lab tested	100%	100%	**100%**	**100%**	**100%**

Table 6: Situational analysis of routine EPI by system components

System components	Suggested indicators	National Status				
		2005	2006	2007	2008	2009
Routine coverage	DTP3 coverage	90,3%	92,6%	94,1%	**95,4%**	**95,7%**
	% of districts with > 80% coverage	100%	100%	100%	100%	100%
	National DTP1- DTP3 drop out rate	1,0%	3,2%	0,9%	4,3%	4,1%
	Percentage of districts with drop out rate DTP1 -DTP3>10	0	0	0	0	0
	OPV 3 coverage	90,7%	92,8%	94,0%	**95,3%**	**95,7%**

		National Status				
	% of districts with > 80% coverage	100%	100%	100%	100%	100%
	National OPV1- OPV3 drop out rate	1,3%	3,6%	0,2%	4,3%	4,1%
	Percentage of districts with drop out rate OPV1 -OPV3>10	0%	0%	0%	0%	0%
	Measles 1st dose vaccination coverage	90,8%	97,3%	98,8%	**99,1%**	**98,9%**
	Measles 2nd dose vaccination coverage	87,8%	97,4%	95,0%	**96,7%**	**98,5%**
	% of districts with >80 percent coverage	100%	100%	100%	100%	100%
New vaccines	HepB1 coverage	92,1%	96,7%	94,2%	98,5%	68,0%
	HepB3 coverage	89,6%	90,3%	94,4%	96,5%	95,6%
Routine Surveillance	% of regions submitting surveillance reports	100%	100%	100%	100%	100%
	% of health facilities actively participating in AFP surveillance	42%	42%	42%	40%	35%
	Availability of reporting forms for AFP and Measles surveillance	100%	100%	100%	100%	100%
	% of zero weekly reporting from health facilities to RCIP on diphtheria, measles, AFP	76%	81%	87%	71%	62%
	Availability of capacity for diphtheria testing and analysis	No	No	No	No	No
Immunization safety	Percentage of districts have been supplied with adequate (equal or more) number of AD syringes for all routine immunizations	100%	100%	100%	100%	100%
	Availability of AEFI surveillance	Yes	Yes	Yes	Yes	Yes
	% of districts supplied with medical first aid kits for AEFI	100%	100%	100%	100%	100%
	Annual Number of AEFI cases	7	2	16	14	19
	% of timely notification of AEFI	100%	100%	100%	100%	100%
	% of health facilities using standard incinerators for disposal of injection materials	5%	5%	5%	5%	5%
	% of health workers received trainings on safe immunization practices	47%	51%	56%	30%	3%
	% of health facilities providing home vaccination	0	0	0	0	0
	Was assessment of immunization carried out?	No	No	No	No	No
	% of facilities provided with safety boxes	100%	100%	100%	100%	100%
	% of health workers received trainings on Open Vial Policy	47%	51%	56%	30%	0%
Vaccine supply	Availability of a multy year plan for vaccine forecasting	Yes	Yes	Yes	Yes	Yes
	Availability of a monthly plan for distribution of vaccines to districts	Yes	Yes	Yes	Yes	Yes

		National Status				
	Is there responsible person for management of vaccines at national level?	Yes	Yes	Yes	Yes	Yes
	Was there vaccine stock out at national level	Yes	Yes	Yes	Yes	Yes
	If Yes specify vaccines	OPV	DTP	HepB	MMR,MR	MMR,MR
	% of districts provided with transports for transportation of vaccines	29,6%	31%	35,8%	71%	71%
	% of districts where the Open Vaccine Policy is introduced	100%	100%	100%	100%	100%
Cold chain/Logistics	% of districts with adequate number of functional cold chain equipment	64,0%	72,2%	72,2%	96,1%	100%
	% of districts received new refrigerators	60%	67%	67%	100%	100%
	% of refrigerators that operates over 10 years	57%	50%	50%	43%	43%
	% of districts with regular electricity	20%	20%	20%	80%	80%
	% of health facilities with regular electricity	4,1%	4,1%	4,1%	2,1%	2,1%
	% of refrigerators supplied with stabilizers	15%	22%	22%	50%	50%
	% of health workers receiving training on cold chain	37%	40%	40%	0%	70%
	It there a focal point for vaccine management and cold chain at national, regional and district levels?	Yes	Yes	Yes	Yes	Yes
	% of districts having standard places for vaccine storage	77%	81%	81%	100%	100%
	% of districts supplied with freezing indicators	0	0	0	0	38,4%
	Cold chain assessment and inventory	once	once	once	no	yes
	% of districts supplied with refrigerators for collecting AFP samples (reverse cold chain)	100%	100%	100%	100%	100%
	Availability of a plan for conducting preventive maintenance and repair cold chain equipment	No	No	No	Yes	Yes
	Availability of a cold chain replacement plan	No	No	No	Yes	Yes
	% of districts provided with cars	50%	50%	50%	71%	71%
	Provision with fuel, lubricants and spare parts	No	No	No	50%	50%
	% of districts supplied with office equipment	30%	30%	35%	80%	80%
	% of districts supplied with office furniture	0%	0%	10%	0%	0%
	having reliable communication means	3%	3%	7%	30%	30%
	% of districts provided with different registration and reporting forms	95%	97%	97%	100%	100%
Social mobilizati	Availability of a plan (Advocacy, social mobilization and program communication)	No	No	No	No	No

		National Status				
on/Communication	Communication plan	No	No	No	No	No
	Is there a responsible person for social mobilization at the national level?	No	No	No	No	No
	Advocacy and social mobilization meetings	No	No	Yes	Yes	No
	Trainings of EPI directors on communication and social mobilization	No	No	No	No	No
	Existence of budget for social mobilization	No	No	No	yes	yes
	communication manual for health staff	No	No	No	No	No
Management planning	Any revision of national policy on immunization	Yes	Yes	Yes	Yes	Yes
	Existence of national indicators for immunization	Yes	Yes	Yes	Yes	Yes
	Availability of national strategies on disease control	Yes	Yes	Yes	Yes	Yes
	Existence of national plan for monitoring and supervision	Yes	Yes	Yes	Yes	Yes
	Existence of guidelines on epidemiological surveillance, AEFI surveillance, safe injection practices, vaccine and cold chain management	Yes	Yes	Yes	Yes	Yes
	Existence of multy year plan for immunization	No	Yes	Yes	Yes	Yes
	Availability of standard operating procedures on different aspects of EPI program	Yes	Yes	Yes	Yes	Yes
	% of districts with micro plans	100%	100%	100%	100%	100%
	% of district EPI managers trained on the management of EPI program	13%	29,6%	29,6%	88,8%	29,6%
Financial sustainability	What percentage of total routine vaccine spending was financed using Government funds? (including loans and excluding external public financing	30%	40%	50%	50%	37%
ICC	Number of meetings held last year	4	4	4	3	3
Research / Studies	Number of vaccine related studies conducted/being conducted	No	No	No	No	No
Program efficiency	Vaccine wastage monitoring at national level for all vaccines	Yes	Yes	Yes	Yes	Yes
	Timely availability of adequate funds to district and service delivery points	No	No	No	No	No

Given the fact that the Government of the Kyrgyz Republic has taken its MDG commitment, the National Immunization Programme plays important role in achieving of two main goals:

- Child mortality reduction

- Reduction of vaccine preventable diseases especially measles

The major problem according to the National Immunization Programme is a threat of outbreaks of vaccine preventable diseases and losses in previously achieved progress for the following reasons:

- Existence of disadvantaged population groups (territories) with low immunization coverage
- Possibility of importation of infection from endemic countries
- Lack of resources to gain financial sustainability

Basing on the situation analysis of the components of immunization system the following problems were identified:

- **Service provision/delivery**
  - Inadequate coverage with traditional and underused vaccines at the national and local levels, especially in hard-to-reach settlements.
  - Weak organization of the immunization service in some regions
  - Absence of medical personnel in remote health care institutions
  - Low financial motivation of medical workers
  - Absence of financial resources fir mobile teams
  - False definition of counter indications
  - Absence of relevant and continuous training for the PHC personnel
  - Missed opportunities due to weak micro planning
  - Home delivery
- **Disease surveillance**
  - Insufficient system of disease surveillance
  - Absence of laboratory potential for investigation of separate cases and outbreaks and
  - Absence of knowledge in medical workers of standard case definition, recommended by WHO
  - Inadequate knowledge level on active surveillance performance among epidemiologists
- **Vaccine procurement, their quality and logistics**
  - Low efficiency of vaccine management
  - Lack of financial resources
  - Lack of adequate cold chain equipment in the regions and PHC institutions
  - Absence of the cold chain current maintenance plan (with relevant allocated resources)
  - Inadequate knowledge of medical workers on injection safety and medical wastes disposal
- **Advocacy and communication**
  - Absence of a developed plan and guidance on advocacy and communication
  - Absence of financial resources for social mobilization
  - Absence of knowledge among medical workers on communication
  - Low public awareness level about immunization
- **Programme management**
  - Absence of knowledge and skills among managers of intermediate level (at the local level)
  - Absence of systemic evaluation of management efficiency
  - Timeliness and completeness of medical reports remains a problem
  - Absence of a feed-back system between the regional level and PHC institutions
  - Lack of capacity for supervisory visits

II. Immunization program objectives and strategies

A. National priorities, NIP objectives, milestones, strategies and key activities

Problem or priority	NIP objectives	NIP milestones	Regional & global goals	Order of priority	Implementation strategies	key activities	timing (year)	System components
POLIO ERADICATION								
Moderate AFP rate, poor active surveillance and zero reporting	Maintaining polio-free status; through 95 % coverage for OPV3 at national and 90% at each district level by 2012, reaching and sustaining AFP rate of 1/100000 under 15 years by year 2011 and providing supplemental vaccination to susceptible populations, if needed	Accreditation of national polio lab in 2008; maintaining at least 1 AFP case /100.000 under 15 years of age and absence of silent areas through out the cMYP cycle	Maintaining polio-free status; through 95 % coverage for OPV3 at national and 90% at each district level by 2012, reaching and sustaining AFP rate of 1/100000 under 15 years by year 2011 and providing supplemental vaccination to susceptible populations, if needed	1	Strengthening AFP surveillance (epidemiological and laboratory)	Review national AFP surveillance guidelines inline with WHO recommendations	2011	S&M
						Conduct training on AFP surveillance to major reporting site staff (on case definition, zero reporting and case investigation)	2011 & 2014	S D
						Supply lab reagents, kits and equipment for measles-rubella analysis (WHO)	cMYP	S&M
					Improving active surveillance	Conduct training for district epidemiologists with focus on active surveillance	2011 & 2014	S D
						Conduct regular active surveillance to major reporting sites (with special focus to high risk / silent areas)	cMYP	S&M
						Conduct supportive supervision to district epidemiologists	cMYP	S D

					Arising awareness of reporting site staff (paediatricians, neurologists and physiotherapists)	Refresh knowledge of hospital staff on AFP surveillance	2011	S D
						Provide feedback to district level and reporting sites on AFP surveillance	cMYP	S&M
Increased risk of wild poliovirus importation		Mopping up in 2011		1	Providing additional opportunity of OPV to susceptible populations in areas close to Tajikistan border	Conducting two rounds of supplementary polio vaccination to susceptible populations (targeting app. 100,000 children under 5 years of age)	2011	S D, VQL
Moderate routine coverage with OPV		Refer to routine immunization component		2				
ELIMINATION OF MEASLES AND RUBELLA AND CONTROL OF CONGENITAL RUBELLA INFECTION								
Insufficient disease surveillance to guide the programme, under reporting of diseases, not all cases receiving lab confirmation, reporting problems (timeliness and completeness)	Elimination of measles and rubella and control of congenital rubella infection by 2012 (Having less than 1 measles cases per 1,000,000 population by 2012)	Case investigation and laboratory confirmation of all suspected cases by 2011; decreasing measles incidence 1/1,000,000 population by 2012	Elimination of measles and rubella and control of congenital rubella infection by 2012 (Having less than 1 measles cases per 1,000,000 population by 2012)	1	Strengthening lab based measles and rubella surveillance system	Review national measles-rubella surveillance guidelines (and forms) inline with WHO recommendations	2011	S&M
						Conduct training to facility level staff on measles-rubella surveillance	2011 & 2012	S D
						Provide (international) training for lab staff (WHO) (including dry drop technique)	cMYP	S D
						Provide continuous operational support for specimen transportation	cMYP	S&M
						Supply lab reagents, kits and equipment for measles-rubella analysis (WHO)	cMYP	S&M
						Provide training to designated staff for case investigation, specimen collection and transportation at district level	2011	S D

					Strengthening measles and rubella surveillance through improving completeness and timeliness of reporting and, active search for cases and active surveillance	Introduce software (developed by CDC) for measles and rubella surveillance at national and oblast level	2011 & 2012	S&M
						Conduct training for oblast level on using measles and rubella surveillance software	2011	S D
						Conduct refreshing training to health facility level staff on measles-rubella disease reporting	2011 & 2012	S D
						Conduct active search for measles-rubella cases inline with WHO recommendations on surveillance	cMYP	S&M
						Conduct active surveillance to reporting sites (hospitals and health facilities)	cMYP	S&M
					Early detection, investigation and confirmation of measles and rubella outbreaks, and use (surveillance and immunization) data to control and prevent outbreaks	Revise outbreak investigation and response guidelines in line with WHO recommendations	2011	S&M
						Train health facility and district staff on measles outbreak detection, investigation, analysis and control	2011 & 2012	S D
						Conduct outbreak investigations and use data for action to control and prevent outbreaks	cMYP	S&M
					Strengthening implementation of case-based measles and rubella surveillance	Train health facility staff on case-based measles-rubella surveillance to strengthen case-based reporting	2011 & 2012	S D

Existence of susceptible to measles and rubella infection (among school children, immigrants)		Providing additional opportunity of measles containing vaccination to susceptible to avoid outbreaks		2	Identification of susceptible individuals and providing (follow up) vaccination to unvaccinated children	Monitor vaccination status of children born after SIA and provide follow up vaccination to unvaccinated children	cMYP	S&M
Moderate routine coverage with MMR vaccine		Refer to routine immunization component		2				
CONTROL OF DIPHTHERIA								
Weakened disease surveillance	Elimination of diphtheria cases	Case investigation and laboratory confirmation of all suspected cases by 2011; no diphtheria cases by 2011	Elimination of diphtheria cases	2	Improve performance of diphtheria surveillance to enable lab confirmation of all suspected cases	Conduct refreshing training to facility and district level staff on diphtheria control (with emphasizing on case definition, reporting plus zero reporting)	2012	S D
						Ensure that all oblasts have access to lab facility to conduct analysis of suspected cases	2012	S&M
						Provide equipment and supplies to designated labs, inline with WHO standards	cMYP	S&M
						Provide operational support for specimen transportation	cMYP	S&M
						Retrain (national, selected districts) lab staff inline with WHO standards on lab analysis of diphtheria	8	S D
						Conduct supervisory visits to designated labs at district level regularly	cMYP	S D
						Provide regular feedback on diphtheria surveillance to sub-national levels	cMYP	S&M
Occurrence of		Providing		2	Providing	Conduct diphtheria SIA to	2015	S D,

sporadic diphtheria cases (no regular vaccination beyond school age and insufficient coverage among school children)		diphtheria SIA in 2015 to susceptible age groups			additional dose of diphtheria containing vaccine to susceptible age groups	susceptible (mainly targeting adults in 2015 (app. 800.000 adults)		VQL
Moderate routine coverage with diphtheria containing vaccines		Refer to routine immunization component		2				
CONTROL OF HEPATITIS B								
Insufficient disease surveillance	Control of hepatitis B disease	Laboratory confirmation of all suspected cases by 2013	Control of hepatitis B disease	2	Improve disease surveillance	Review national guidelines on hepatitis B control and other form of Hepatitis inline with WHO recommendations	2012	S&M
						Implement lab confirmation at all regions through expansion lab infrastructure	2012	S&M
						Conduct training for lab staff	2012	S D
						Conduct training for health facility and district staff (with focus on reporting)	2012	S D
Moderate routine coverage with hepatitis B vaccine		Refer to routine immunization component		2				
ROUTINE IMMUNIZATION								
Moderate routine coverage with NIP antigens; existence of low performing districts; delayed vaccinations;	Achieving 98% coverage for all NIP antigens at national level and at least 95% coverage at (90% of districts if not) all	At national level; 96% by 2011, 96.5% by 2012 and 98% by 2015.	By 2015 or sooner all countries will have routine immunization coverage at 98% nationally and 95% at all	1	Improve availability of immunization services through filling vacant positions	Review roles and responsibilities of NIP staff at all levels and communicate written SOPs to all level staff	2011	P M
						Identify staff need for each level and advocate for filling vacant	2011, cMYP	P M

implementation of false contraindications; missed opportunities; inadequate training; rare immunization sessions; lack of staff; insufficient outreach/mobile services; weak of supportive supervision; denominator accuracy problems; weak coverage monitoring; insufficient feedback; insufficient action to improve coverage	districts by 2015		districts			positions		
						Develop incentive mechanisms for NIP staff and advocate for its implementation	2011-2013	P M
					Improve accessibility to immunization services through increasing frequency of sessions and mobilization of immunization services	Increase frequency of immunization sessions to decrease missed opportunities (especially in rural areas and low performing districts) (introducing less dose vials and investing in cold chain infrastructure)	2011 & 2012	S D
						Identify priority districts (and/or areas) where mobilization of services needed to improve access to immunization services	2011	S D
						Define localities that needs outreach and/or mobile services	2012	S D
						Prepare district level plans and aggregated national plan for outreach and/or mobile services	2011	S D
						Provide operational support to outreach and/or mobile services (transportation, fuel, perdiem)	cMYP	S D
						Monitor performance of outreach and/or mobile services	cMYP	S D
					Improve quality of immunization services through regular provision of training to NIP staff	Continue providing Immunization in Practice (IIP) training to remaining district and health facility level staff	2011	S D
						Provide certification to trained staff	2011	S D
						Incorporate IIP content to existing under and post graduate training curricula for health staff (medical & nursing school, post graduate institute for continuous medical education)	2011	S D
						Adapt and print Mid-level	2012	S D

						Management (MLM) training modules of WHO according NIP needs		
						Conduct training of trainers (facilitators) on MLM modules (to national level staff) (WHO)	2012	S D
						Conduct MLM training to district level managers (to all NIP related staff at district level)	2012 & 2014	S D
					Improve quality of immunization services through regular provision of regular supportive supervision to NIP staff	Design a supportive supervision system for NIP	2011	S D
						Prepare national guidelines for supportive supervision	2011	S D
						Develop quantifiable supervisory checklists	2011	S D
						Designate supervisor at national and district level and conduct training to supervisors (+MLM training)	2012-2013	S D
						Conduct regular supportive supervision from national level to district level and from district level to health facility level using quantifiable supervisory checklists (with special focus on timely vaccination, implementation of true contraindications, decreasing missed opportunities, increasing mobilization of immunization services, micro-planning at district and health facility levels)	cMYP	S D
						Provide operational support to supportive supervision (transportation, fuel, perdiem)	cMYP	S D
						Monitor performance of supportive supervision and evaluate findings presented in supervisory checklists	cMYP	S D

						Take necessary actions for problems which could not be corrected during supportive supervision	cMYP	S D
						Provide regular feedback to districts and health facilities on findings of supportive supervision	cMYP	S D
					Improve coverage reporting and monitoring at all levels	Identify denominators (birth cohort, surviving infants and 6 years of age) for all levels (national, district, health facility) in line with State Statistical data used	cMYP	S&M
						Improve accuracy of denominator at facility and district levels through using all sources of (service and statistical)data	cMYP	S&M
						Communicate information on denominator issues between all levels (especially between national and district levels)	cMYP	S&M
						Review reporting forms to allow monitoring of timeliness of vaccination	2011	S&M
						Conduct monthly coverage monitoring at district and facility levels and quarterly monitoring at national level	cMYP	S&M
						Provide quarterly feedback to sub-national levels (shift from 6 monthly to quarterly evaluation and feedback)	cMYP	S&M
						Conduct immunization coverage surveys in selected districts to verify reported coverage (HSS)	2011	S&M
						Take necessary actions in low performing districts based on quarterly evaluation conducted at national level (follow up and/or	cMYP	S D

						accelerated vaccination in low performing areas in addition to other strategies of RED)		
						Strengthen defaulter tracking mechanisms at facility level (both by manual and/or electronic systems depending on availability)	cMYP	S&M
						Re-establish quarterly RED reporting to WHO/EURO	cMYP	S D
					Increasing demand for immunization services	Refer to 'Advocacy, communication and social mobilization' component		
					Improve planning capacity at district and facility levels through improved microplanning	Covered under improving quality of (training, supportive supervision) and increasing access to immunization services strategies		
INTRODUCTION OF NEW AND UNDERUSED VACCINES								
Insufficient evidence for decision-making to introduce new and underused vaccines; existence of under used vaccines	Expand national immunization programme through introduction of pneumococcal and rotavirus vaccines into NIP	Introduction of pneumococcal vaccine in 2013 and rotavirus vaccine in 2014.	Expand national immunization programme through introduction of new and underused vaccines	1	Collect evidence for decision-making for introduction of new and underused vaccines	Establish sentinel surveillance for bacterial meningitis (for pneumococcus infections)	2012	S&M
						Establish sentinel surveillance for rotavirus infection	2013	S&M
						Assess cost-effectiveness and financial sustainability of introducing new and underused vaccines (for rotavirus and pneumococcal vaccines)	2012	S D
					Introduction of pneumococcal vaccination through GAVI New and Underused Vaccines (NUV) support	Discuss introduction of pneumococcal vaccination at ICC, through pneumococcal vaccine support of GAVI and obtain commitment of Government and partners	2010	S D
						Develop proposal for GAVI NUV support to introduce pneumococcal vaccine through introduction of	2010	S D

						pneumococcal vaccine; preparation of implementation plan		
						Conduct necessary activities prior to introduction of pneumococcal vaccination (revising vaccination schedule, training, cold chain assessment, advocacy & communication and etc)	2010-2012	S D
						Introduce pneumococcal vaccination in Jan 2013	2013	S D
					Introduction of rotavirus vaccination through GAVI New and Underused Vaccines (NUV) support	Discuss introduction of rotavirus vaccination at ICC, through rotavirus vaccine support of GAVI and obtain commitment of Government and partners	2010	
						Develop proposal for GAVI NUV support to introduce rotavirus vaccine through introduction of rotavirus vaccine; preparation of implementation plan and conducting cold chain assessment	2010	
						Conduct necessary activities prior to introduction of rotavirus vaccination (revising vaccination schedule, training, cold chain assessment, advocacy & communication and etc)	2012-2013	
						Introduce rotavirus mvaccination in Jan 2014	2014	
SURVEILLANCE OF VACCINE PREVENTABLE DISEASES (VPDs) AND OTHER COMMUNICABLE DISEASES								
Insufficient disease surveillance data to guide the	Improving disease surveillance for vaccine preventable diseases	Reporting forms being revised in 2011, laboratory capacity	Ensure capacity for surveillance and monitoring. All countries will	2	Strengthening surveillance of VPDs	Revise national surveillance guidelines for VPDs	2011	S&M
						Revise reporting forms and issue a decree (MoH prikaz)	2011	S&M

programme (for certain VPDs), under reporting of diseases, not all cases receiving lab confirmation, insufficient lab capacity and/or access to labs; reporting problems (timeliness and completeness)		improved in identified districts by 2012.	have developed the capacity at all levels to conduct case-based surveillance of vaccine-preventable diseases, supported by laboratory confirmation			Harmonize and integrate separate surveillance systems existing for communicable diseases	2011	S&M
						Provide operational support to case investigation, specimen collection and transportation	cMYP	S&M
						Conduct training of trainers on integrated surveillance training to national level staff (WHO)	2011	S D
						Train district epidemiologists and health facility staff on integrated surveillance	2011-2012	S D
						Improve laboratory capacity at district level through strengthening labs at selected centralized districts, serving to neighbouring districts	2011 & 2012	S&M
						Provide supplies to laboratories	cMYP	S&M
						Monitor quality of surveillance through performance indicators and supervision to district and health facility levels	cMYP	S&M
						Use surveillance data to take actions	cMYP	S&M
					Improving timeliness and completeness of reporting of VPDs	Monitor quarterly routine reporting of VPDs	cMYP	S&M
						Provide regular (quarterly) feedback to sub-national levels	cMYP	S&M
ADVERSE EVENTS FOLLOWING IMMUNIZATION (AEFI) SURVEILLANCE SYSTEM								
Insufficient AEFI surveillance data to guide the programme; under reporting of cases; reporting problems (timeliness &	All reported AEFI cases receiving case investigation by 2012, all serious AEFI being reported by 2011.	All reporting staff received (IIP) training by 2011, all district level staff received (MLM) training by 2012,	Detection, reporting, investigation of all AEFI and taking necessary actions to correct programme errors.	2	Improving AEFI surveillance system (detection, reporting, case investigation)	Revise national guidelines (and reporting forms) in line with WHO recommendations	2012	S&M
						Conduct training on AEFI surveillance system to district and health facility level staff through IIP and MLM training	2011-2012	S D
						Training of national staff on surveillance of AEFI (WHO)	2011	S D

completeness)						Re-establish routine reporting of AEFI integrated to disease surveillance (besides current immediate reporting)	2012	S&M
						Monitor implementation of reporting (including zero reporting) and case investigations through supportive supervision	cMYP	S&M
						Take necessary actions to minimize AEFI due to programme errors through IIP and MLM training	cMYP	S D
						Provide regular feedback to sub-national levels on AEFI surveillance system	cMYP	S&M
						Develop and print posters targeting health staff on treatment of severe AEFI	2011	S&M
IMMUNIZATION QUALITY AND SAFETY (excluding AEFI surveillance system)								
Insufficient NRA / functions for self reliance; weak vaccine management; stock out of vaccines; need to improve vaccine delivery; need to upgrade cold chain infrastructure; lack of health care waste management policy and plan	Improve immunization quality and safety	Cold chain infrastructure upgraded by 2011, no stock outs at all districts more than 1 month by 2012 and after, all districts finalizing IIP training by end of 2008.	Regional Priority: Ensuring the quality of immunization services for sustained programme performance and to keep the public confidence	1	Improving self-reliance in quality assurance and regulatory oversight	Improve current functions of NRA through preparation of SOPs and establish of a national lab (registration, lot release, lab analysis)	2011 & 2012	VQL
						Provide international training to national level staff on NRA (WHO)	2012	S D
						Advocate for supply of quality assured vaccines and communicate information on quality of vaccines (and WHO prequalification system) to stakeholders to be proactive against mediatisation of misinformation about vaccines	cMYP	VQL
						Conduct NRA assessment (WHO)	2012	VQL
					Ensuring long-term vaccine forecasting to avoid stock-outs	Incorporate long-term vaccine needs to cMYP to ensure financial sustainability, including amount for reserve stock to avoid stock outs	2011	VQL

					Ensuring procurement of qualified vaccines that meet internationally recognized quality standards	Procure NIP (and non-NIP) vaccines through UNICEF Supply Division, till needed NRA is established and fully functional or ensure that necessary documentation submitted indicating required internationally met quality, in case not provided by UNICEF Supply Division	cMYP	VQL
						Upgrade national procurement system to ensure procurement of qualified vaccines	2011 & 2012	VQL
					Improving and strengthening vaccine stock management and delivery systems	Develop standard operating procedures for vaccine management (stock and delivery) (issuing a decree / prikaz)	2011	VQL
						Retrain designated staff on vaccine management practices (MLM & IIP)	2012	S D
						Develop and install software to monitor vaccine management at all levels	2011 & 2012	VQL
						Monitor and supervise implementation of vaccine stock management procedures	cMYP	VQL
						Provide funds to cover operational cost of vaccine delivery (fuel) (ISS)	cMYP	VQL
					Ensuring availability of adequate cold chain and logistics to maintain quality of vaccines till consumption	Upgrade quality of national vaccine store to meet international standards (renovation)	2012	VQL
						Install automated alarm system to monitor temperature deviations (national and oblast stores)	2011	VQL
						Use continuous temperature recording system at oblast levels	2011	VQL
						Expand use of freeze watches to health facility level gradually	cMYP	VQL
						Continue updating cold chain and	cMYP	VQL

						equipment inventory (twice a year)		
						Identify cold chain equipment need, including replacement of old ones	cMYP	VQL
						Procure 140 additional home-type refrigerators for health facilities	2012	VQL
						Provide funds to cover operational cost of delivery of cold chain equipment (UNICEF)	2011	VQL
						Provide funds to cover operational cost of mobile maintenance team (perdiem, fuel and spare parts by UNICEF, contract by HSS)	cMYP	VQL
						Develop contingency plans to be used in case of cold chain failure	2011	VQL
						Conduct training to oblast, district and health facility level staff to improve cold chain and logistics related procedures (MLM & IIP)	2011 & 2013	S D
					Ensuring implementation of safe injection practices	Provide training to health facility staff (IIP) (6 oblasts) (HSS)	2011	S D
						Develop and distribute poster on safe injection practices	2011	S D
						Ensure that AD syringes and safety boxes are used for all vaccinations	cMYP	VQL
					Ensuring proper management of (health care) waste and safe disposal	Finalize national guideline for waste management and safe disposal and ensure its availability at all levels	2011	VQL
						Develop a plan of action for waste management and safe disposal	2011	VQL
						Procure the identified equipment in the guideline and plan of action	2012	VQL
						Provide training for designated staff on waste management and safe disposal	2012	S D

PROGRAMME MANAGEMENT								
Need for increased political support to NIP, need to improve programme coordination capacity; need for additional resources for certain programme activities / components; need for further improvement of programme management capacity	Conducting regular ICC meetings to coordinate programme activities, achievements, and problems. Preparing annual workplans inline with the cMYP.	At least two ICC meetings conducted every year, annual workplans prepared.	Conducting regular ICC meetings to coordinate programme activities, achievements, and problems. Preparing annual workplans inline with the cMYP.	2	Obtaining political support and commitment for sustainability of the national immunization programme through timely implementation of the cMYP	Assess program performance at regularly conducted ICC meetings to identify areas that need further improvement and support	cMYP	P M
						Disseminate cMYP to all stakeholders to improve support to NIP	cMYP	P M
						Conduct regular meetings with sub-national levels to share strategies and activities of the cMYP	cMYP	P M
						Prepare annual workplans for the following year inline with cMYP	cMYP	P M
						Conduct programme management review (Programme partners)	2011	P M
					Improve programme coordination capacity through regular ICC meetings	Broaden Inter-Agency Coordinating Committee participation to involve all stakeholders (from Government units and partners)	2011 & 2012	P M
						Disseminate minutes of ICC meetings to all stakeholders regularly	cMYP	P M
					Improve programme efficiency and financial sustainability	Advocate for additional funds/resources for NIP to fill funding gap	cMYP	P M
						Conduct studies to improve programme efficiency by assessing cost-effectiveness of programme strategies (service delivery strategies, optimizing vaccine wastage and etc)	2011 & 2012	P M
					Improve programme management capacity at national level	Continue providing international training to national level staff (WHO)	cMYP	P M

COMMUNICATION, ADVOCACY AND SOCIAL MOBILIZATION								
Insufficient communication and advocacy for national immunization programme	Increased support for NIP through enhanced communication and advocacy activities	Communication and advocacy plan prepared by 2011; European Immunization Week activities conducted cMYP; regular press releases issued annually	Increased support for NIP through enhanced communication and advocacy activities	3	Increasing support to NIP through conducting well-targeted advocacy activities	Develop national advocacy and communication plan	2011	Ad&C
						Designate responsible staff from advocacy and communication activities at all levels	2011	Ad&C
						Provide advocacy and communication training to designated staff	2011	Ad&C
						Develop and distribute advocacy and communication materials (benefits of immunization)	cMYP	Ad&C
						Conduct studies to identify reasons for not being vaccinated	cMYP	Ad&C
						Produce press releases regularly to inform public and other stakeholders on NIP activities	cMYP	Ad&C
						Conduct regular press meetings to inform stakeholders on NIP achievements	cMYP	Ad&C
						Use ICC and other mechanisms to share information with programme partners	cMYP	Ad&C
						Plan and conduct activities under European Immunization Week initiative annually	cMYP	Ad&C
Weak of social mobilization activities for immunization programme	Increased community involvement and mobilized additional resources for NIP	Material to inform NGOs developed in 2008. Regular meetings with village community councils conducted.	Increased community involvement and mobilized additional resources for NIP	3	Conducting social mobilization activities	Contact regular meetings with village community councils to improve public involvement through increased awareness on benefits of immunization	cMYP	Ad&C
						Inform students on benefits of immunization to communicate the programme messages to families	cMYP	Ad&C
						Plan and implement social mobilization activities during supplementary immunization	cMYP	Ad&C

						sessions (participation of volunteers, mobilizing additional resources for immunization activities, etc.)		
						Ensure coordination with and between NGOs through ICC mechanism	cMYP	Ad& C
						Develop materials to train NGOs and CSOs on immunization issues	cMYP	Ad& C

III. Costs and financing of the cMYP

3.1 Overview

The health care system in Kyrgyzstan has undergone major changes since latest 90th. The organizational structure of the health care system in the Kyrgyz Republic has been developed as a result of fundamental health reforms and it continues to change within the framework of national health reform programme "Manas Taalimi". The complex integrated health care system based on three basic laws – "On health protection of the citizens in the Kyrgyz Republic", "On health organizations in the Kyrgyz Republic" and «On the Single payer system in health care financing in the Kyrgyz Republic". Mandatory Health Insurance Fund was introduced in 1997, and the Government still remains the largest single official payer to MHIF. The major reforms took place over the last decade: introduction of single payer system (2001), change of providers' payments (per capita and case-based); split on "purchaser" and "providers"; restructuring of health system; introduction of FMCs and FGP etc.

Providers of clinical services remain mostly public and are contracted by the MHI Fund. The fund representatives are also responsible for controlling the quality of services provided according to the contract. Admittedly, vaccination did not "fall between the cracks" in the course of reforms. It is included into the package of services to be provided by the primary care facilities according to the contract and immunisation coverage is one of the indictors against which provider's performance is judged.

Mandatory child immunizations in Kyrgyzstan are BCG, Heb B, OPV, DTP-Heb-Hib and MMR vaccines. The Republican Centre for Immunization (RCI) under SES is responsible for National Immunization Programme (NIP) in Kyrgyzstan including planning, procurement of vaccines and its transportation; maintenance of the cold chain down to the primary level.

3.2 DETAILED INFORMATION ON PROGRAMME COST BY CATEGORIES

3.2.1 Macroeconomic indicators

The major macroeconomic indicators for 2009 as well as projected data were provided by the Ministry of Economy and Minster of Finance. Indicators are presented in US$.

3.2.2 Demographic information

Source for demographic and health related indicators and other target group is National Statistical Committee (NSC) and Republican Medicine-Information Center (RMIC) under Ministry of Health (MOH).

3.2.3 Vaccines & Injection Supplies

Table 1.3 Immunization schedule, Target population, Vaccine prices and other vaccine reference information

Information on doses per schedule, vial sizes, past coverage and projected coverage and wastage rates were provided by the Republican Center for Immunization (RCI).

Considering that MMR vaccine is used since 2001 this vaccine was classified as traditional vaccines. HepB vaccine was classified as underused vaccine. DTP-HepB-Hib vaccine was introduced in April 2009 in Kyrgyzstan and classified as new vaccine.

Wastage rate for vaccines in one dose presentation, such as HepB and DTP-HepB-Hib, is 5%.

The Government purchases vaccines **through the UNICEF procurement mechanism**; therefore prices for each vaccine were calculated based on UNICEF recommended price per dose and estimated freight cost to Kyrgyzstan was added; estimated freight cost to Kyrgyzstan for all vaccines is 20% of vaccine price. Data of estimated freight cost for vaccine was provided by the UNICEF.

Table 1.1 Baseline expenditure on vaccines and injection supplies

Expenditures on vaccines and injection supplies as well as other supplies in 2009 were given by the RCI.

Table 0.1 Past and future DTP coverage and 1.4 Coverage and wastage

The data for this section was provided by the RCI.

3.2.4 Personnel Cost

Data on staff categories of the personnel involved in the immunization program, total number and gross monthly salary and other monthly benefits at the national, oblast, rayon and health care facility levels was given by the RCI and Mandatory Health Insurance Fund (MHIF).

The percentage of the time spent on immunization activities for the personnel is diverse and depends on the position they occupy.

Outreach and supervision activities are carried out by the staff at the national, oblast and rayon levels. Per-diem per outreach activities and supervision visit is $21.

3.2.5 Vehicles and transport cost

Table 3.1 Average prices and utilization of vehicles.

The information regarding the vehicles was provided by RCI and MOH.

Information of the types (categories) of vehicles used by the immunization program, average unit price including all taxes for new vehicles in 2009, average number of kilometers traveled per year, average fuel consumption per 100 km for vehicles were

entered in the table. Prices of the vehicles entered into the tool are assumed as of new vehicles, although majority of them, particular at rayon and health care facility levels, were purchased during previous years. For national and oblast levels vehicles were procured in 2009 by the Government.

The average useful life year of vehicles was defined as 7 years.

Projections of additional vehicles needed in future were made by the RCI.

Table 3.3 Other transport needs not elsewhere covered

The total amount of transportation of vaccines and safe injection supply from the National level to the oblast level and from the oblast to the rayon level and transport maintenance are covered from the Government budget.

3.2.6 Cold chain equipment

Information on the types of the cold chain equipment and their average unit prices was given by the RCI.

The average useful life year of cold chain equipment was defined as 10 years.

3.2.7 Program Activities, Other Recurrent Costs and Surveillance

Table 6.0 Total Spending and Future Needs for Program Activities

These elements of the program are financed by Government and the external donors (GAVI ISS, GAVI NVS, GAVI HSS, WHO and UNICEF). The total amount of expenditures under these categories was summarized and entered in the respective cells categorizing by donors and Government expenditures.

Budget for future training needs and other program activities were provided by RCI. Future budget needs for other activities (IEC/social mobilization, disease surveillance, and program management) include donors' possible funding and Government's commitment for these activities for projection years.

3.2.8 Other Equipment Needs and Capital costs

Table 7.1 Average Prices of Other Equipment Needs

Information on the total number, types and average prices including all taxes of other equipment needs were given by RCI.

3.2.9 Building and Building Overhead

Information on the total number and type of building by administrative levels was given by the RCI. For estimating the value of buildings cost of the construction of a similar new building was used. Prices of buildings entered into the tool are assumed as new building price. Allocation of space devoted to immunization activities served as a base for the calculation of the buildings' capital costs. For all levels cost of entire building was

calculated and the percentage of the space used for immunization was estimated and entered.

3.2.10 Past Costs by categories

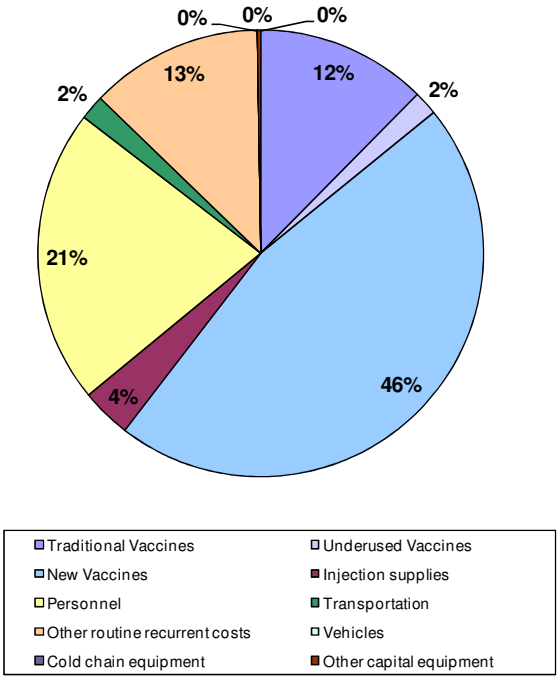
The total cost of the National Immunization Program in 2009 was $ 5,546 million including shared costs that comprising 40% (Figure 1 below) of total immunization cost and consisting of shared personnel, transportation and building maintenance and overhead costs. In 2009 Polio campaign for children inhabited in the suburb of Bishkek (capital) was supposed to be carried. However, it was postponed to the next year 2010.

Figure 1: Baseline indicators (including shared costs)

Baseline Indicators	2009
Total Immunization Expenditures	$3,331,523
Campaigns	$57,201
Routine Immunization only	$3,274,322
per capita	*$1.0*
per DTP3 child	*$41.8*
% Vaccines and supplies	*37.8%*
% National funding	*64.1%*
% Total health expenditures	*3.5%*
% Gov. health expenditures	*7.7%*
% GDP	*0.12%*
Total Shared Costs	$2,213,983
% Shared health systems cost	40%
TOTAL	$5,545,506

The breakdown of the total routine immunization expenditures, which equals to $3,274 thousand is shown in Figure 2 below.

Figure 2: Structure of the NIP costs – only routine immunization (2009)



The major cost driver of the NIP in 2009 was procurement of "vaccines and injection supply" – 64% of total cost including new vaccine (DTP-HepB-Hib) -46%, traditional – 12%, underused 2%; and "injection supply" - 4%. The next categories were "Personnel" and "Other recurrent cost" constituting 21% and 13% respectively. Expenditures on "transportation" accounted only 2% and the rest categories were insignificant, less than 1%.

3.3 DETAILED INFORMATION ON PROGRAMME FINANCING

3.3.1 Financing sheet

Immunization financing for traditional and underused vaccines, syringes, payroll and other recurrent costs at all levels of the immunization program comes mostly from the Republican (national) budget. Local authorities (sub-national level) cover delivery of vaccines from oblast to rayon levels and supervision and monitoring activities at the oblast levels.

Information on expenditures from GAVI NVS and GAVI ISS was provided by RCI.

GAVI HSS expenditure for 2009 was provided by GAVI HSS technical coordinator.

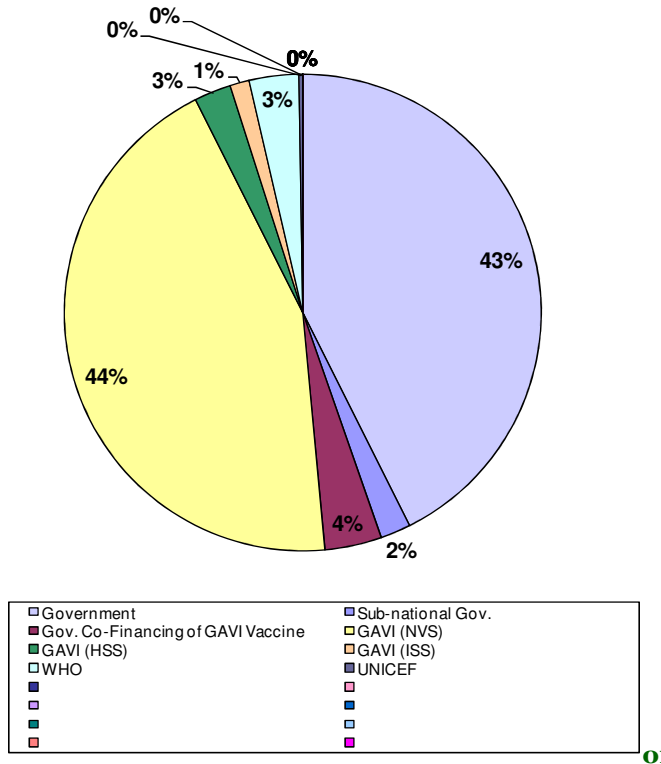
Data about the WHO probable financing was provided by Head of WHO country office in Kyrgyzstan.

Data about UNICEF probable financing was provided by the UNICEF.

3.3.2 Past Financing

Without considering shared health system costs the Government financed almost half (49%) of the NIP in 2009 including sub-national and co-financing of GAVI vaccine. The share of GAVI NVS accounted for 44% covering purchasing of new vaccine (DTP-HepB-Hib) and other related expenditures with introduction of new vaccines. The remaining 7% of cost financed from the donors side including GAVI HSS, GAVI ISS, WHO and UNICEF as presented in Figure 3 on page 52.

Figure 3: Structure of financing in 2009 (baseline financing profile – routine only)



In 2009 Government financed National Immunization Program in Kyrgyzstan including Sub-national level and co-financing of new vaccine. It covered vaccines, personals' salary, transportation and other recurrent costs.

Despite the high vaccination coverage the funds, allocated by the Republican budget, were not enough to procure all needed traditional and underused vaccines. To overcome the lack of funds the NIP undertook the following steps: (1) procured BCG and OPV vaccines in 10 doze vial; MMR and DTP – 10 doze vial; (2) prolongation of the vaccination calendar in order to reduce wastage rates; and (3) the cheapest vaccines were procured (MMR Urabe).

The GAVI provided a financial support for the introduction of DTP-HepB-Hib (pentavalent) vaccine in 2009. The Government co-financed about 10% of the cost of pentavalent vaccine. The reconstruction syringes (BCG/Hib) for pentavalent vaccine were supplied together with the vaccines by GAVI.

In addition GAVI provided financial assistance to Kyrgyzstan ($100,000) to support the activities related to introduction of new vaccine, such as trainings, social mobilization, maintenance of cold chain and outreach/supervision visits.

Through ISS window the GAVI provided financial support to Kyrgyzstan during 5 years (2005-2010). In 2009 GAVI ISS funds were spent on maintenance of cold chain,

outreach/supervision visits and the programmatic activities (social mobilization, diseases surveillance, program management).

GAVI HSS funds supported strengthening of the disease surveillance, program management, social mobilization and short-term trainings.

The WHO provided financial support for diseases surveillance, program management, and short-term trainings and provided technical assistance.

The UNICEF provided financial support for maintenance of cold chain.

3.4 Future Resource requirements, financing and funding gap

In the baseline scenario the program only sustains current activities and does not imply any changes in the immunization calendar. None of the campaigns is planned for the projection period.

3.4.1 Future resource requirements

Estimated total resource requirement for 2011-2015 is $ 31.7 thousand as shown in Figure 3 below.

Figure 4: Future resource requirements by program components (in thousand US$)

Program components	2011	2012	2013	2014	2015	Total	%
Vaccine Supply and Logistics	2,774	2,898	2,936	2,959	2,997	14,564	46.0
Service Delivery	787	802	818	835	851	4,093	12.9
Advocacy and Communication	46	47	48	49	50	239	0.8
Monitoring and Disease Surveillance	17	18	18	18	19	90	0.3
Program Management	184	182	185	188	192	931	2.9
Supplemental Immunization Activities							0
Shared Health Systems Costs	2,258	2,303	2,349	2,396	2,444	11,752	37.1
Total	**6,066**	**6,250**	**6,355**	**6,445**	**6,553**	**31,670**	**100**

"Vaccine supply and logistics" is the major cost driver of the program (46%) and the second largest component is "Shared Health Systems costs" (37.1%); thus, together both components constitute about 83.1% of the total resource requirement. "Service delivery" constitutes 12.9% of total required cost and "Program management" is 2.9%. The other two components "Advocacy and communication" and "Monitoring and disease surveillance" absorb less than 1%.

Figure 3 illustrates distribution of future resources required by components of the immunization program for the period of 2011-215.

Figure 5: Projection of Future Resource Requirements (baseline scenario)

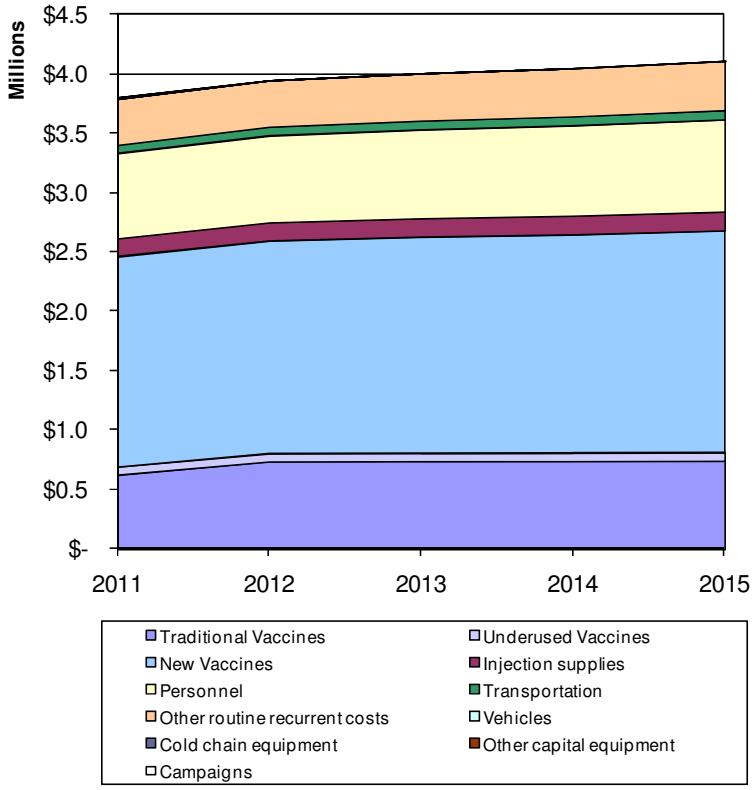


Figure 6 below presents donors' commitments to secure and probable financing in 2011-2015.

GAVI NVS provides financial support to supply DTP-HepB-Hib vaccine to Kyrgyzstan.

Kyrgyzstan was awarded $100,000 by GAVI ISS in 2010. These funds will be spent in 2011 for the program activities.

It is important to highlight that the Government of Kyrgyzstan and UNICEF will sign bi-lateral agreement for the following 5 years in 2011; therefore at this time it is difficult to identify amount of financial support that will be provided by UNICEF during the projection period of time. However, UNICEF is committed to fund maintenance of cold chain for the following 5 years in amount of $5,000.

WHO funds for 2011-2015 are considered as probable funds.

Figure 6: Future secure and Probable Financing (US$)

	2011	2012	2013	2014	2015	Total
Secure						
GAVI NVS	1,689,166	1,665,573	1,694,039	1,709,702	1,738,860	**8,497,340**
GAVI ISS	100,000					**100,000**
UNICEF	5,000	5,000	5,000	5,000	5,000	**25,000**
WHO						
Probable						

UNICEF						
WHO	125,000	125,000	125,000	125,000	125,000	**625,000**

The National Government including co-financing of GAVI vaccine is supposed to provide half (50.1%) of the secure and probable financing budget. The donor secure and probable financing is estimated at $9 million in total for entire projection period (Figure 3 below).

When shared costs is not considered, the funding gap amounts to 6.7 % with secure financing and 3.6% with secure and probable financing as shown in Figure 3.

Figure 7: Funding gaps by type and source of financing and years (without shared cost and financing), in thousands US$

	2011	2012	2013	2014	2015	Total
Total resource requirement	**3,808**	**3,947**	**4,005**	**4,049**	**4,109**	**19,918**
Total Secure Financing	3,628	3,647	3,742	3,781	3,792	18,591
Government incl. co-financing GAVI vaccine	1,835	1,977	2,043	2,066	2,048	9,970
Others (including GAVI NVS)	1,793	1,671	1,699	1,715	1,744	8,621
Funding gap	**180**	**300**	**263**	**268**	**317**	**1,327**
	4.7%	7.6%	6.6%	6.6%	7.7%	6.7%
Total Secure and Probable Financing	**3,808**	**3,947**	**4,005**	**4,049**	**4,109**	**19,918**
Government incl. co-financing GAVI vaccine	1,836	1,978	2,044	2,067	2,049	9,975
Others	1,897	1,796	1,824	1,840	1,869	9,225
Funding gap	**75**	**174**	**137**	**142**	**191**	**718**
	2.0%	4.4%	3.4%	3.5%	4.6%	3.6%

Figure 8: Future Secure Financing structure and Funding Gap (without Shared Health Systems Costs)

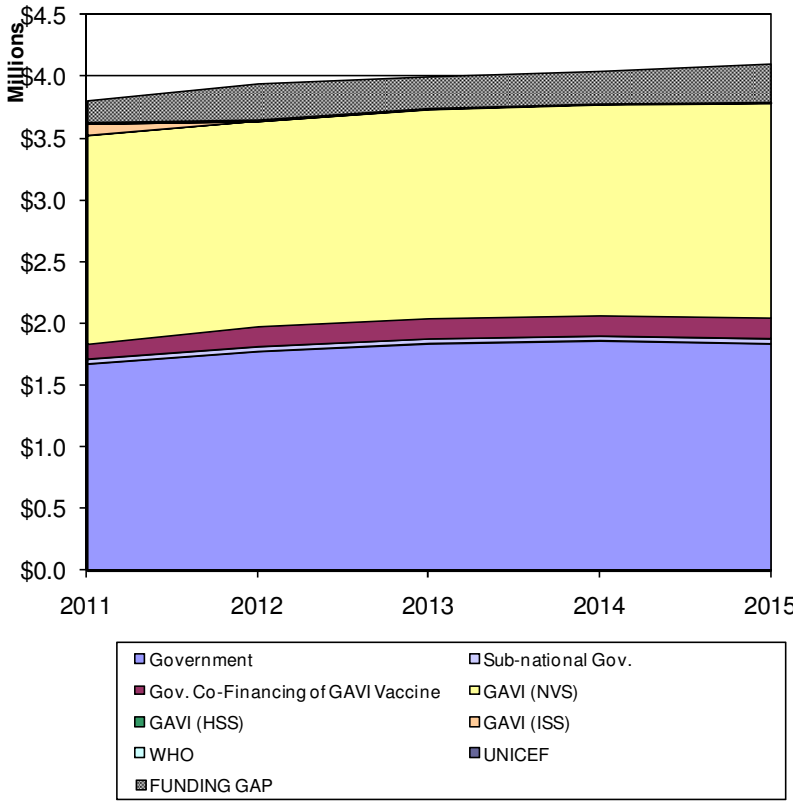
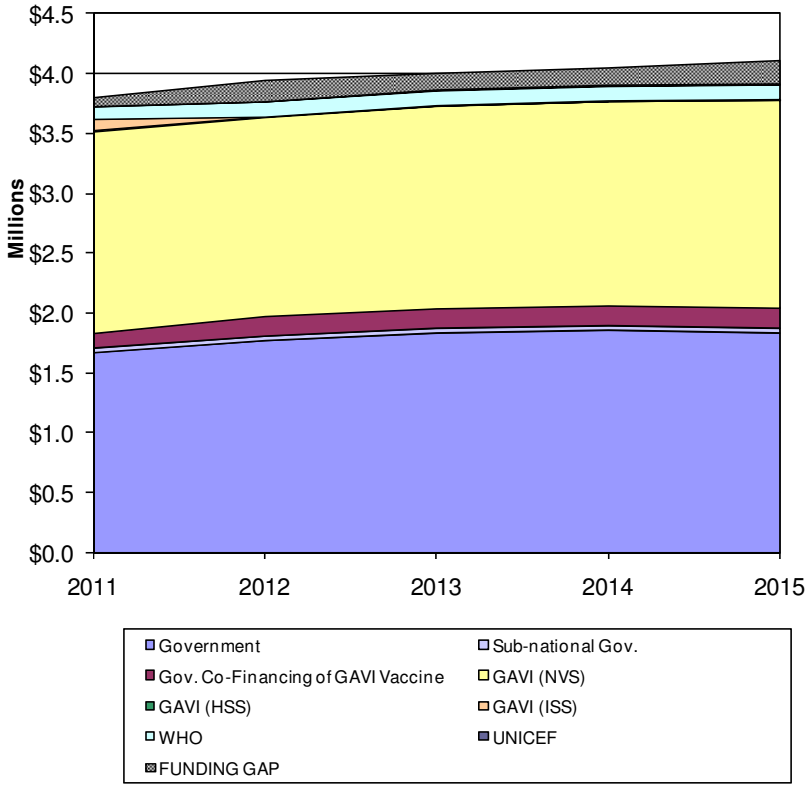


Figure 9: Future Secure and Probable Financing structure and Funding Gap (without Shared Health Systems Costs)



When shared health system costs and financing is considered, the funding gap is lower and constitutes 4.2% with secure financing and 2.3 % with secure and probable financing for entire projection period (Figure 10 below).

Figure 10: Funding gaps by type and source of financing and years (*including* shared cost and financing) in thousands US$

	2011	2012	2013	2014	2015	Total
Total resource requirement	**6,066**	**6,250**	**6,355**	**6,445**	**6,553**	**31,670**
Total Secured Financing	**5,886**	**5,951**	**6,092**	**6,178**	**6,237**	**30,343**
Government incl. GAVI NVS	4,093	4,280	4,393	4,463	4,493	21,722
Others	1,793	1,671	1,699	1,715	1,744	8,621
Funding gap	**180**	**300**	**263**	**268**	**317**	**1,327**
	3.0%	4.8%	4.1%	4.2%	4.8%	4.2%
Total Secured and Probable Financing	**6,066**	**6,250**	**6,355**	**6,445**	**6,553**	**31,670**
Government incl. GAVI NVS	4,094	4,281	4,394	4,464	4,494	21,727
Others	1,897	1,796	1,824	1,840	1,869	9,225
Funding gap	**75**	**174**	**137**	**142**	**191**	**718**
	1.2%	2.8%	2.2%	2.2%	2.9%	2.3%

Figure 11 on page 58 describes the financing gaps (with secure financing) in terms of immunization program components for each year.

The analyses of the funding gap structure for the entire projection period with secure financing shows that $1,072 thousand of the total $1,327 thousand gap is constituted by "activities and other recurrent costs" such as training, social mobilization, disease surveillance and program management. There is funding gap for transportation costs to carry out supervision and outreach activities that constitute to $255 thousand.

Figure 11: Structure of the funding gap (with secure financing and without shared cost and financing in US$)

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Vaccines and injection equipment						
Personnel						
Transport	32,527	74,649	33,841	34,518	79,219	254,754
Activities and other recurrent costs	147,040	224,959	229,058	233,239	237,504	1,071,800
Logistics (Vehicles, cold chain and other equipment)						
Campaigns						
Total Funding Gap	**179,567**	**299,608**	**262,899**	**267,757**	**316,722**	**1,326,554**

The analysis of the financing gap with secure and probable financing shows that if secure and probable funds are available than the funding gap for "activities and other recurrent costs" are reduced twice (Figure 12 below).

Figure 12: Composition of funding gaps (with secure and probable financing in US$)

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Vaccines and injection equipment						
Personnel						
Transport	32,527	74,649	33,841	34,518	79,219	254,754
Activities and other recurrent costs	42,040	98,959	103,058	107,239	111,504	462,800
Logistics (Vehicles, cold chain and other equipment)						
Campaigns						
Total Funding Gap	**74,567**	**173,608**	**136,899**	**141,757**	**190,722**	**717,554**

Thus, the analysis shows that there is no funding gap for vaccines and supplies with vaccination coverage rate about 97% if the Government commits its obligation to procure the needed volume of traditional and underused vaccines and to co-finance DTP-Heb B-Hib vaccine.

3.5 IMPLICATION OF PROGRAMME STRATEGIES ON FUTURE RESOURCE REQUIREMENTS

NIP in Kyrgyzstan plans to introduce two new vaccines (PCV and Rota) during projected period 2013 and 2014. Four scenarios are presented below including baseline scenario and scenario of introduction of both vaccines (see Figure 13 below)

Figure 13: Comparison of scenarios by calendar (vaccines and year of introduction)

Calendars / vaccines	Scenarios			
	Basic	**Alternative A**	**Alternative B**	**Alternative C**

Traditional[1]	+	+	+	+
Rota		2014		2014
PCV			2013	2013

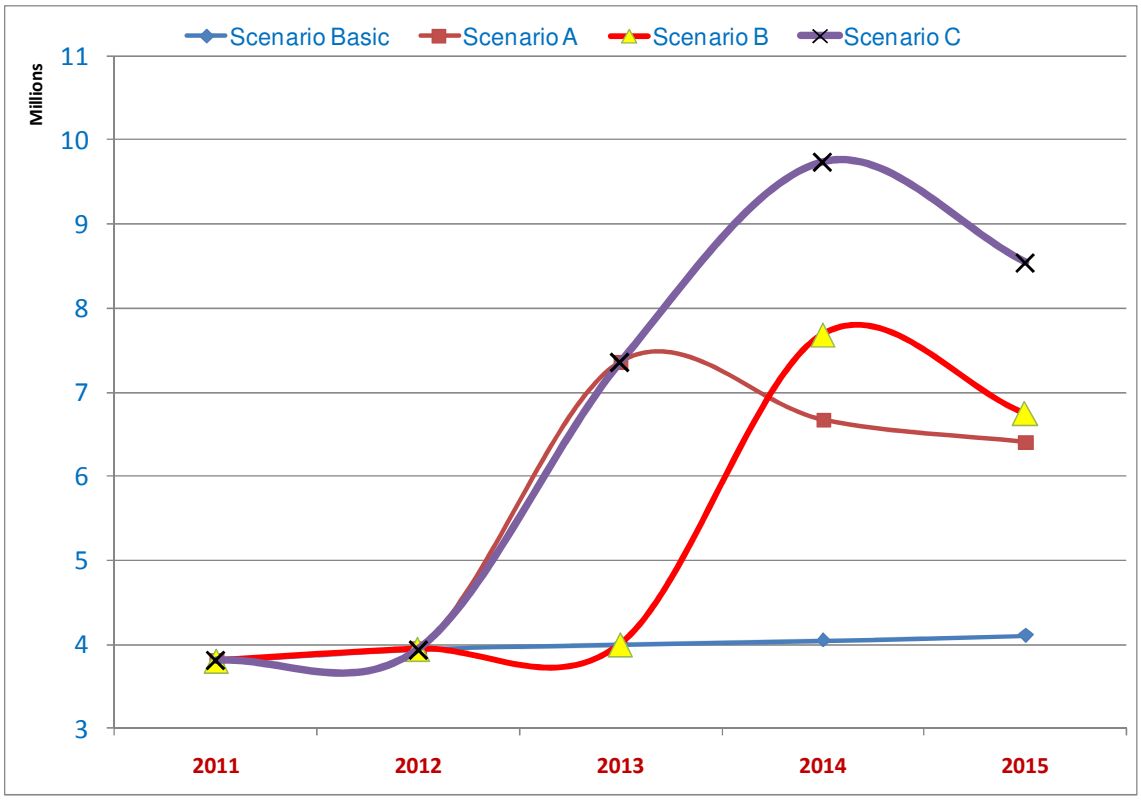
The introduction of new vaccines will not have great impact on the vaccination calendar; surviving infants would get additional two vaccines together with other traditional vaccines.

Figure 14: Future resource requirements of the National Immunization Program by scenarios and years (without shared costs in thousands US$)

	2011	2012	2013	2014	2015	Total
Scenario Basic	3,808	3,947	4,005	4,049	4,109	**19,918**
Scenario A	3,808	3,947	7,366	6,670	6,404	**28,195**
Scenario B	3,808	3,947	4,005	7,691	6,747	**26,197**
Scenario C	3,808	3,947	7,366	9,740	8,543	**33,403**

In overall, scenario B is slightly less costly than Scenario A ($27.5 vs. $29.5 respectively) mainly due to one year difference in the introduction of new vaccine as shown in Figure 13 above.

Figure 15: Comparison of total resource requirements across scenarios by years (in US$)



[1] Pentavelent DTP-HepB-Hib is considered by the EPI team as traditional vaccine

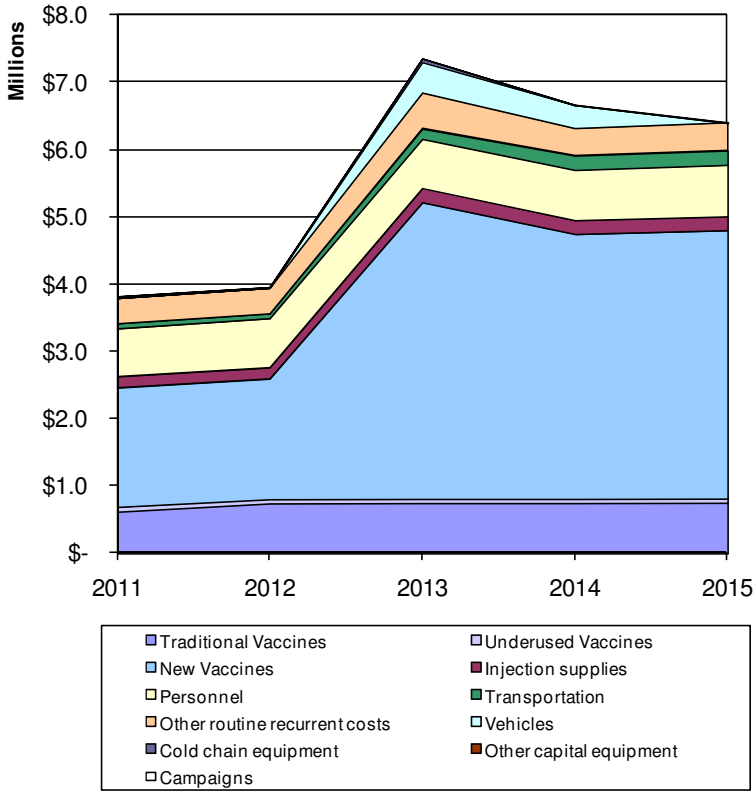
Future resource requirements increase sharply by almost 50% in scenario A and B when new vaccines are introduced in 2013 and 2014 correspondingly (see Figure 15 above).

3.3.1 Alternative Scenario A

The alternative scenario A assumes that country introduces a new 3 doses PCV vaccine in 2013 for surviving infants at 2, 3.5 and 5 months.

Figure 16 below illustrates future resource requirements for this scenario.

Figure 16: Projection of Future Resource Requirements (Alternative scenario A)



Introduction of a new PCV vaccine increases total budget for NIP from $19.9 million to 22.3 million during the whole five year period (excluding shared costs). To transport this vaccine from oblast to rayon level additional 7 vehicles are needed. The existing cold chain allows to introduce PCV without strengthening it though small amount of cold boxes (4.4 litter), spare parts and other related to the cold chain equipment is needed at rayon and facility levels. In addition, funds for trainings, social mobilization and program management are required.

Financial analysis for routine immunization (vaccines supply and logistic) shows that introduction of PCV vaccines increase the total recourse requirements twice from $14.6 million to $22.4 million during the whole five year period and with the same level of government financing the funding gap increases from $718 thousand to $1,690 thousand (secured and probable financing).

Figure 17 below shows composition of funding gap with secure and probable financing. It shows that there is no funding gap for vaccine and injection supplies if GAVI NVS provides financial support to procure new PCV vaccine and the Government commits to fulfill its obligation to procure traditional and underused vaccine and to co-finance new vaccines. The funding gap is account for procurement of vehicles and other program activities related to introduction of new vaccines. If the vehicles can't be purchased then a solution could be found, increase of expenditures on fuel, so that rayon levels would travel two times more than usual.

Introduction of a new PCV vaccine will have great impact on the NIP's budget mostly from the side of vaccine and injection supply procurement.

Figure 17: Composition of funding gaps with secure and probable financing in US$ (scenario A)

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Vaccines and injection equipment						
Personnel						
Transport	32,527	33,178	67,804	93,848	95,720	323,072
Activities and other recurrent costs	42,040	98,959	208,586	107,239	111,504	568,328
Logistics (Vehicles, cold chain and other equipment)			448,376	350,708		799,084
Campaigns						
Total Funding Gap	**74,567**	**132,136**	**724,766**	**551,790**	**207,224**	**1,690,484**

3.3.2 Alternative Scenario B

The alternative scenario B assumes that country introduces new 3 dose Rota vaccine in 2014 for surviving infants at 2, 3.5 and 5 months.

Introduction of a new Rota vaccine increases total budget for immunization program from $19.9 million to $26.2 million during the whole five year period (excluding shared costs). This increase is due not only because of vaccine procurement, but importantly to introduce a new Rota vaccine it is needed to strengthen the cold chain, procure refrigerators almost twice more than exists currently. A warehouse should be built in each oblast and 2 big cities plus national level (in total 10) to store vaccines. The funding gap increases from $718 thousand to $1.9 thousand considering the same level of government financing including secured and probable funding.

Figure 18 below illustrates future resource requirements for this scenario.

Figure 18: Projection of Future Resource Requirements (Alternative scenario B)

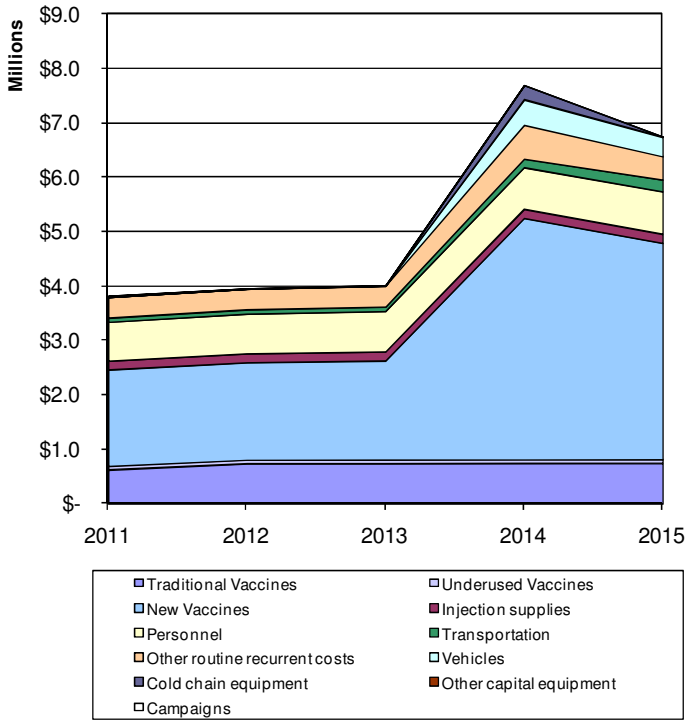


Figure 19 below shows composition of funding gap with secure and probable financing. It shows there is no funding gap for vaccine and injection supplies if GAVI NVS provides financial support to procure new PCV vaccine and the Government commits to fulfill its obligation to procure traditional and underused vaccine and to co-finance new vaccines.

Figure 19: Composition of funding gaps with secure and probable financing (scenario B)

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Vaccines and injection equipment						
Personnel						
Transport	32,527	33,178	33,841	69,160	95,720	264,426
Activities and other recurrent costs	42,040	98,959	103,058	218,810	106,504	569,371
Logistics (Vehicles, cold chain and other equipment)				720,632	357,722	1,078,355
Campaigns						
Total Funding Gap	**74,567**	**132,136**	**136,899**	**1,008,603**	**559,946**	**1,912,151**

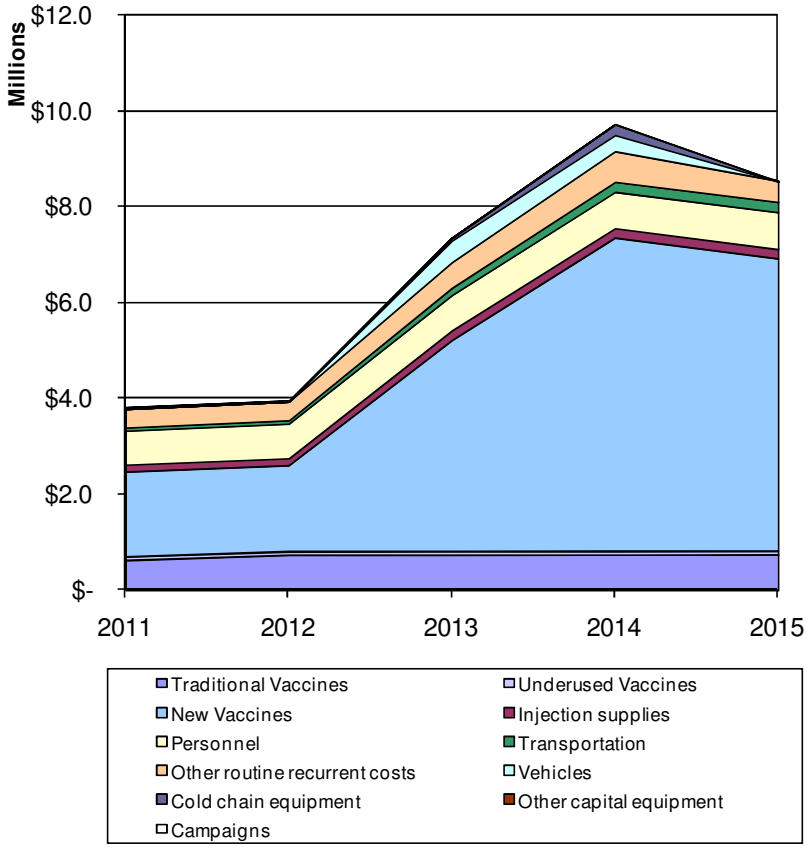
The funding gap is mostly related to procurement of refrigerators/other cold chain's equipment and with capital investment and it constitutes $1.9 million considering secure and probable funding. Introduction of a new Rota vaccine will have great impact on the NIP's budget mostly from almost all NIP's components: (1) vaccine and injection supply procurement and (2) routine capital costs.

3.3.3 Alternative Scenario C

The alternative scenario C assumes that country introduces into vaccine calendar a new PCV vaccine in 2013 and a new Rota vaccine in 2014; basically it is combination of scenarios A and B.

Figure 20 belowillustrates future resource requirements for this scenario.

Figure 20: Projection of Future Resource Requirements (Alternative scenario C)



In this scenario both new PCV and Rota vaccines are introduced consecutively. It is obviously shown that if in 2014 the third new vaccine is introduced the burden on NIP's budget will be increased twice, from $19.9 million to $33.4 million for the whole 5 year period (excluding shared costs). The increase is due not only because of vaccine/injection supply procurement but also due to other routine investment costs (for details see scenario B). The funding gap will constitute about $2 million considering secure and probable funding (Figure 21 below).

Figure 21: Composition of funding gaps with secure and probable financing (scenario C)

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Vaccines and injection equipment						
Personnel						
Transport	32,527	33,178	67,804	93,843	95,720	323,072

Composition of the funding gap	2011	2012	2013	2014	2015	Total
Activities and other recurrent costs	42,040	98,959	208,586	218,810	106,504	674,899
Logistics (Vehicles, cold chain and other equipment)			448,376	581,648		1,030,024
Campaigns						
Total Funding Gap	**74,567**	**132,136**	**724,766**	**894,301**	**202,224**	**2,027,995**

Four scenarios can be summarized as presented below in the Figure 22 below. Comparing total NIP of two scenarios, A and B, the least cost scenario is scenario B; however, if we look at the funding gap scenario B has slightly greater gap then scenario A.

Figure 22 Summary of the comparison of three scenarios (US$ in thousands)

Scenarios	Recourse requirements		Funding gap (with secure and probable funding)	
	Total NIP (excluding shared costs)	Vaccine supply and logistics		
Basic Scenario	19,918	14,564	**718**	**4%**
Scenario A	28,195	22,360	**1,690**	**6%**
Scenario B	26,197	20,423	**1,912**	**7%**
Scenario C	33,403	27,363	**2,028**	**6%**

IV.Financial sustainability

4.1 REVIEW OF MAJOR FINDINGS

4.1.1 Basic scenario

If the government fully finances the immunization program (assuming no donor support) the total cost of the program will represent approximately between the range of 2.7-3.0% of the government health budget and 1.4% of total health expenditures as shown in Figure 23 below.

Figure 23: Sustainability Analysis (basic scenario)

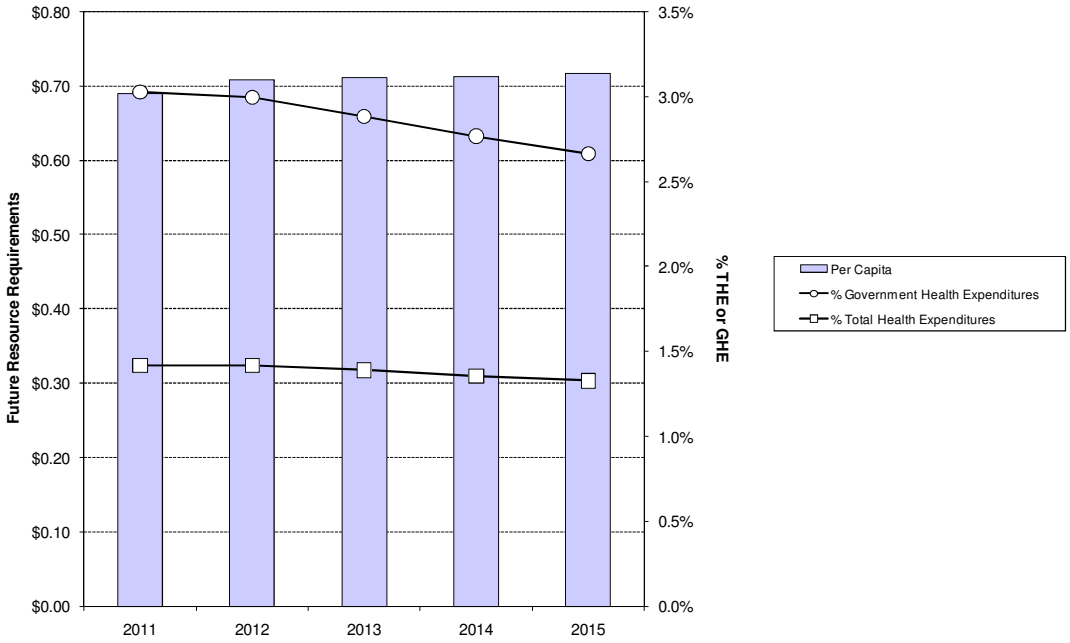


Figure 24 presents some macroeconomic and sustainability indicators regarding the financial requirements of the immunization program. Below presented macroeconomic situation illustrates that no (or very small) threat to the financial sustainability of the NIP.

Figure 24: Macroeconomic and Sustainability indicators without shared costs

Macroeconomic and Sustainability Indicators	2011	2012	2013	2014	2015
% Total Health Expenditures					
Resource Requirements for Immunization					
Routine and Campaigns	1.4%	1.4%	1.4%	1.4%	1.3%
Routine Only	1.4%	1.4%	1.4%	1.4%	1.3%
Funding Gap					
With Secure Funds Only	0.1%	0.1%	0.1%	0.1%	0.1%
With Secure and Probable Funds	0.0%	0.1%	0.0%	0.0%	0.1%
% Government Health Expenditures					
Resource Requirements for Immunization					

Macroeconomic and Sustainability Indicators	2011	2012	2013	2014	2015
Routine and Campaigns	3.0%	3.0%	2.9%	2.8%	2.7%
Routine Only	3.0%	3.0%	2.9%	2.8%	2.7%
Funding Gap					
With Secure Funds Only	0.1%	0.2%	0.2%	0.2%	0.2%
With Secure and Probable Funds	0.1%	0.1%	0.1%	0.1%	0.1%
% GDP					
Resource Requirements for Immunization					
Routine and Campaigns	0.08%	0.08%	0.08%	0.08%	0.07%
Routine Only	0.08%	0.08%	0.08%	0.08%	0.07%
Per Capita					
Resource Requirements for Immunization					
Routine and Campaigns	$0.69	$0.71	$0.71	$0.71	$0.72
Routine Only	$0.69	$0.71	$0.71	$0.71	$0.72

Even if the government envisages almost a two fold increase in total health expenditures per capita from $29.4 in 2009 to $54.0 in 2015, still NIP cost per capita >$1 presents significant challenge in terms of financial sustainability.

4.1.2 Financial sustainability strategy

The analysis revealed that for all scenarios funding gap for vaccines and injection supplies does not exist and the overall financial sustainability of the program is not under the risk if GAVI NVS will continue to provide financial support to procure DTP-Hep B-Hib vaccine and two new vaccines; and if Government commits to fulfill its obligation to procure traditional and underused vaccine and to co-finance new vaccines. However, considering the situation of 2009 and current political situation in the country the NIP program could be jeopardized. In any case, it would be reasonable to revisit financial projections (financing part) later this year when the mid-term expenditure framework with governments financial commitments to health care in general and the NIP would be more accurate and reliable.

The analysis shows that all scenarios A, B, C are not financially sustainable. The funding gap is related to program activities, such as trainings, social mobilization, disease surveillance, program management; and transportation costs for supervision visits. These expenses are quite important part for sustainability of the immunization program.

The following strategies for NIP sustainability are proposed:

advocating with the Government to provide more funds on NIP program to purchase good quality vaccines;

discuss with the Republican Center for Health Promotion to take the responsibility on social mobilization activities and other advocacy activities;

negotiate with UNICEF to include into its budget the program related activities. In 2011 the Government of Kyrgyzstan and UNICEF should sign bi-lateral agreement for the following period;

negotiate with other donors (ADB, JIKA, etc.) to provide financial assistance to procure vehicles, equipment for cold chain and build warehouse for Scenario B and C.

If the country won't be able to find funds for Scenario B and C, it could go with Basic scenario and perhaps Scenario A.