National Comprehensive Multi Year Plan (cMYP) 2016-2020

Expanded Program on Immunization

Ministry of National Health Services, Regulations and Coordination

Government of Pakistan

List of figures and boxes

Abbreviations

ACS	Additional Chief Secretary
AD	Auto-destruct (syringes)
AEFI	Adverse events following immunization
AFP	Acute flaccid paralysis
AGPR	Accountant General Pakistan Revenues
AHQH	Agency Head Quarter Hospital
AIC	Area in charge
AJK	Azad Jammu & Kashmir
ASV	Assistant Superintendent Vaccination
BAL	Balochistan
BCG	Bacille-Calmette-Guerin vaccine
BHU	Basic health unit
BSN	Baccalaureate of science in nursing
BSP	Budget Strategy Paper/Process
CBAW	Childbearing age women
CCC	Concept Clearance Committee
CCEM	Cold Chain Equipment Manager
CCI	Council of Common Interest
CDA	Capital Development Authority
CDC	Communicable Disease Control
CDWP	Central Development Working Party
CHC	Community health centres
cLIMS	Logistics Management Information System for Contraceptive Supply Chain
CMW	Community midwife
CPI	Consumer Price Index
CSF	Coalition Support Fund, Cash Settled Futures
DDHO	Deputy District Health Officer
DDM	Direct disbursement mechanism
DDO	Drawing and Disbursement Officer
DFID	Department for International Development
DHCSO	District Health Communication Support Officer
DHO	District Health Officer
DHQH	District Head Quarters hospital
DHS	Director Health Services
DHIS	District health information system
DoH	Department of Health
DOTS	Directly observed treatment short course
DPCR	District Polio Control Room
DPEC	District Polio Eradication Committee
DPT	Same as DTP
DSV	District Superintendent Vaccinationn
DTP	Diphtheria, Tetanus and Pertussis (vaccine)
EAD	Economic Affairs Division
ECC	Economic Coordination Committee
ECNEC	Executive Committee of the National Economic Council
EDO	Executive District Officer
EmONC	Emergency obstetrical and neonatal care
EPI	Extended program of immunization
ESDP	Essential service delivery package
FATA	Federally Administered Tribal Areas
FEPIC	Federal EPI Cell
FIC	Fully immunized child
FMOH	Federal Ministry of Health
FR	Frontier region
FSW	Female sex worker

FTE	Full time equivalent
FWW	Family Welfare Worker
FX	Foreign exchange
FY	Fiscal year
GAVI	Global Alliance for Vaccines and Immunization
GB	Gilgit-Baltistan
GBt	Government budget
GGE	General government expenditure
GGHE	General government health expenditure
GHED	Global health expenditure database (WHO)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HR	Human resources
HRH	Human Resources for Health
HSS	Health system support
HSW	Hijra Sex worker
IBD	Invasive bacterial diseases (surveillance)
ICC	Interagency Coordination Committee
ICS	Immunization (system) component specific
ICT	Islamabad Capital Territory
IDU	Injected drug user
ILR	Ice-lined refrigerator
IPCP	Inter-provincial Coordination Committee on Polio
IPV	Inactivated polio vaccine
ISS	Immunization system support
JICA	Japan International Cooperation Agency
KAP	Knowledge, attitude and practice
KP	Khyber-Pakhtunkhwa
KPH	Khyber Pakhtunkhwa Primary Health
KPK	Khyber-Pakhtunkhwa
LHS	Lady health supervisor
LHV	Lady health visitor
LHW	Lady health worker
LoC	Line of control
LPN	Licensed Practical Nurse
MCH	Maternal and child health
MDGs	Millennium development goals
MNCH	Maternal, newborn and child health
MNHSRC	National Health Services, Regulations and Coordination Division
MoH	Ministry of Health
MoU	Memorandum of understanding
MPI	Multidimensional Poverty Index
MSD	Measles second dose
MSN	Master of science in nursing
MSW	Male sex worker
MTBF	Medium Term Budgetary Framework
MTFF	Medium Term Fiscal Framework
NEAP	National Emergency Action Plan for polio
NEC	National Economic Council
NFC	National Financial Commission
NICC	National Interagency Coordination Committee
NIPS	National Institute of Population Studies
NSC	National Steering Committee (for EPI and for PEI)
NTF	National Task Force (for Polio)
OBB	Output based budgeting
OOPS	Out of pocket spending
OPV	Oral polio vaccine
PDHS	Pakistan Demographic and Health Survey

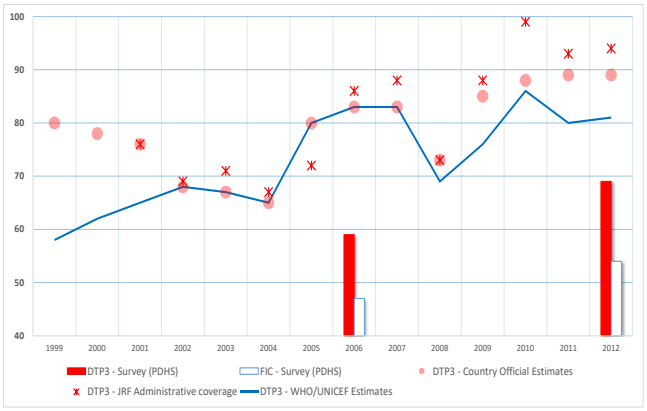
PEI	Polio Eradication Initiative
PICC	Project Implementation Coordination Committee
P-ICC	Provincial Interagency Coordination Committee
PM&DC	Pakistan Medical & Dental Council
PNC	Pakistan Nursing Council
POL	Patrol oil lubricants
PPHI	People's Primary Healthcare Initiative
PPMA	Pakistan Pharmaceutical Manufacturers' Association
PPRA	Public Procurement Regulatory Authority
PSDP	Public Sector Development Plan
PSLM	Pakistan social and living standards measurement survey
PUN	Punjab
RED	Reach every district
REUC	Reaching every Union Council
RHC	Rural health center
RRL	Regional reference laboratory
SBA	Skilled birth attendant
SBP	State Bank of Pakistan
SC PEI	Steering Committee (on Polio Eradication Initiative)
SDG	Sustainable Development Goals
SIADS	Short interval additional dose strategy
SIN	Sindh
SOPs	Standard operating procedures
SWOT	Strength, weaknesses, opportunities and threats
TBD	To be defined…
TB-DMIS	Tuberculosis drug management information system
THE	Total health expenditure
THQ	Tehsil Head Quarter
THQH	Tehsil Head Quarters hospital
TPM	Third party monitoring
TSV	Tehsil Superintendent Vaccination
TT	Tetanus toxoid
U5MR	Under five mortality rate
UCMO	Union Council Medical Officer
UCO	Union Council Communication Officer
UCPW	Union Council polio worker
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
UPEC	UC Polio Eradication Committee
USAID	U.S. Agency for International Development
vLMIS	Vaccine Logistics Management Information System
VPD	Vaccine preventable diseases
WMS	Warehouse management system
WPV	Wild poliovirus

Results: Immunization Situation Analysis Summary 2010 -2013

Achievements

1. Capacity building of the provincial EPI staff from all provinces and federating units on vaccine management
2. Program management structures sustained at all levels after devolution
3. Introduction of PCV10 throughout the country
4. National immunization policy prepared
5. Development of AEFI surveillance guidelines
6. Expansion of VPD surveillance system
7. Fully functional AFP surveillance system
8. Cold chain capacity partially updated at different levels

Immunization Coverage



Immunization System Analysis

1. Shortage of skilled immunization staff for routine immunization and non-polio SIAs - XX%
2. High reliance of routine immunization on outreach service delivery suffering from inadequate transport infrastructure and overburdened immunization staff
3. Outdated cold chain capacity with poor maintenance capacity and weak vaccine management practices
4. Unreliable and insufficient funding of routine immunization
5. Unreliable monitoring and reporting system
6. Low awareness of the population of the importance and benefits of immunization

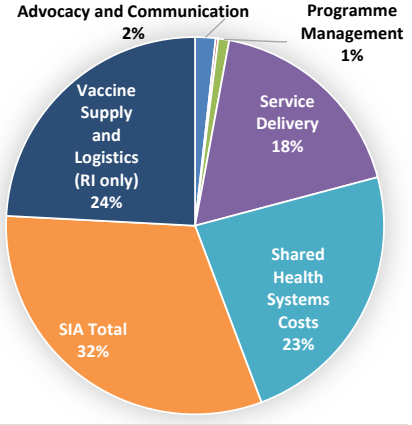
Health Systems Constraints

1. Insufficient governance / managerial capacity for administrative and financial autonomy after the devolution of health sector to provinces
2. High share of private sector in medical services delivery combined with inadequate regulation
3. Inadequate physical infrastructure at the front line of service delivery in public sector
4. Insufficient healthcare financing (2.5% of GDP) with high level of private financing (73%) and low allocation to healthcare in the stage budget (3.6%)
5. Shortage of healthcare professionals both at the facility and community levels
6. Fragmentation of (vertical) public health programs
7. Majority of population (63%) experiences problems in accessing or using healthcare services
8. Rural-urban inequality in health care delivery

Vaccine Preventable Disease Incidence

Indicators	2008	2012
Polio	117	74
Measles (lab confirmed)	1,129	8,046
Tetanus Neonatal	320	809
Diphtheria	32	98
Rota		1,692
Rubella		483
Pertussis	169	60

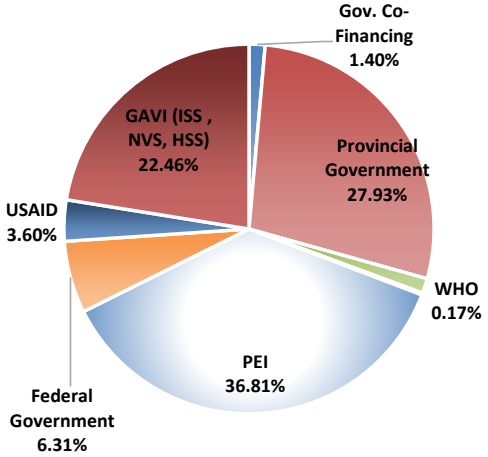
Baseline Costing Profile



Baseline financial indicators

Total Immunization Expenditures	$180,793,176
Campaigns	**$75,301,701**
Routine Immunization only	**$105,491,475**
Per Capita (Routine Only)	**$0.60**
Per DTP3 child (Routine Only)	**$29**
% Vaccines and supplies (RI)	**46.5%**
% Government Funding	**57%**
% THE	**2.0%**
% GHE	**19.9%**
% GDP	**0.048%**
Total Shared Costs	**$54,662,109**
% Shared health systems cost	**23%**
Total Immunization system costs	**$235,455,285**

Baseline Financing Profile



Strategic Plan: Summary 2016 -2020

National Immunization Priorities

1. Increasing immunization coverage and reducing vaccine-preventable diseases
2. Stopping wild poliovirus transmission throughout Pakistan and eradicating the disease
3. Improving quality, efficiency and sustainability of immunization services
4. Changing political and public awareness of and attitudes toward importance of immunization
5. New vaccine introduction (IPV, Rota, MR and TCV)

Immunization Priority Objectives

1. Increase control of VPD diseases
2. Increase coverage and equity of routine immunization
3. Improve surveillance of VPD diseases and AEFI
4. Improve effective vaccine management
5. Improve monitoring and reporting of immunization services
6. Increase sustainability of immunization financing

National Program Monitoring Framework

Indicator	2012	2020 Target
DTP3	69%	85%
BCG	85%	95%
OPV	83%	91%
Measles	61%	90%
TT	63%	80%
IPV	0%	90%
PCV	0%	90%
Rota	0%	90%
MR	0%	90%
TCV	0%	81%
Drop-out rate	18%	8%
Equity - geographic	20%	75%
Equity - wealth	47%	20%

Priority National Program Strategies

1 Streamline immunization program management at all levels in the light of the devolution and with focus on local ownership and sustainability

2 Improve immunization service delivery through:
- 2.1 mobilization of additional skilled immunization staff and strengthening physical infrastructure
- 2.2 implementation of micro-planning in all UCs
- 2.3 Upgrade of physical infrastructure and logistics system

3 Increase sustainability of immunization through:
- 3.1 Effective integration into MNCH services
- 3.2 Improved planning and budgeting

4 Increase political and public awareness of the importance of immunization through evidence based advocacy, communication and social mobilization activities

Major risks and challenges

1. Security and poor law and order conditions particularly in KP, FATA and Balochistan
2. Natural disasters
3. Political interference, in staffing particular
4. Social and cultural barriers (except Sindh and Punjab)
5. Illiteracy and poverty

Health and Development Impacts

1. Improve child survival through contribution to achievement of SDG3.
2. Reduced disability in the community associated with vaccine-preventable disease (AFP, meningitis).
3. Contribute to poverty reduction goals through the reduction of preventable hospitalization for childhood illnesses.
4. Contribute to health expenditure savings through reduced hospital burden of VPD (pneumonia, diarrhea, meningitis)

Cost and financing Projections

	2016	2017	2018	2019	2020	Total
Total resources required (US$ million)	**$473.6**	**$479.2**	**$491.0**	**$845.1**	**$1,138.4**	**$3,427.2**
Cost per capita (in US$)	**$2.48**	**$2.46**	**$2.48**	**$3.77**	**$4.96**	**$4.05**
Total secure financing (US$ million)	**$148.0**	**$181.0**	**$170.7**	**$639.0**	**$948.4**	**$2,087.1**
Funding Gap (with secure) (US$ million)	**$325.6**	**$298.2**	**$320.3**	**$206.0**	**$190.0**	**$1,340.1**
Total probable financing (US$ million)	**$258.2**	**$202.6**	**$230.5**	**$81.8**	**$74.0**	**$847.0**
Funding Gap (with secure & probable) (US$ million)	**$67.5**	**$95.6**	**$89.8**	**$124.3**	**$116.0**	**$493.1**
	14%	**20%**	**18%**	**15%**	**10%**	**14%**

Preface

The current document represents an attempt of consolidation of results of an inclusive strategic planning exercise for immunization carried out by the Government of Pakistan (GoP) and partners at provincial and federal levels. Designated health authorities in each federal entity conducted a series of consultations with key stakeholders and designed respective comprehensive multi-year plans for immunization (cMYP).

A "bottom-up" approach to the strategic planning for immunization ensures true local ownership and is aligned with the key principles of devolution of responsibilities for health care to federal entities as required by the 18th Amendment to the Constitution of Pakistan. Each cMYP developed by federal entities:

a) Conveys understanding of immunization related context specific to the entity

b) Reflects a vision of the sub-national authorities and partners of the developments of immunization and strategic decisions necessary to achieve immunization outcomes addressing entity specific challenges and tacking stock of past achievements

c) Presents a financial framework (projections of resource requirements and financing) linking availability of resources (financial or service delivery capacity) with immunization performance targets

Sub-national cMYPs are primarily intended to inform local policy-making process being translated into respective budget planning and execution instruments as well as to guide in-country development partners, donors and non-governmental organizations in providing support to immunization.

Despite the devolution of health care, the federal health authorities retain exclusive responsibilities and roles in fulfillment national commitments of Pakistan at the global and regional levels (such as Sustainable Development Goals) while supporting sub-national entities in the implementation of their respective immunization programs. Therefore, the main purpose of current national cMYP is to provide an overall description of achievements and expected developments in immunization from a national perspective by:

1) consolidating sub-national cMYPs into one narrative

2) Highlighting immunization related challenges, expectations and intended efforts at the federal level not covered by sub-national cMYPs.

The consolidated national cMYP is primarily meant for federal level policy makers to inform budgetary decisions and actions within the federal competencies as well as for international actors supporting Pakistan in fulfilling its commitments.

Finally, production of sub-national and consolidated national cMYPs is not the end but the beginning of evidence-based, result-based and transparent strategic governance processes in immunization at federal and sub-national levels.

1 Situational Analysis

1.1 Background information

1.1.1 Landscape and climate

Pakistan covers an area of 796,095 km² and is the 36th largest nation by total area. Ranging from the coastal areas of the south to the glaciated mountains of the north, Pakistan's landscapes vary from plains to deserts, forests, hills and plateaus. It is divided into three major geographic areas:

- The northern highlands contain the Karakoram, Hindu Kush and Pamir mountain ranges with five of the fourteen mountain peaks over 8,000 meters
- The Hindu River plain covers the territory from Kashmir region to the Arabian Sea where the Indus River (1,609 km) and its tributaries flow with alluvial plains along it in Punjab and Sindh
- The Balochistan Plateau lies in the west bordering with Iran.

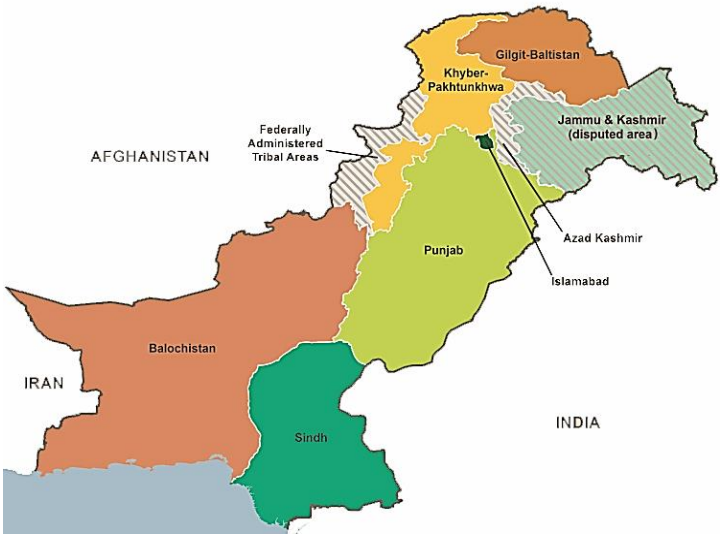
Approximately 26% of land is arable (207,144 km²) with 200,000 km² of land being irrigated.

The climate varies from tropical to temperate, with arid conditions in the coastal south. There is a monsoon season with frequent flooding due to heavy rainfall and a dry season with significantly less rainfall or none at all. Rainfall varies greatly from year to year, and patterns of alternate flooding and drought are common.

Pakistan overlaps the Indian and Eurasian tectonic plates and is prone to violent earthquakes.

1.1.2 Administrative and political structure

Pakistan gained its independence from British India in 1947. The first constitution was adopted in 1956 during the transition to the Islamic Republic of Pakistan. The constitution of 1973 lays the foundation of the current political system. Pakistan today is a multi-party system parliamentary state with clear division of power and responsibilities between legislative, executive and judiciary branches of government:



- The president is the head of the State and is the civilian commander-in-chief of the Pakistan Armed Forces. The president is elected by an electoral college[1].
- Legislative branch consists of a 100-member Senate and a 342-member National Assembly. Members of the National Assembly are elected directly by voters representing electoral districts.

[1] According to article 41(3) of the 1973 Constitution of Pakistan, this electoral college consists of the Senate, the National Assembly of Pakistan, and Four Provincial Assemblies (GB has also a provincial assembly but it not part of the electoral college)

Senate members are elected by provincial legislators. Provinces have equal representation in the Senate including FATA with fixed seats.

- Executive branch is headed by the Prime Minister responsible for appointing a cabinet of ministers and running the government operations. The Prime Minister is usually the leader of the largest party or a collation in the National Assembly.
- The judiciary of Pakistan consists of two classes of courts: superior (the Supreme Court of Pakistan, the Federal Shariat Court and five High Courts) and subordinated judiciary.

Islamic Republic of Pakistan (Jamhuryat Islami Pakistan) is federation of four provinces and five administrative territories as shown below (in alphabetic order) often referred to as "federal entities":

Full name	Short name[2]	Type
Azad Jammu and Kashmir	AJK	Administrative territory
Federally Administered Tribal Areas (Tribal Districts of KP)	FATA	Administrative territory
Islamabad Capital Territory	ICT	Administrative territory
Capital Development Authority	CDA	Administrative territory
Khyber Pakhtunkhwa	KP	Province
Sindh	SIN	Province
Punjab	PUN	Province
Balochistan	BAL	Province
Gilgit-Baltistan	GB	Administrative territory

Provincial governments have a similar system of government with a directly elected Provincial Assembly where the leader of the largest party/coalition elects Chief Minister. The Chief Minister is the head of provincial cabinet and oversees the provincial government operation. Provincial Governors playing role as the ceremonial head of province are appointed by the President.

Local government follows a three-tier system of districts, tehsils and union councils (UC) as shown in Figure 43 (on page 74 in Annex 1).

1.1.3 Demographic

The population of Pakistan reached 184.5 million in 2012 according to the National Institute of Population Studies (NIPS). The population growth rate is estimated at the level of 2% and the total population is expected to reach 192.1 million in 2018 (as shown in Figure 44 on page 74 in Annex 1). According to census 2017, the population growth rate is estimated at the level of 2.4% and total population is expected to reach 223.9 million in 2019 and 229.3 million in 2020.

Approximately 64 percent of the population lives in rural areas with different patterns across federal entities as shown in Figure 1 on page 3.

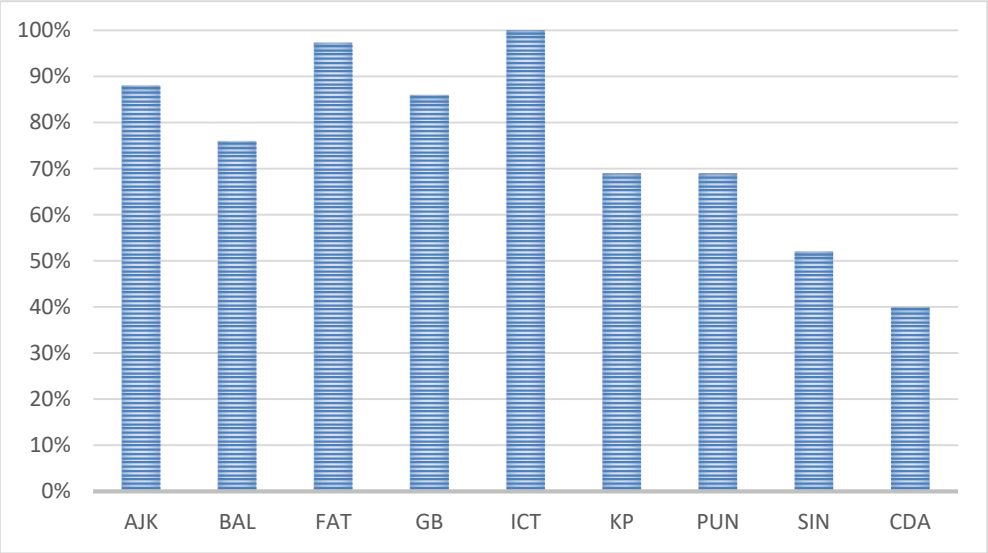
Formal registering of births is not widely practiced in Pakistan, even though the national registration system was introduced in 1973 and enforced by the directorate general of registration. According to PDHS 2012-13, more than 3 in 10 children under age 5 have been registered and 32 percent have a birth certificate. Although the government's vital registration system requires that a newborn be registered within the shortest possible time after birth, children under age 2 are less likely to be registered than

[2] As used hereinafter

children age 2-4 (31 percent and 35 percent, respectively). The registration of older children is primarily driven by the practice of asking parents to produce a child's birth certificate for school admission.

Birth certificates are made mandatory for services such as school enrollment, passports, voter registration, and marriage registration. Local governmental organizations and nongovernmental organizations (NGOs) are participating in birth registration for workplace populations. Rural residents, people living in Balochistan, Khyber Pakhtunkhwa, and Gilgit-Baltistan; and those in the lower two wealth quintiles are less likely to have a birth certificate.

Figure 1: The share of rural population by provinces (2012)



Source: Provincial cMYPs

Pakistan has a legal and administrative structure stipulating official registration of births according to standard procedures. In 2000, the government established the National Database and Registration Authority (NADRA) to oversee registration of the population. All children under age 18 are registered using the "Bay Form," and adults age 18 and older are issued a computerized national identity card (CNIC). According to PDHS 2012-13, about 20 percent of the household population under age 18 has a Bay Form. More than four in five adults (age 18 and over) have a CNIC. Forty-six percent of the population does not have any form of registration.

Internal migration is a common phenomenon in Pakistan: according to the Pakistan Integrated Household Survey (PIHS) 1998, 21.5% of population migrated within and between districts (out of which one third of migrants moved between rural and urban settings); according to Labor Force Survey (LFS) 1998, 13.5% of population was involved in inter-district migration. Marital and family movements constituted the major reason for migration (followed by economic factors – 18.1-20.9%).

According to the PDHS 2012-2013, 4% of household members have migrated to their current place of residence in the past 10 years ("in-migration"); 18 percent of households have at least one usual member who has migrated in the last 10 years ("out-migration").

1.1.4 Social and political context

(1) Poverty

Approximately one out of five persons lived in poverty (consuming less than $1.25 a day) in 2006-2008. 27% of rural population and 13.1% of urban population consumption was below national poverty line[3] (see Figure 46 on page 75).

According to conservative estimates of the Sustainable Development Policy Institute (SDPI), 33 percent of Pakistanis were living below poverty line in 2012 with substantial rural-urban (46% vs. 18% respectively) and provincial disparities (52% population living below poverty line in Balochistan, followed by Sindh with 33%, Khyber Pakhtunkhwa with 32% and Punjab with 19% - see Figure 47 on page 76 for district wise incidence of poverty)[4].

(2) Education

According to the World Bank[5], average adult literacy rate was 54.9% in 2009 (68.6% among males and 40.3% females). However, literacy among youth was much higher – 70.7%, especially among females (61.5%). PDHS 2012-2013 revealed that only 43.4% of women (age 15-49) was literate vs. 65.4% of men. Literacy among women was twice less frequent in rural areas (30.6%) than in urban settings.

57 percent of ever-married women age 15-49 have never attended school and only 9 percent reached class or higher (PDHS 2012-2013). Urban women are far more like to be educated than rural women. Only 29 percent of ever-married age 15-49 men have never attended school (the highest value observed in Balochistan – more than half). School enrollment details are presented in Annex 1 (see Figure 45 on page 74).

(3) Culture and traditions

Ethnical Punjabi constitute 45% of the population, Pashtun – 15.4%, Sindhi – 14%, Sariaki – 8.4-10.5%, Muhajirs – 7.6, Balochi – 3.6% and other ethnical groups – 4.7-6.3%.

More than sixty languages are spoken in Pakistan: Urdu is national language and is understood by over 75% of Pakistanis. Approximately half of population speaks Punjabi, 12% - Sindhi, 8% - Pashto and 3% - Balochi. English as official language is used in government, legal contracts and official business.

Approximately 85-90% of the population is Sunni and 10-15% Shia Muslim. Followers of other religions (Christianity, Hinduism, etc) constitute 3.6% (2010 estimates).

Pakistani society is largely hierarchical, emphasizing local cultural etiquettes and traditional Islamic values that govern personal and political life. According to PDHS 2012-13, “Only 38 percent of currently married women participate jointly with their husbands in making decisions pertaining to their own health care, major household purchases, and visits to their family or relatives.”

[3] Pakistan’s Planning Commission declared an official poverty line in 2011 as 2350 calories per adult equivalent per day (2150 calories in the urban areas and 2450 calories in the rural areas); it is equivalent to 673.54 PKR per capita per month consumption in 1998-99 prices.

[4] Arif Naveed, Nazim Ali. “Clustered Deprivation: District Profile of Poverty in Pakistan”. First Edition September 2012. Sustainable Development Policy Institute. ISBN: 978-969-8344-17-7

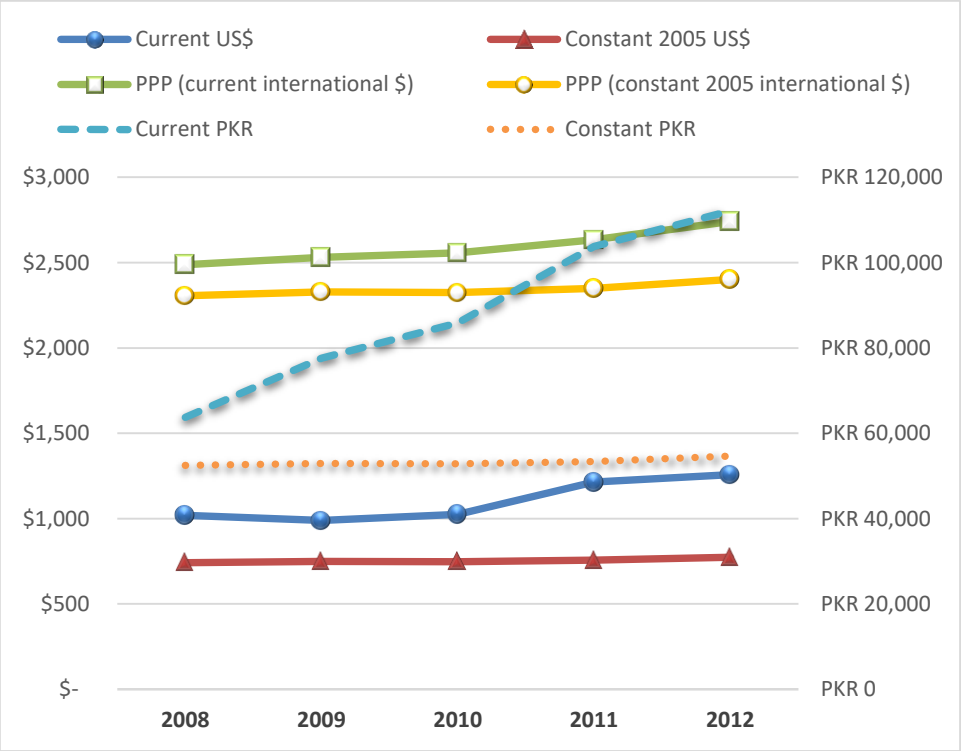
[5] http://data.worldbank.org/country/pakistan

1.1.5 Economics and financing

(1) Economic outlook

According to the World Bank, Gross Domestic Product (GDP) per capita has almost doubled from 63,700 in 2008 up to 112,000 in 2012 (in current PKR), but showed a slight increase from 52,500 up to 54,600 if expressed in constant PKR as shown in Figure 2 below:

Figure 2: GDP per capita by years



Source: The World Bank (2014)

Gross National Income (GNI) per capita increased from 990 in 2008 to 1,260 in 2012 (Atlas method, current US$) according to the World Bank.

Per capita income increased from 54,759 in 2009 up to 58,932 (in 2005-06 PKR in 2012/13, while in current PKR it increased by 50% from 80,545 to 131,543 according to the Pakistan Bureau of Statistics (SBP, Monthly Statistical Bulletin, February 2014).

Official exchange rate of PKR to US$ has been increasing from 78.49 in 2008/09 (average annual) to 108.38 in November 2013 (State Bank of Pakistan, Monthly Statistical Bulletin February 2014). CPI Inflation (overall) decreased from 8.1% in Nov-Dec 2012 to 5.1% in May 2013 but increased up to 10.9% in November 2013.

According to the economic survey annual report 2012-2013 (The Ministry of Finance), real GDP growth was 3.6% in 2013 fiscal year compared to 4.4% in the previous year. The investment-to-GDP ratio was 14.2 percent in FY13, which is lower than the 14.9 percent realized in FY12. More importantly, private investment fell to 8.7 percent of GDP in FY13, which is far below the level required to meet the country's needs. Revenues were initially projected to grow at 31.7 percent in FY13 compared with an average increase of 14.9 percent in the preceding five years. During the course of the year, the government could only realize 88.3 percent of the projected revenue, with revenues growing at only 16.2 percent. This

shortfall was entirely due to lower growth in tax collection, as non-tax revenues surpassed the annual target because of CSF inflows.

Although weak economic activity could also be blamed, the fall in tax-to-GDP ratio from 10.2 percent in FY12, to 9.6 percent in FY13, suggests this is not the case – in effect, tax revenue collection could not even keep pace with the subdued growth in nominal GDP. In our view, the stagnant tax-to-GDP ratio (one of the lowest in the world) is the biggest impediment to a stable macro economy, which is required to deliver higher economic growth.

Financing the growing fiscal gap and balancing competing expenditure needs, has dominated policymaking in the country. Government borrowing from domestic sources in FY13, was actually higher than the overall fiscal deficit in the year, as net external debt payments had to be paid despite insufficient fresh external inflows. Other than the drain on domestic resources, this resulted in a sharp fall in SBP's FX reserves during the year

(2) Public expenditure management

There are two types of public budget: regular (or current expenditure) budget and development budget. The distinction between current and development expenditure is based on the type of effect the expenditure has on the production capacity of the economy. All expenditures that keep intact, enlarge and improve the physical resources of the country and/or improve the knowledge, skill and productivity of the people and encourage efficiency with which available resources are used are defined as development expenditure. All the remaining expenditure is defined to belong to the category of current expenditure.

The conventional practice in Pakistan in the formulation of expenditure budgets had been based on the "bottom-up" demands of various government agencies. It has been replaced by combined a "top down" and "bottom up" planning approach since the introduction of Medium Term Budgetary Framework (MTBF) [6]:

- "Top down" approach ensures the alignment of federal budget allocations to the strategies and priorities of the Government and is built on the Medium Term Fiscal Framework (MTFF). A Budget Strategy Paper (BSP) prepared jointly by the Financial Division and the Planning Commission in October and February provides options for sectoral expenditures in the light of government priorities and budget constraints.
- "Bottom up" component of MTBF replaces the traditional process of budget preparation driven upwards by spending agents (line ministries) by implementing Output Based Budgeting (OBB) across all ministries/divisions of the federal government.

The MTBF involves preparation by line ministries of three-year expenditure estimates within the ceilings provided by the Ministry of Finance (for the recurrent budget) and by the Planning Commission (for the development budget). Each year, the MTBF process involves the rolling forward of the previous MTBF estimate by one year and the addition of a new outer year. Composition of the Federal budget is presented in Figure 48 (on page 76).

Fiscal year in Pakistan runs from July 1 to June 30.

[6] See details on a budget preparation process under MTBF on the Ministry of Finance official website

1.2 Health Sector Analysis

1.2.1 Health Status

Pakistan is off track in its progress toward achieving health related Millennium Development Goals despite the success in the reduction of diarrhea incidence among children under age five and remarkable decline in infant mortality and maternal mortality rates over the last two decades:

Figure 3: Pakistan progress to attaining health related MDGs (2013)

Goals and indicators	Achievement[7]	Target[8]	Status
Goal 4: Reduce Child Mortality			
• Under 5 Mortality Rate (deaths per 1000 live births)	89	52	Off Track
• Infant Mortality Rate (Deaths per 1000 live births)	74	40	Off Track
• Proportion of Fully Immunized Children 12-13 Months	80	>90	Off Track
• Proportion of under 1 year children immunized against measles	81	>90	Off Track
• Proportion of Children Under 5 who suffered from Diarrhea in the last 30 days (percent)	8	<10	Achieved
• Lady Health Worker's coverage (% of target population)	83	100	Off Track
Goal 5: Improve Maternal Health			
• Maternal Mortality Ratio	276	140	On Track
• Proportion of births attended by Skilled Birth Attendants	52.1	>90	Off Track
• Contraceptive prevalence rate	35.4	55	Off Track
• Proportion of CBAW who had given birth during last 3 years and made at least one antenatal consultation	68	100	Off Track
Goal 6: Combat HIV/AIDS, Malaria and Other Diseases			
• HIV prevalence among 15-49 year old pregnant women	0.041	↓50%	On Track
• HIV prevalence among vulnerable groups	IDU=37.4 FSW=0.8 MSW=3.1 HSW=7.3	↓50%	Off Track
• Proportion of population in malaria risk areas using effective prevention and treatment measures	40	75	Off Track
• Incidence of TB/10,000	230	45	Off Track
• TB cases detected and cured under DOTS	91	85	Achieved

Source: Planning Commission, Government of Pakistan. "Pakistan Millennium Development Goals. Report 2013"

Life expectancy at birth has been increasing from 63 in 1993 to 66 in 2012. Infant mortality rate (IMR) has decreased from 105.9 in 1995 to 69.3 in 2012 according to WHO estimates (Global Health Observatory Data Repository). Maternal mortality rate reduced from 490 to 260 in the same period.

The lowest infant mortality rate and under five mortality rate were observed in KP (58 and 70 respectively) (PDHS 2012-13).

Pakistan Demographic and Household Survey 2012-13 found the proportion of 1-year-old children immunized against measles to be as low as 61.4% (vs. 81% as shown in Figure 3 above) and the proportion of fully immunize child[9] - 58.8% (vs. 80% originally reported). The survey also revealed that

[7] Latest National Value
[8] ↓% - baseline reduced by …%
[9] With BCG, measles, and 3 doses of DTP and polio (excluding birth dose OPV)

22.5% of children under age 5 had diarrhea in the two weeks preceding the survey that is almost 3 times higher than the reported MDG achievement (8%) (The highest value was observed in KP – 27.9%).

1.2.2 Governance

In pursuance to 18th Amendment to the Constitution, health sector has been devolved to the provinces with absolute administrative and financial autonomy. Accordingly Ministry of Health was abolished on 30th June 2011. The following residual functions have been spread to various Ministries/Divisions including Planning & Development Division, Cabinet Division, Inter-Provincial Coordination Division, Capital Administration & Development Division, Economic Affairs Division and Interior Division. The health functions retained at the federal level are:

- National Planning
- Coordination (with provinces and international development partners)
- Funding of Vertical Programs in Health Sector
- Regulation of Pharmaceutical Sector
- International Health Regulations
- Dealing with International Agreements and MoUs
- Training Abroad

Although vertical Programs in health sector have been devolved to the provinces, however, upon their request and in pursuance to the decision of CCI, funding for these vertical Programs during the 7th NFC Award shall be catered to by Federal Government (till July 2015).

A new ministry was established at the federal level in order to address institutional fragmentation in health at the federal level on May 3, 2013: the existing Division of National and Health Services and Regulations was renamed as the Ministry of National Health Services, Regulations and Coordination Division (MoNHSR&C).

Prior to the implementation of the 18th Amendment the Federal Ministry of Health was responsible for policy development, standard setting, regulatory frameworks for drugs and services, development of national plans, inter-provincial coordination, monitoring, evaluation, research, resource mobilization, and provision of services through vertical programs such as LHWs, EPI, etc.

The mandates of provincial Departments of Health covered policy, intra-provincial coordination, monitoring, and evaluation, medical and nursing education and tertiary care service delivery. District administrations were responsible for implementation, monitoring and supervision, management of healthcare delivery at and below the District Headquarter Hospitals (DHQHs) and implementation of federal vertical programs at the district level.

After the devolution of vertical programs the provincial governments assumed the role once played by the federal government. As highlighted in recent situational analysis carried out by UNICEF[10], in the immediate future the policies and program cycles already in place will most likely continue; however the provinces may find difficulties in allocating budgets for these programs in the long-run. Some provincial governments have already raised concerns over their ability to provide budget allocations for the next year.

[10] UNICEF. "Situational Analysis of children and women in Pakistan. National Report", June 2012

1.2.3 Health workforce

Pakistan National Health Policy 2009 planned to increase supply of healthcare workforce as shown Figure 4 below:

Figure 4: Planned supply of healthcare work force (per 1000 population) by years

Healthcare workforce	Baseline	Targets					
	2006-07	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Doctors	0.75	0.78	0.80	0.81	0.83	0.85	0.87
Nurses	0.34	0.38	0.40	0.42	0.44	0.46	0.49
LHVs	0.047	0.054	0.056	0.059	0.062	0.065	0.068
LHWs	0.54	0.61	0.66	0.66	0.68	0.68	0.67

Source: Pakistan National Policy 2009

As stated in Pakistan National Health Policy, there were at least 71 medical and dental colleagues in the country: 32 in public and 39 in the private sector. The number of registered doctors exceeded 111,600 doctors and 8,400 dentists including 21,500 specialist doctors and 517 specialist dentists. According to WHO statistics, the number of doctors per 10,000 was 8 in 2012 (slightly below the policy target) as shown in Figure 51 (on page 78).

All medical doctors and dentists must be registered with Pakistan Medical & Dental Council (PM&DC) to practice in Pakistan. PM&DC sets uniform minimum educational standards, issues recommendations for recognition of medical teaching institutions/programs, issues experience certificates to faculties and maintains the register of medical and dental practitioners.

Figure 5: Challenges related to HRH

- Rural/ urban maldistribution of health workers
- Weak HRH management system
- Shortage of HRH, mostly in rural areas
- "Brain drain" of skilled health workers to other countries
- A non-regulated private sector that operates primarily in urban areas
- Tenuous quality control and standardization of care
- Health information systems not inclusive of HRH
- Lack of a coordination mechanism for HRH stakeholders

Source: Global Health Workforce Alliance

Pakistan Nursing Council (PNC) is an autonomous regulatory body constituted under the Pakistan Nursing Council Act (1973) and empowered to register/license Nurses, Midwives, Lady Health Visitors (LHVs) and Nursing Auxiliaries to practice in Pakistan. There are four nursing examination boards in Pakistan - one nursing examination board is located in each province functioning under the umbrella of PNC.

PNC recognized in total 78 nursing institutions in Punjab, 78 – in Sindh, 26 in KP and 15 Balochistan in 2011. PNC recognized 27 post-basic courses in nursing institutions, 35 nursing institutions to offer degree programs (Post RN BSN, Generic BSN, MSN), 9 institutions to prepare licensed practical nurses (PLN) (2-year programs) and 5 institution - Family Welfare Workers (FWW).

More than 46,000 nurses and 4500 Lady Health Visitors (LHVs) are registered with Pakistan Nursing Council (PNC), backed up by a community based workforce of about 95,000 lady health workers. Pakistan also initiated a programme to deploy 12,000 community midwives (CMW) in the rural areas.

Pakistan has been suffering from a variety of challenges related to human resources for health (HRH) as shown in Figure 5 above. Since the devolution the major HRH challenges include a) reorganization of the HRH regulatory function and establishment of linkages and coordination between the Federation

and the provinces in terms of formulation and regulation of HRH policies and decisions at the federal level; and b) Managing HRH liability as a consequence of devolution at the federal level.

1.2.4 Finance

Total health expenditure (THE) constituted 2.5% of GDP and amounted to 23$ (current) per capita in 2012 (WHO EMRO database). General government health expenditure (GGHE) was up to 27% of THE (down from 38% in 2011) amounting to 8$ (current) per capita. Only 3.6% of general government expenditures (GGE) were allocated to healthcare as shown in Figure 6 below:

Figure 6: Health expenditures (as % or in current $)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
THE as % of GDP	4.1	3	2.4	2.2	2.1	2	2.9	2.6	2	2.5
GGHE as % of THE	27.7	28.5	27.7	19.6	17.5	16.8	29.7	32.8	38	27
GGHE as % of GGE	2.6	1.9	2.6	1.9	1.5	1.4	3.5	3.6	4	3.6
Per capita THE	18	15	13	14	15	18	24	23	22	22
Per capita GHE	4	4	4	3	3	3	7	7	8	8

Source: WHO EMRO database

Out of pocket spending (OOPS) constituted 88.6-88.8% of private health care expenditures (or 55-58% of THE) according to Global Health Expenditure Database (WHO).

The share of external funding in the general government healthcare expenditures varied between 13%-19% in recent years.

As shown in Figure 48 "Federal government expenditures and revenues (in million PKR)" (on page 76), federal government current expenditures on health services amounted to 7.8 billion PKR in 2011-12 FY and planned to increase to 9.9 billion PKR in FY 2013-14 (that is 0.35% and 0.31% of federal government current/regular budget).

Health care financing selected indicators and trends are presented in Figure 59 (on page 83).

1.2.5 Medical products and Technology

The Drug Regulatory Authority of Pakistan (DRAP) has been established under the DRAP Act 2012 to provide effective coordination and enforcement of the Drugs Act, 1976 (XXXI of 1976) and to bring harmony in inter-provincial trade and commerce of therapeutic goods. According to the DRAP Act 2012, "No human biological drug is allowed sale and use until a "Lot Release Certificate" from the Federal Government Analyst of the National Control Laboratory for Biologicals, Islamabad has been obtained" (article 1.(7), Schedule – I).

"The National Drug Policy (1997) promotes the essential medicines concept and the use of the National Essential Drug list, for example by mandating all government and semi-government health institutions to conduct bulk procurement in accordance with the list; however there is poor adherence to this" (WHO EMRO[11]). According to recent research, "policy concerns related to essential medicine access need integrated responses across various components of the health systems, are poorly addressed by existing evidence, and require an expanded health systems research agenda"[12].

[11] WHO EMRO. "Pakistan - Medicine prices, availability, affordability and price components".
[12] Zaidi S, Bigdeli M, Aleem N, Rashidian A (2013) Access to Essential Medicines in Pakistan: Policy and Health Systems Research Concerns. PLoS ONE 8(5): e63515. doi:10.1371/journal.pone.0063515

There were 478 licensed pharmaceutical manufacturers in Pakistan and the market share of domestically produced pharmaceuticals amounted to 47% (WHO[13]). The drugs registered in Pakistan totaled around 66,000 with 55,000 of them being active drugs, as reported by PPMA[14].

In Pakistan, there are legal or regulatory provisions affecting pricing of medicines. These provisions are aimed at the level of manufacturers, wholesalers and retailers. The government runs an active national medicines price monitoring system for retail prices. Regulations exist mandating that retail medicine price information should be publicly accessible.

The public sector procurement in Pakistan is centralized and decentralized. It is centralized under the responsibility of the Public Procurement Regulatory Authority (PPRA) and is framed by Public Procurement Code consisted of PPRA Ordinance 2002, Public Procurement Rules 2004, Public Procurement Regulations 2008 and Consultancy Services Regulations 2010. Provincial authorities apply own procurement rules. Procurement of pharmaceuticals is based on prequalification of suppliers at the federal level. Medical Store Depots in provinces call quotations from a list of prequalified companies

1.2.6 Service delivery

According to the Pakistan Health Policy, essential service delivery package (ESDP) has been introduced at the national level to reduce morbidity and mortality. Each sub-national authority redefines its content tailoring to local context. The package sets a list of medical services to be delivered as well as defines physical infrastructure, staff, equipment and supplies necessary to deliver these services. Medical services are divided into 2 categories (core package and optional services) and 5 packages by delivery levels (BHU, RHC, Referral Hospital/THQ&DHQ, Tertiary and community).

Figure 7: Coverage of EPI services by ESDP

ESDP Package	EPI services
BHU	✓
RHC	✓
THQ/RHQ	
Tertiary	
Community	✓

EPI services (EPI plus) are delivered in the packages at community level, BHU and RHC levels as shown in Figure 7:

Medical services in Pakistan are delivered at two service delivery interfaces: health care facilities and communities. Health care provider organizations operate in public and private domain. There is no accurate information about the number and typology of private health care providers. Public-private partnerships are widespread in some areas: People's Primary Healthcare Initiative (PPHI) manages the majority of BHUs in KP and Singh[15].

Facility based medical services in public sector are usually provided at 4 levels: provincial (teaching hospital), district, tehsils and UC (mostly BHUs, as well as MCH centers & dispensaries as shown in Figure 8 below:

[13] "Pakistan Pharmaceutical Country Profile". 2010.
[14] http://www.thenews.com.pk/Todays-News-6-28593-Pakistan-has-so-far-registered-66000-drugs-PPMA
[15] PPHI Sindh Bulletin 2013

Figure 8: Service develiry capacity by type of healthcare providers and functional status in Pakistan, public sector

Type of health facilities	Functional Status		
	Required[16]	Functional	Delivering EPI
01. Teaching Hospitals		6	6
02. DHQ	148	129	129
03. THQ	460	155	155
04. RHC	1,090	669	668
05. BHU	6,711	5,130	4,658
06. Urban Health Centers		5	5
07. Urban Health Units		16	16
08. MCH Centers & Dispensaries	210	3,450	416
09. Others	573	825	211
10. (LHW) Health House	142,175	76,171	
11. Private (obstetric service)			
12. Civil Dispensaries	598	622	117
13. First Aid Posts	90	129	2
14. Civil Hospital	45	41	40
15. Community health Centers	163	110	
Grand Total	**152,263**	**87,458**	**6,423**

Source: Provincial cMYPs

Medical services at the community level are delivered by a numerous healthcare professionals, some of them hired and supported by vertical healthcare programs (e.g. LHW) as shown in Figure 9 below:

Figure 9: Service delivery capacity per type of healthcare professional and functional status at the community level by typology and status in Pakistan, public sector

Type of personnel	Functional Status		
	Required	Functional	Delivering EPI
01. LHW[17]	162,634	94,996	14,865
02. CMW		3,073	0
03. Vaccinator	14,145	10,159	10,159
04. DSV	27	27	0
05. TSV	123	123	0
06. LHV	401	2,051	59
07. LHS	2,248	1,015	0
08. CDC	3,520	1,767	0
09. Sanitary patrol	3,520	1,735	0
10. Nurses	340	256	
10. Nurses | Dispensers		33	33
Grand Total	**186,958**	**115,235**	**25,116**

Source: Provincial cMYPs

Some professionals (such as LHV or Vaccinator) deliver services to communities at "front line" health care facilities (such as BHU, EPI Centers or MCH Centers).

[16] For certain type of healthcare facilities ("others", First Aid Posts", "Civil Hospitals") there are no recognized norms to estimate requirements. The numbers reflect perceptions of provincial health authorities

[17] The number of required LHW differs from the number of required LHW Health Houses; some provinces stated higher requirement figures for LHW than for LHW Health Houses

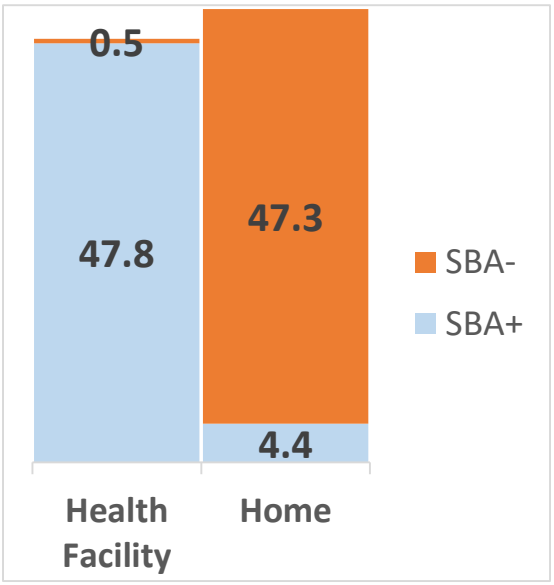
Skilled birth attendants (SBA) assisted 52.1% of deliveries: traditional birth attendants were involved on par with medical doctors (41% of SBA assisted deliveries). The lowest rate was observed in rural Balochistan (14.2%), among households in the lowest wealth quintile (29.8%) (PDHS 2012-13).

According to PDHS 2012-13, only 48% of births in Pakistan took place in health facilities: 15% in public and 34% in private clinics. The lowest facility based delivery rate was observed in Balochistan (15.8%).

47.3% deliveries of all deliveries takes place at home and are not attended by any qualified provider as shown in Figure 10 above. Only 8% of home deliveries were assisted by SBA.

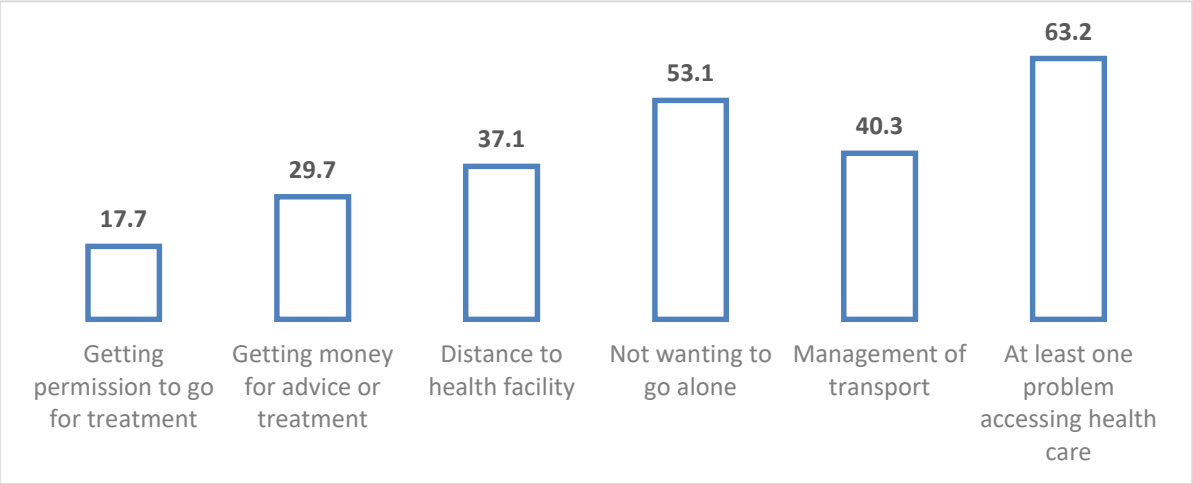
Approximately 40% of mothers did receive postnatal check-up in the first two days after birth (the highest values observed in KP and Balochistan – 62%) and 53% of infants did not receive postnatal checkup in the first weak after birth (the highest values observed in Balochistan and KP – 81% and 77% respectively) (PDHS 2012-13).

Figure 10: Structure of deliveries by place and skilled birth attentands (SBA)



Source: PDHS 2012-2013

Figure 11: Problems in accessing health care reported by CBAW (national average)



Source: PDHS 2012-13

Figure 12: Key health findings in the Situational Analysis, province-by-province

PUNJAB: Even in Pakistan's most populous province, only 75 per cent of the population have access to a health facility within a half-hour's distance. The province is putting emphasis on scaledup mobile health units (MHUs) and Lady Health Workers (LHWs) to reach children and women of child-bearing age
SINDH: Health indicators in Sindh suffered a huge setback as a result of the floods of July 2010 (and were challenged again by renewed floods in 2011). Pregnancy and childbirth remain serious life-threatening events

for many women, and high rates of female illiteracy prevent women from independently making health decisions, seeking assistance, and stepping out of the household.
BALOCHISTAN: The largely rural population has little or no recourse to medical professionals for reproductive health care. Women are not typically free to travel without a male and they prefer to be seen only by the few female doctors available.
KP: The provincial government spends nearly twice as much on security and law enforcement as on health and education combined. The lack of female staff in primary health care facilities reduces women's access to health care.
FATA: In 2010, 450 community health centres were reported closed by the Government due to the unwillingness of personnel (especially women) to work in the region, and the number of female patients seeking health care fell from 70,000 in 2006 to 9,234 in 2010.
AJK: The rough terrain, the harsh climate, and various cultural factors discourage women from reaching medical facilities for safe deliveries at health institutions.
GB: Forty-five per cent of babies were delivered in health centres in areas where health facilities are mostly concentrated, while limited health facilities in other districts have led to lower percentages of deliveries assisted by health professionals.

Source: UNICEF. "Situational Analysis of children and women in Pakistan". June 2012

Only one third of women (of childbearing age) had no serious problem in accessing health care services (as shown in Figure 11 on page 13). CBAW living in rural area are more likely to experience at least one problem in accessing health care than one living in urban areas (72.3% and 47.3% respectively) compared to "Not wanting to go alone" was the most frequent reason (53.1%). At least one access barrier affected CBAW mostly in KP (85.2%) and Balochistan (81.3%) as shown in Figure 50 (on page 77). Transportation was the number one access problem in GB (69.2%). Permission to go for treatment was affecting access mostly in Balochistan (57.1%) compared to other provinces (17.7% national average).

1.2.7 Health Information management

The Government of Pakistan (GoP) developed Health Management Information System (HMIS) for for the First Level Care Facilities (FLCF) during 1992 to 1995 (with the support of USAID)/

Based on the request from GoP, JICA implemented the Study on Improvement of Management Information Systems in Health Sector (2004-2007). Through the study, a new health system called DHIS was developed and National Action Plan (NAP) for the nationwide prevalence of DHIS was approved at the Steering Committee. "DHIS Project for Evidence-Based Decision Making and Management" supported by JICA, provincial governments as well as other development partners (WHO, UNICEF, UNFPA, USAID, GIZ, Save the Children) achieved the following results[18] by completion in July 2012.

- In 87 DHOs of 100 target districts, routine operation (resource allocation) and budget planning have been practiced based on the analysis of DHIS data which has been collected for more than 3 consecutive months.
- At all PHDs (including AJK and FATA) and 100 target DHOs, the revised DHIS software, a platform for DHIS data input, was installed
- Training on collection of information related to medical facilities was conducted through Cascade Training Method and 173 master trainers at the district level 9,586 staff at the primary and secondary level medical facilities has been trained.

[18] JICA. "Summary of Terminal Evaluation Study of the Project". June 2012

- For the purpose of DHIS data input, analysis and use at PHD and DHO, 81 provincial master trainers and 129 district master trainers were trained. Staff in 99 DHOs out of 100 target DHOs as well as all PHDs has been trained on use of DHIS data. By using the results of analysis of the DHIS data, the items for resource reallocation and budgeting have been identified in 87 DHOs

The failure of district authorities to allocate sufficient budget for the implementation of DHIS project decreased the coverage of districts with DHIS. DHIS roll-out was also impeded by devolution related processes (a lack of an organization at the federal level responsible for DHIS).

The revised system (DHIS), unlike the previous system, gathers and collates information from secondary hospitals (*tehsil* and district hospitals) and some other important health care levels. This is in addition to the data collected from nearly 1300 first-level care facilities. However, the assessment found that "compliance rates of DHIS monthly report from public primary and secondary level medical facilities to DHOs were kept more than 90% at the last 6 months of the project in 39 districts (39 %) out of 100 target districts".

A parallel community based information system has also been developed in 1994, which is functioning under the National Program for Family Planning and Primary Health Care (NPFP&PHC). In addition there are several other information systems specifically geared to the needs of vertical programs such as EPI, TB, AIDS, Malaria etc., which are not fully integrated into HMIS. However, the software for NPFP&PHC is based on the same parameters that of HMIS software[19]. National Integrated Report 2008[20] provides an example of using data from separate health management information systems to quantify different aspects of health care system performance in Pakistan.

Health management information systems in Pakistan suffer from fragmentation and waste of resources due to the duplication of efforts via parallel health information systems. Quality of primary data is another concern undermining the reliability of reported statistics.

In addition to routine information flows in healthcare, Pakistan Demographic and Health surveys conducted periodically by the Government of Pakistan (using a standard data collection methodology) provide valuable insight in health status of population and delivery of medical services.

Pakistan Logistics Management Information System (LMIS) developed by USAID Deliver Project to address the challenges of health commodities distribution Pakistan provides a modern and unified platform to manage commodity supplies in three areas: vaccines (vLMIS), contraceptives (cLMIS) and TB (TB-DMIS). vLMIS is discussed in detail in the corresponding section below (see 2.2.4 "Vaccine, Cold Chain and Logistics" on page 44).

[19] National Health Management Information System (HMIS) (Pakistan)
[20] National Health Information System, Government of Pakistan

1.3 Immunization system

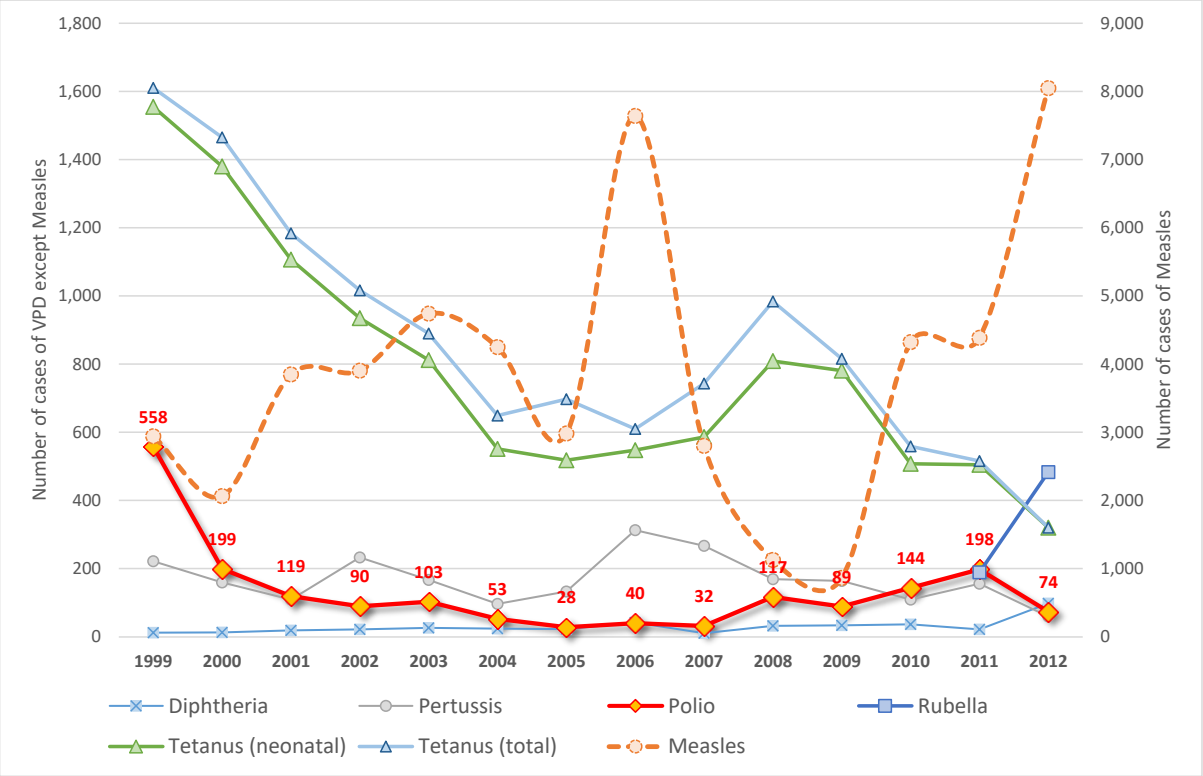
The number of polio cases decreases dramatically from 558 in 1999 down to 74 in 2012 as shown in Figure 13 below. At least 91 polio cases were detected in 2013 (primarily from inaccessible and security compromised areas).

Pakistan experienced two outbreaks of measles in 2006, 2008 and 2013: out of 108,888 suspected cases 8,046 cases of measles were laboratory confirmed (higher than the number of laboratory confirmed cases in 2006 – 7,641).

The number of cases of tetanus (neonatal and total) has been decreasing steadily from 1,660 in 1999 to 320 in 2012.

Rubella was laboratory confirmed in 483 out of 2,907 suspected cases; total cases of Rota amounted to 1,692 (including 270 laboratory confirmed cases).

Figure 13: Number of cases of selected VPD (1999-2012)



Source: WHO VPD monitoring system

Vaccine preventable disease cases are presented in detail in Figure 60 (in Annex 1, on page 84).

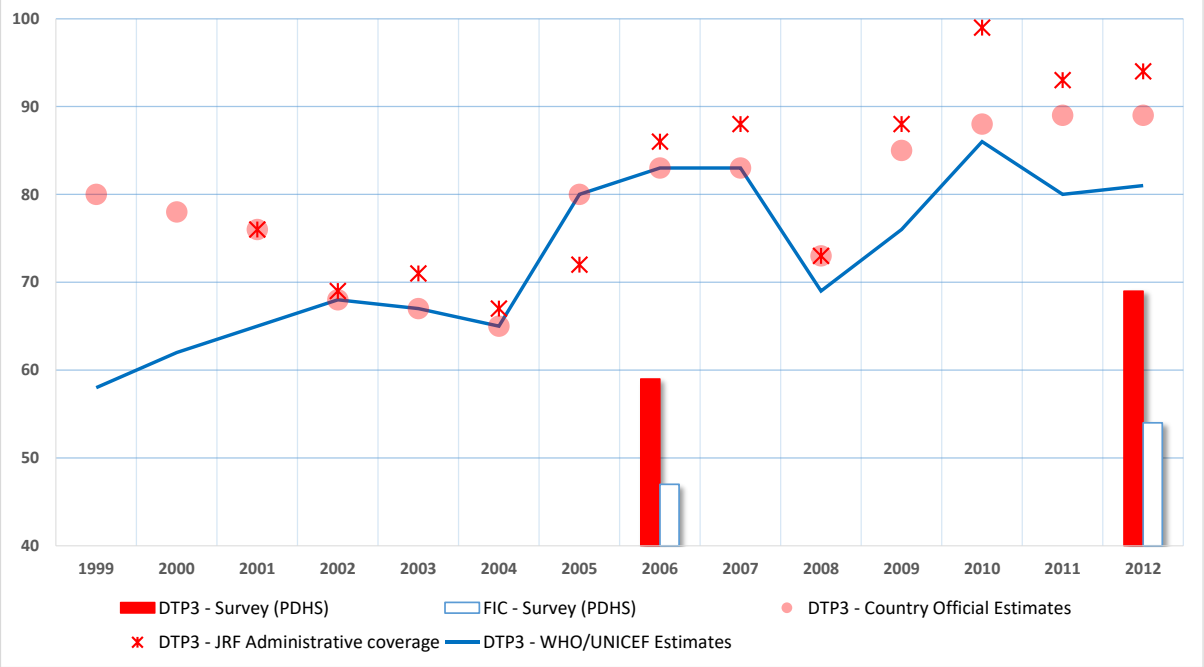
1.3.1 Routine Immunization

(1) Immunization coverage trends

There is a significant difference in immunization coverage estimates between sources as shown in Figure 14 below: Country Official and WHO/UNICEF estimates coincide only in 2002-2007.

DTP3 coverage has been increasing in the last decade and reached in 2012 the level of 89% according to the country official estimates (against WHO/UNICEF estimate of 81% and PDHS finding of 69%, see details in Figure 61 on page 84).

Figure 14: Coverage estimates (in %) by years and sources, Pakistan



Administrative (reported) coverage

Official coverage estimates provided by provinces are summarized in Figure 15 below:

Figure 15: Situational Analysis – routine immunization based on official estimates of provinces by years[21]

Indicators	2010	2011	2012
Official Coverage Estimates			
DTP1	97%	97%	89%
DTP3	88%	87%	79%
Measles 1	82%	87%	76%
Measles 2	60%	63%	24%
OPV0	68%	65%	68%
% Fully Immunized Child (range by provinces)	46% – 94%	43% – 98%	16% – 95%
Access and demand			
% Drop Out DTP1 - DTP3	8%	10%	10%
% Drop Out DTP1 - Measles (1st dose)	14%	10%	14%
% Drop out Measles 1st and 2nd dose	23%	23%	51%
Immunization Equity			
Number and proportion of districts with DTP3 coverage > 80%	65 (45%)	78 (53%)	46 (32%)

Source: Provincial cMYPs

Survey coverage

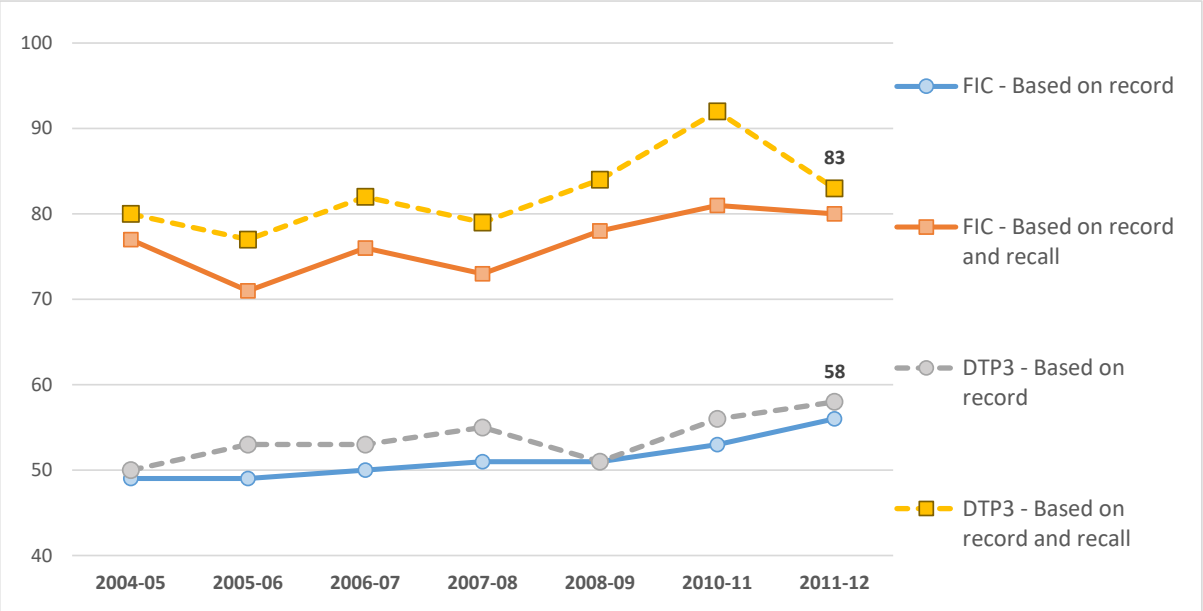
The Government of Pakistan carries out periodically two population based surveys: Pakistan Bureau of Statistics runs Pakistan Social and Living Standard Measurement Survey (PSLM) every year and National Institute of Population Studies (NISP) conducted 3 Pakistan Demographic and Health Surveys

[21] Measles 2nd dose coverage in 2012 does not include Punjab

(PDHS 1990-91, 2006-07 and 2012-13). Immunization related findings of these surveys are presented and discussed separately because methodological differences between PSLM and PDHS.

According to PSLM, the DTP3 coverage remained above 80% if record and recalled method was used for data collection, however it has not exceeded 60% if data was collected based on record as shown in Figure 16 below:

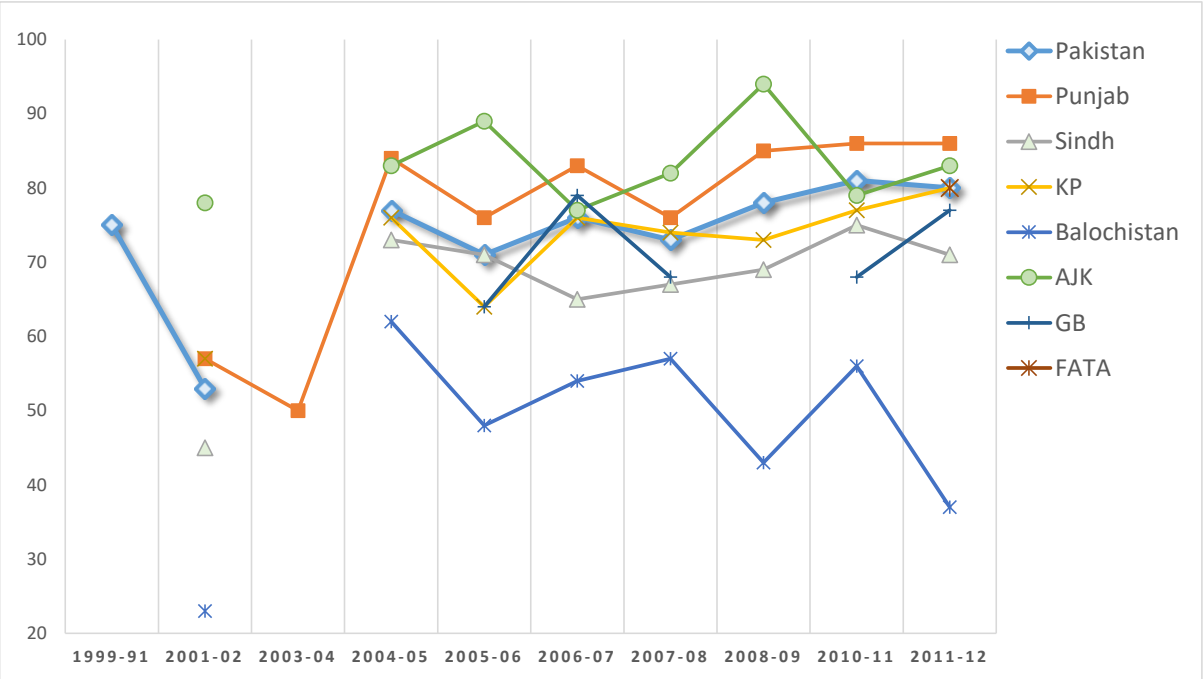
Figure 16: Immunizaiton coverage trends: FIC and DTP3 by years and recall method, Pakistan



Source: PSLM reports, Pakistan Bureau of Statistics

Proportion of fully immunized child (FIC) based on the data collected via record and recall methods varied significantly by provinces in the last decade as shown in Figure 17 below: immunization has improved significantly in Punjab and remained at the high level in AJK while it remained below 60% in Balochistan.

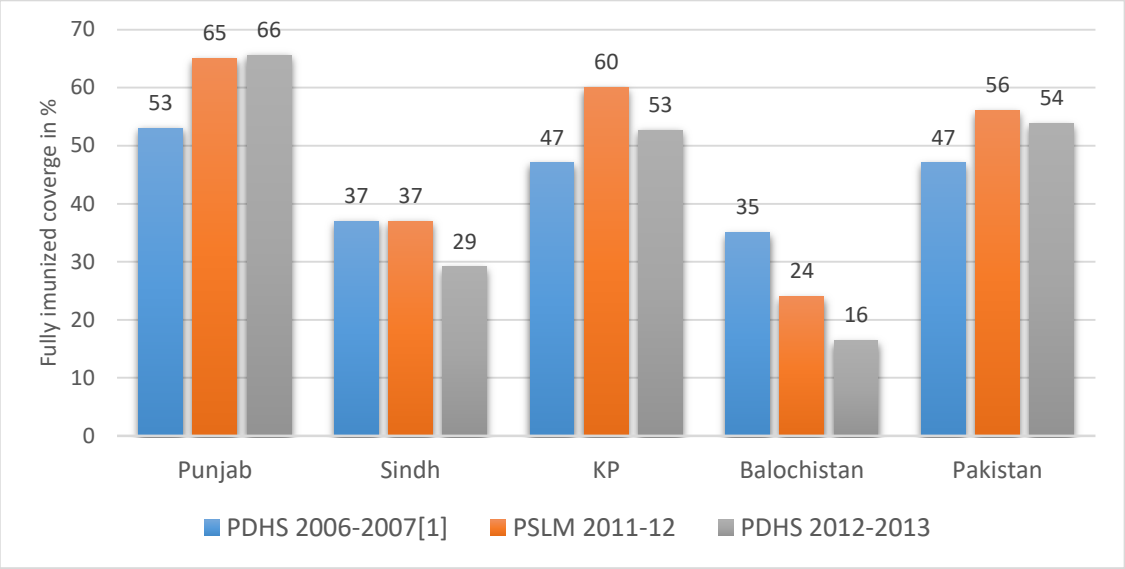
Figure 17: Proportion of FIC by entities and years, based on records and recall (PSLM)



Source: Planning Commission, Government of Pakistan. "MDGs Report 2013".

Coverage of children (by 12 months of age) was 32.7% for DTP3, 35.5% for measles and 32.6% for OPV3 in 1990-1991 (PDHS 1990-1991). The recent survey (PDHS 2012-13) revealed significant improvement: DTP3 – 65.2%, Measles – 61.4% and OPV3 – 85.3% (see details in Figure 49 on page 77).

Figure 18: Fully immunized child (0-11 months) by selected provinces and surveys



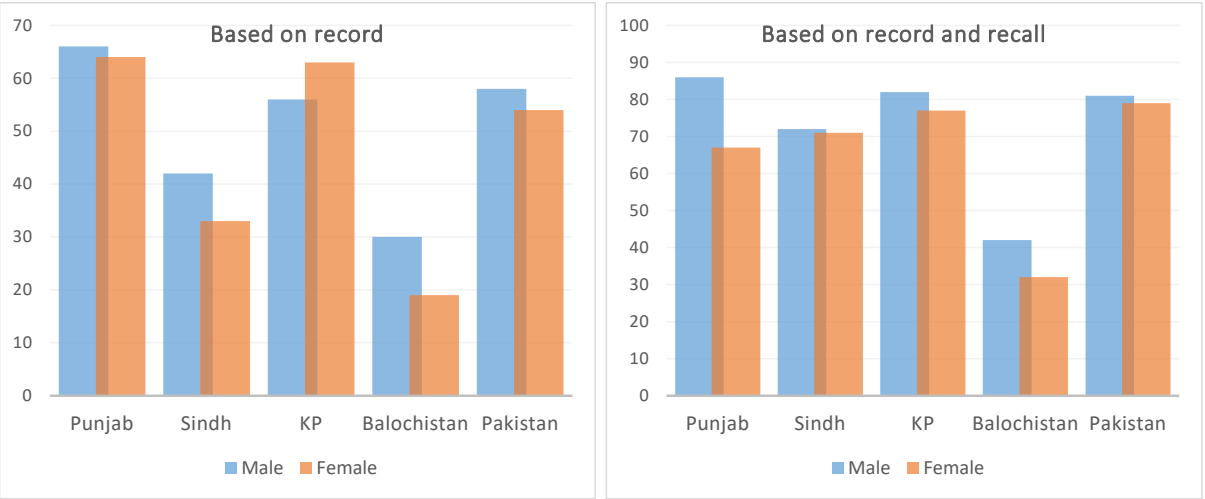
Source: Government of Pakistan (PDHS, PSLM Reports)

Comparison of the proportion of FIC between PDHS 2006-07 and PDHS 2012-13 by provinces (see Figure 18 above) shows the improvement at the national level from 47% up to 54%. The observed improvement was achieved at the cost of Punjab (53% and 66% respectively) and KP (47% and 53% respectively) offset by the deterioration of coverage in Sindh (from 37% to 29%) and Balochistan (from 35% to 16%) confirmed by PLSM results conducted a year earlier (based on records).

(2) Inequalities in immunization coverage

Comparison of immunization outcomes by provinces, residence types, gender, years and data collection methods are presented in detail in Figure 54 (on page 79) and Figure 49 (on page 77).

Figure 19: Fully immunized child by gender and provinces and recall methods, PLSM 2011-12



Gender inequality pattern changes by provinces and data collection methods as shown in Figure 19 above: record based survey (PSLM 2011-12) revealed that the proportion of FIC was higher among girls in KP (63% vs. 56%), while the opposite was observed when record and recall method was used for data collection (82% vs. 77%). The proportion of FIC was higher among girls in KP in 2010-11 and 2007-08 when coverage was measured based on record. FIC dominated among boys in Sindh and Balochistan, and was slightly higher in Punjab in case of record based data collection, however when record and recall based data is compares this difference become negligible in Sindh, more prominent in Punjab and remains almost the same in Balochistan.

Figure 20: FIC (based on record) - inequalities by wealth, residence and years (PSLM)

PSLM 2007-08

	Urban			Rural			National		
	Male	Female	**All**	Male	Female	**All**	Male	Female	**All**
1st Quintile	48	39	**43**	40	38	**39**	41	38	**40**
5th Quintile	72	86	**78**	60	65	**62**	65	75	**70**
Difference	**24**	**47**	**35**	**20**	**27**	**23**	**24**	**37**	**30**

PSLM 2011-12

	Urban			Rural			National		
	Male	Female	**All**	Male	Female	**All**	Male	Female	**All**
1st Quintile	61	40	**50**	40	38	**39**	43	39	**41**
5th Quintile	84	85	**85**	76	82	**78**	80	84	**82**
Difference	**23**	**45**	**35**	**36**	**44**	**39**	**37**	**45**	**41**

The gap in FIC proportion between the lowest and highest income quintiles widened from 30 per cent points in 2007-08 to 41 per cent points in 2011-12. The widest gap between the poorest and richest was observed among females (45 vs. 37 among males in 2011-12).

PDHS 2012-13 revealed the following differences in coverage between the lowest and highest wealth quintiles (see Figure 49 on page 77): FIC – 43 per cent points, BCG – 14.6 per cent points, DTP3 – 47.1 per cent points, OPV3 – 13 per cent points, measles – 47.7 per cent points.

The share of districts with DTP3 coverage above 80% has been decreasing from 45% in 2010 down to 32% in 2012 (as shown in Figure 15 on page 17).

1.3.2 Accelerated Disease Control Initiatives

"More than 40 health workers and police personnel providing security to teams administering anti-polio drops to children have been killed in incidents of violence in the country since December 2012, according to a tally by news agency AFP"[22]

Figure 21: Situational Analysis - by accelerated disease control initiatives

Indicators	2010	2011	2012
Polio			
OPV3 coverage	88%	88%	89%
Number of rounds and sub-national rounds per year	77	77	78
Coverage Range (by provinces)	90% - 100%	92% - 99%	93% - 98%

[22] http://www.dawn.com/news/1087643/two-polio-workers-among-six-kidnapped-from-fr-tank

Indicators	2010	2011	2012
MNT			
TT2+ coverage	58%	60%	65%
Number and proportion of districts reporting >1 case of neonatal tetanus per 1000 live birth	5 (3%)	4(3%)	13 (9%)
Was there an SIA? (Y/N)	Yes	No	Yes
Neonatal deaths reported and investigated	0	0	42
Delivery at Facility Rate	7%	13%	26%
Measles & Rubella			
Measles / MR vaccination coverage (1st dose)	82%	87%	76%
Measles / MR vaccination coverage (2nd dose)	60%	63%	
Number of lab confirmed measles/rubella outbreaks	1,398	1,618	6,542
Geographic extent National Immunization Day			
Age Group (in months)	0-60	0-60	0-60
Coverage range (by provinces)	92% - 103%	94% - 105%	97% - 106%
Total Measles Cases (Lab/Clinical/epidemiological)	4,134	4,890	23,943
Total Rubella Cases (Lab/Clinical/epidemiological)	83	58	117

Source: Provincial cMYPs

Administrative Polio coverage was stable in last three years at the level of 88-89%. PDHS 2012-13 found OPV3 coverage 85.3, however it reflects overall coverage irrespective of vaccination mechanism (routine or SIAs). According to provinces, Polio SIA coverage varied between 93-98% and 78 rounds were conducted in 2012. Breakdown of Polio SIA rounds by provinces and years are presented in Figure 22 above.

Figure 22: Number of Polio SIA round by provinces and years

Provinces	2010	2011	2012
AJK	4	4	4
BAL	10	11	11
FAT	11	8	16
GB	4	4	4
ICT	9	10	8
KP	10	11	11
PUN	10	10	8
SIN	10	9	8
CDA	9	10	8
Total	**77**	**77**	**78**

Source: Provincial cMYPs

Approximately 1,800 UC with the population of 9.5 million are considered as polio high risk areas in five federal entities as shown in Figure 23 below. The list of districts with high risk areas is provided in Annex 1 (see Figure 55 on page 80).

According to provincial estimates, TT2+ coverage has increased from 58% in 2010 up to 65% in 2012. However the number and share of districts reporting more than one case of neonatal tetanus per 1000 live birth also increased up to 13 (9%) in 2012.

Administrative coverage of measles (1st dose) was 76% as reported by provinces. Provinces reported in total 6,542 lab confirmed cased of measles, lower than 8,046 cases (for 2012) registered in WHO VPD monitoring system.

Figure 23: Size of target population and number of Polio affected UC by the level of risks and provinces

Risk Level	Target Population	Union Councils
High	**9,513,113**	**1,799**
BAL	1,015,838	162
FAT	836,842	435

Risk Level	Target Population	Union Councils
KP	1,657,412	264
PUN	3,094,109	448
SIN	2,908,912	490
Medium	**13,037,369**	**2,555**
BAL	416,567	150
FAT	124,573	35
KP	1,935,617	345
PUN	6,057,049	1,447
SIN	4,503,563	578
Low	**9,723,608**	**2,534**
BAL	774,034	261
KP	1,334,459	343
PUN	7,244,597	1,858
SIN	370,518	72
Grand Total	**32,274,090**	**6,888**

Source: ENDPOLIO Pakistan website[23]

1.3.3 Analysis of Immunization system performance

The immunization system, once being a vertical public health program managed from Islamabad, today represents a complex set of federal and provincial programs due to the recent devolution of healthcare functions. Therefore, the analysis of the immunization performance in Pakistan takes into account the distribution of competences between federal and provincial immunization programs as described in Figure 24 (below). Most of EPI implementation functions has moved to provincial EPI entities and their performance is analyzed in details in respective provincial cMYPs. The present analysis of immunization system performance focuses on the federal level functions while highlighting some key performance issues at sub-national levels.

Figure 24: Competencies by the immunization system components

Immunization system components	Federal	Provincial
Program Management	• Policy setting (NITAG) • Coordination (NICC) • Representation of the country in front of international agencies • Oversight of EPI implementation (NSC EPI) • Regulation of supply of medicines and commodities (NRA)	• Provide policy inputs on provincial priorities (to NITAG) • Policy adjustments (PITAG) – optional • Coordination (PICC) • Implementation – EPI Cells
Immunization service delivery	• Setting national standards for service delivery (as integral part of policy making)	• Expansion and maintenance of service delivery infrastructure • Oversight of adherence to service delivery standards
Human resource management	• Setting accreditation rules and standards	• Human resource planning • Mobilization of HR • Capacity building of HR
Cost and Financing	• Financing of co-financing commitments (till June 2015) • Establishment of national mechanisms for fulfillment of co-	• Financing of vaccines • Co-financing of GAVI NVS vaccines (after June 2015)

[23] http://endpolio.com.pk/polioin-pakistan/high-risk-areas

Immunization system components	Federal	Provincial
	financing commitments (after June 2014) • Financing vaccines and injection supplies for administrative areas • Financing of Federal level EPI activities • Mobilization of donor financings • Oversight of the implementation of provincial financial sustainability strategies	• Development and implementation of financial sustainability strategies
Vaccine, cold chain and logistics	• Procurement of vaccines and injection supplies • Procurement of cold chain • Establishment and maintenance of emergency vaccine stock	• Supply and storage of vaccines and injection supplies • Implementation of effective vaccine management • Implementation of vaccine safety policies
Surveillance and reporting	• Coordination ,Information collection and sharing • Provision of guidelines and SOPs • Consolidation of national reports	• Implementation of surveillance and data collection policies • Generation of provincial reports
Demand generation, communication and advocacy	• Organizing/conducting national KAP surveys (with partners) • Development and endorsement of national communication strategies (and guidelines) • Advocacy	• Implementation of communication strategies (including local context specific components developed by provinces) • Organizing targeted KAP surveys (as needed) • Advocacy

Roles and responsibilities of Federal and provincial levels in immunization system

After 18th amendment, health is a devolved subject. The policy to distribute roles and responsibilities of EPI in post devolution environment between federal and provincial tiers is still under discussion. According to the amendment, most of EPI implementation functions have been assigned to provinces including procurement of vaccines. However, under a provisional arrangement, it was agreed between Federation and Provinces that vaccine will be procured at the federal level until 2015 when the current NFC award expires.

CMYP 2014-18 is a living document that is being developed using a bottom up and partnership approach ensuring consultation and consensus of all stakeholders on comprehensive planning for immunization in the country. The process of cMYP review and regularly updating it is the mandate of Ministry of National Health Services, Regulation and Coordination through its technical team, Federal EPI cell and with advice of partners. In this regard, MoNHSR&C with technical assistance of key partners has updated the existing cMYP 2016-20. The current cMYP 2016-20 will be supplemented with a comprehensive accountability framework that defines the role and responsibilities of three tiers of immunization system i.e. Federal, provincial and district as well as technical and financial support of

the development partners. The framework will address monitoring, feedback and remedial actions with specific timeline, responsibility of who will do what and resources required to carry out the monitoring.

Federal level (through Federal EPI cell under the Ministry of National Health Services, Regulation and Coordination)

Governance, coordination, resource mobilization and technical advice/support

The federal role in immunization is related to governance, coordination, regulation and providing technical advice and support to the provinces.

Federal EPI cell shall report to the Ministry (National Health Services, Regulation and Coordination) every month on implementation of its activities including coordination with provinces/partners, procurements, monitoring of provincial and regional immunization programs, Federal store supplies and stock levels, immunization campaigns, major meetings, adverse events and reports that the Cell submits to donors/partners . The report shall be prepared and submitted to the Secretary of the Ministry through the office of Director General.

- Under the guidance of Ministry, Federal EPI cell shall act as the secretariat of National Immunization Technical Advisory Group (NITAG), Interagency coordination committee (ICC) and National Steering committee for EPI (NSC). As secretariat, the cell will be responsible to convene meetings of these bodies, set agenda and prepare policy drafts, minute the discussion, disseminate decisions and follow up on actions agreed. Through these bodies, current draft policy of immunization should be finalized and agreed with provinces.

- NITAG as an independent body guides policy makers in the Ministry/Federal EPI cell to make evidence based immunization related policy decision for routine immunization activities and for national emergencies. ICC coordinates support received at national level from government and partner agencies to strengthen EPI. It is also responsible for endorsement of annual progress reports, new financing applications to GAVI and monitor expenditure of disbursed funds. National Steering committee for EPI oversees the progress and implementation of EPI (both at federal and provincial levels) as per the national policy guidelines and ICC recommendations

- Federal EPI cell shall work with concerned Ministries/divisions to ensure financing of co-financing commitments until June 2015 as previously agreed with the provinces. At the same time, the cell shall work closely with relevant Ministries/divisions and provincial programs to define a mechanism for fulfilment of co-financing commitments for post June 2015 scenario when provinces will be required to procure vaccines on their own

- Shall continue to procure vaccines and injection supplies, cold chain and maintenance of emergency stock of vaccines until June 2015 as agreed with provinces. For the purpose it should mobilize resources both from domestic and international resources such as Federal Government and donors such as GAVI

- Shall finance vaccines and injection supplies for administrative areas. For this purpose the cell should proactively work with donors to mobilize funds to finance these activities in addition to others

- Shall develop and create consensus on SoPs, ToRs and guidelines related to immunization (e.g. service delivery, cold chain) in close coordination with provinces and partners. The cell should also define and devise monitoring framework, accountability mechanisms for immunization programs, in close coordination with provinces and partners

- For surveillance, and reporting, Federal EPI cell shall create coordination mechanism among provinces and administrative regions, collect timely information, analyse develop feedback and share with concerned departments, provinces and partners. It should also collect, synthesize

reports from provinces and regions and develop annual reports on immunization e.g. annual progress reports (for GAVI) and joint reporting form (JRF)

- Shall conduct research, organize national level surveys or provide technical advice to provinces to conduct similar research. It should also devise communication and demand creation strategies, in close coordination with provinces and partners

- Shall develop and maintain liaison with international and national partners for resource mobilization and technical assistance to immunization program at Federal and provincial/regional levels
- Shall develop accountability and feedback framework involving national, provincial and district levels of immunization system as well as partners such as WHO, UNICEF. The Federal EPI cell shall also develop implementation and periodic reporting mechanism (to the Ministry and stakeholders) of such a framework.

Provincial level (through Provincial/regional EPI program under the Department of Health)

Programme management, service delivery, resource mobilization, surveillance and demand creation

- Under the supervision of Department of health, Provincial/regional EPI program should provide policy inputs to the national immunization policy, convey and include provincial priorities in discussions and decisions of NITAG, ICC and NSC. Provincial programs should develop, host and facilitate functioning of provincial ICC
- Provincial EPI program should maintain and expand current infrastructure of EPI service delivery including fixed centres, outreach and mobile services and ensure adherence to standards set in national policy
- Should mobilize domestic resources from provincial government for financing of vaccines and injection supplies
- Should work closely with Federal EPI cell on creating a mechanism to ensure financing of vaccines and injection supplies after June 2015
- Should plan for human resources for EPI, mobilize these resources, and regularly build their capacity
- Should supply, store vaccines and supplies to district level and ensure effective compliance to vaccine management practices and safety policy
- Should implement surveillance and reporting guidelines as provided by the Federal EPI cell, collect data from districts, generate reports at the provincial levels and provide inputs to national level reporting
- Should implement or develop context specific communication and demand generation strategies in line with national policies and conduct advocacy for generating political commitment and mobilization of resources.

Summary of immunization system performance

The overall performance of the national immunization system is summarized by system components in Figure 25 below and details are discussed in respective sub-sections.

Figure 25: Situational analysis of routine EPI by immunization system components

Indicators	2010	2011	2012
Program management			
1. Law & Regulation			
1.1 Is there legislation or other administrative order establishing a line item for vaccines?	Yes	Yes	Yes
1.2 Is the line item for vaccines in regular / recurrent Budget	No	No	No

Indicators	2010	2011	2012
1.3 Are regulations revised in the province to implement national or provincial policies?	No	No	No
2. Planning			
2.1 Does the country/Province have an annual work plan for immunization funded through Health Authorities budgeting processes?	No	No	No
2.2 What is the number and proportion of UC with an annual micro-plan for immunization?		5,483 (78%)	5,494 (78%)
2.3 Number of planned supervision visits conducted vs. the number of planed visits	No data	No Data	No Data
3. Coordination and advocacy			
3.1 What were the Number of ICC (or equivalent) meetings held last year at which routine immunization was discussed (at the federal level) ?		3	2
3.2 What were the Number of NITAG (or equivalent) meetings held last year?		1	3
3.3 How many presentations on immunization performance, expenditures, were made to Parliament?			1
Human Resource Management			
4. Availability of qualified workforce:			
4.1 Number of healthcare skilled immunization staff per 10,000 population			1.52
4.2 % of vaccinator posts currently vacant			2.1%
4.3 Turnover rate of SIS (or vaccinators specifically)			<1%
5. Capacity building			
5.1 Number (and proportion) of immunization program staff trained in immunization services through MLM, IIP or other training modalities per year:			
a) Mid-wives and LHS	1,919	0	8,050
b) Nurses	0	0	0
c) Other Skilled immunization staff (vaccinators)	75	65	189
d) Managers	0	0	0
e) Technicians	0	0	51
f) Other	0	0	5,106
5.2 % of immunization health workers Refreshing trained in immunization in the last two years (data from PIE and EPI reviews)	75 0.3%	65 0.3%	1,253 5.0%
5.3 Curriculum review for pre-service medical and nursing immunization education conducted			No
Costing and financing			
6. Financial sustainability			
6.1 What percentage of total routine vaccine spending was financed using government funds? (including loans and excluding external public financing)			
6.2 What proportion of the line item in the provincial budget for immunization was actually funded (actually allocated / planned)?			
6.3 What % of immunization resources are being met by the domestic health budget (as identified in the annual budget plan)			
6.4 Government expenditures on routine immunization per surviving infant			
6.5 Are provincial immunization budgets and expenditures monitored and reported at national level?			
Vaccine supply, quality and logistics			
7. Transport / Mobility			
7.1 Percentage of districts with a sufficient number of supervisory/EPI field activity vehicles /motorbikes/bicycles (based on their need) in working condition			51% (75)
7.2 Number of UC with vaccinators using transportation means for outreach			5,060
8. Vaccine supply			

Indicators	2010	2011	2012
8.1 Was there a stock-out of any antigen at provincial or district level during 2012?			Yes
8.2 If yes, specify duration in months			1-2
8.3 If yes, specify which antigen(s)			OPV
9. Cold chain / logistics			
9.1 Number of UC with adequate numbers of appropriate and functional cold chain equipment vs. Number of UC with functioning health facilities			5,684
a) With ILR			4,892
b) With any kind of refrigerators			792
9.2 Availability of a cold chain replacement plan			No
10. Waste disposal			
10.1 Availability of a waste management policy (guidelines/SOP)			Yes
10.2 Number of districts implementing waste management policy			All
Immunization services			
11. Geographical access:			
11.1 Number of population per each EPI fixed sites			25,294
11.2 Proportion of area covered by immunization service to the total populated area			55%-91%
11.3 Proportion of UC not having EPI centers			13%
11.4 Proportion of UC not having Skilled Immunization Staff (SIS)			7%
12. Efficiency of service delivery			
12.1 Share of immunization services delivered by EPI centers			20%-100%
12.2 Average time EPI Centers provide immunization service per day			6
Surveillance and Reporting			
13. Routine Surveillance			
13.1 Percentage of integrated VPD surveillance reports received at provincial level from districts compared to number of reports expected:			
a) Timeliness			30-64%
b) Completeness			31-100%
13.2 AFP detection rate/100,000 population under 15 year of age			2.1-7.0
13.3 % suspected measles cases for which a laboratory test was conducted			11%-34%
13.4 Number of neonatal deaths for which a follow up investigation was conducted			0-7
13.5 Sentinel Surveillance for Rotavirus established			PUN and SIN
13.6 Sentinel Surveillance for meningitis (Hib/PCV) established			SIN
13.7 % of suspected meningitis cases tested for Hib/pneumococcal disease according to standard protocol			0
14. Coverage monitoring			
14.1 % gap in match between DTP3 survey coverage and officially reported figures			1%-54%
15. Immunization safety			
15.1 % of districts (or UC?) that have been supplied with adequate (equal or more) number of AD syringes for all routine immunizations			100%
16. Adverse Events			
16.1 National AEFI System is Active with a designated national/provincial committee			No
16.2 Number of serious AEFI cases reported and investigated			No

Indicators	2010	2011	2012
Demand Generation and Communization			
17. Communization strategy			
17.1 Availability of a routine immunization communication plan	No	No	No
17.2 KAP Study conducted in relation to immunization	No	No	No
18. Evidence based communication			
18.1 % of government funds on demand generation / communication: EPI and PEI	0%	0%	0%
a) EPI (without PEI)	0%	0%	0%
b) PEI	0%	0%	0%

Source: Provincial cMYPs

(1) Program Management

Vaccine related line item was only in development budget (not in regular one) at the Federal level and has never budgeted by provinces before the devolution as far as it was traditionally financed by the federal authorities as one of vertical national public health programs. As of now, there had been no legislative or other administrative order establishing a line item of vaccine except KP. All provinces and regions have approved PC-1s where vaccines have been budgeted.

Figure 26: Number and proportion of UC with annual micro-plans for immunization

Provinces	2011	2012
AJK	0 (0%)	0 (0%)
BAL	0 (0%)	0 (0%)
CDA	0 (0%)	0 (0%)
FAT	0 (0%)	0 (0%)
GB	33 (30%)	44 (40%)
ICT	0 (0%)	0 (0%)
KP	1,040 (100%)	1,040 (100%)
PUN	3,520 (100%)	3,520 (100%)
SIN	890 (79%)	890 (79%)
Pakistan	**5,483 (78%)**	**5,494 (78%)**

Source: Provincial cMYPs

A national immunization policy document is available which needs revisions in view of introduction of new vaccines etc.

Only 78% UC's in Pakistan had micro-plans for immunization in 2012 (that is 5,494 out of 7,047 UCs). Even if all 3,520 UCs in Punjab had micro-plans they were not implemented properly. Distribution of UCs with micro-plans for immunization by provinces and years is shown in Figure 26 above.

There was no reliable data on the number of planned supervision visits conducted in provinces (that indicates itself on the capacity problems at the provincial level).

National Interagency Coordination Committee (NICC) met three times in 2011 and two times in 2012 and 2013. NITAG met once in 2011, three times in 2012 and two times in 2013.

Governance and administration of the national immunization program at the Federal level is carried by the following entities (see):

- National Interagency Coordination Committee (NICC)
- National Steering Committee for EPI (NSC EPI)
- National Immunization Technical Advisory Group (NITAG)
- Project Implementation Coordination Committee (PICC)
- Federal EPI Cell
- National Vaccine Logistic and Management Committee
- National AEFI Management Committee
- ACSM Coordination Committee (under process)

Purpose, composition and operation of some of these entities is described in Annex 4 (on page 97). There is some overlap of functions and responsibilities between the governance entities (except NITAG).

Establishment of an inter-provincial coordination committee has been envisaged since the devolution in order to formalize an interface of interaction between provincial and federal EPI teams. The county considers the feasibility of integration of inter-provincial coordination function into existing entities (e.g. NICC) instead of establishing one more stand-alone body (see Figure 65 on page 86).

National efforts for polio eradication under NEAP are governed and implemented by two entities:

- The Prime Minister's National Task Force
- Prime Minister's Polio Monitoring and Coordination Cell

- The National Steering Committee for Polio
- Provincial Vaccine Management Committees
- Provincial Task Force / Steering Committees for Polio
- EPI/PEI Synergy Task Force

The National Immunization Program Manager serves as Manager of National Immunization Programme However national EOC Coordinator coordinates PEI activities. (see Figure 66 on page 87). Administrative or functional interaction between federal and provincial levels differ for EPI and PEI:

- Governance of non-polio related immunization programs gets fully decentralized:
  - Provincial EPI teams exercise a high level of autonomy and can transfer voluntarily some provincial tasks to the Federal EPI cell based on arguments of efficiency and effectiveness (e.g. pooled procurement of vaccines and injection supplies);
  - the Federal EPI cell cannot give policy directives to provincial EPI teams and can exercise its authority through "soft methods" such as regulation (laying down policy rules and supervising adherence provinces to them) and coordination (exchange of opinions, experience sharing and streamlining communication with traditional EPI partners)
  - Provincial EPI teams have no direct administrative power on EPI related technical or medical staff at sub-provincial levels: EPI coordinators wherever available subordinate to DHOs and vaccinators (as well as other SIS) are accountable to respective healthcare/facility administrators
- Governance and administration of PEI remains relatively centralized:
  - Despite intensive involvement of sub-national level stakeholders in the organization of PEI efforts on the ground (through provincial task teams or steering committees and DPEC/UPEC), managerial and technical personnel at the ground level are directly accountable to the PEI federal team and are paid from the federal budget of the NEAP (using DDM)
  - Operational and financial planning (budgeting) of NEAP implementation is done at the federal level, although district health systems are responsible for the implementation and existing EPI provincial infrastructure support the program implementation

The Federal EPI was established in 1978 and is still based in NIH premises having offices in different blocks and cold rooms in 11 places which were difficult for the programme to manage on both sides. In order to address these problems, a plan for constructing office accommodation and warehouses at a cost of Rs. 397.196 million was incorporated in the previous PC1. Out of which, Rs. 372.000 million has been utilized by the Pakistan Works Department in constructing Office Blocks and Warehouses.

(2) Immunization Services Delivery

Immunization services are delivered by 6,979 EPI Centers and average population served by an EPI Center amounts to 25,300 (see details in Figure 63 on page 85).

Approximately 915 UCs throughout the country did not have EPI Centers (or 13% of all UCs) and 489 UCs are not staffed with SIS (or 7% of all UCs).

Immunization services are delivered via fixed cites and outreach/mobile approaches: contribution of fixed delivery sites to the immunization service delivery varied between 20%-25% (in Punjab and Balochistan) to almost 100% in Sindh. No data was available for CDA, GB and ICT.

EPI Centers provided immunization services 6 hours per day in average in all provinces (except KP where average time amounted to 8 hours per day).

(3) Human Resource Management

Almost all existing vaccinator posts are filled: only 2.1% of posts were vacant in 2012 (20% in CDA, 12% in ICT and 9% in Punjab); staff turnover is negligible.

In average, the ratio of vaccinators and all SIS per 10,000 population amounted to 0.58 and 1.52 respectively in 2012 (see Figure 56 on page 81). The highest ratio was observed in Balochistan (1.46 and 2.34 respectively) while the lowest – in CDA (0.13 and 0.58 respectively).

According to provincial cMYPs, existing vaccinator posts constituted 72% of their requirement (as shown in Figure 8 on page 12). However, more detailed analysis of the workload of skilled immunization staff (SIS) expressed in full time equivalents (FTE) by staff categories and profile of workload (PEI and non-polio related EPI activities) revealed 45% shortage of SIS for EPI as shown in Figure 27 below:

Figure 27: Availability and workload of skilled immunization staff (2012)

Accredited EPI Service Providers	Posts occupied (in FTE)	Share of Total Operation Time allocated to Immunization	Share of immunization time spent on PEI	FTE spent on PEI	Available (FTE) for EPI	**Total FTE spent on immune-zation**
Vaccinators	10,159	100.00%	33.30%	3,383	**6,776**	**10,159**
Nurses[24]	7,413	0.00%		0	**0**	**0**
Dispensers	9,877	2.64%	55.94%	146	**115**	**261**
Lady Health Visitors (LHVs)	7,660	13.79%	16.10%	170	**886**	**1,056**
Medical Technicians (MT)	8,639	12.68%	59.00%	646	**449**	**1,095**
Female Medical Technicians	281	1.78%	40.00%	2	**3**	**5**
Mid-wives	6,903	8.49%	0.00%	0	**586**	**586**
Lady Health Workers (LHWs)	80,345	15.04%	48.23%	5,828	**6,255**	**12,083**
Other	10,033	15.28%	19.63%	301	**1,232**	**1,533**
				10,476	**16,302**	**26,778**
				39%	**61%**	**100%**

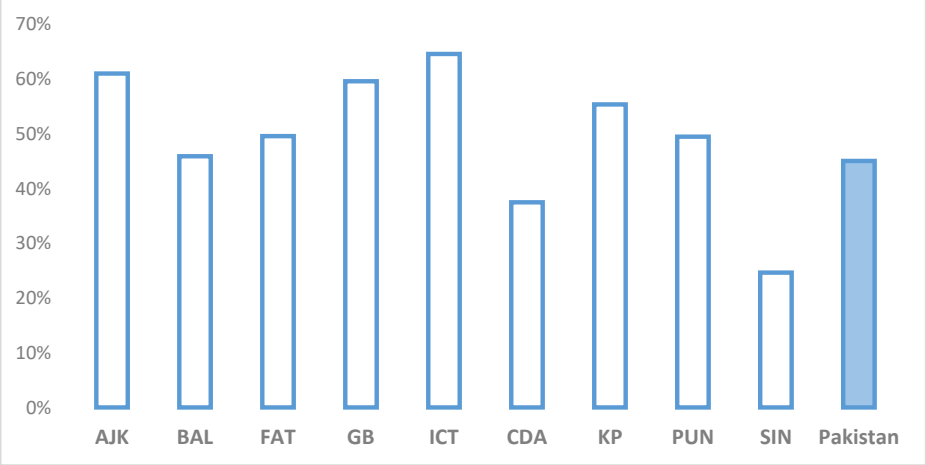
Total FTE available for EPI (except PEI)	**16,302**
Total FTE Needed for EPI (except PEI)	**29,594**
Deficit	**13,292**
	45%

Vaccinators constituted more than 90% of SIS in AJK, Balochistan, FATA, GB and ICT (as shown Figure 57 on page 81). LHWs prevailed in KP (1,200 vs. 576 vaccinators) and played significant role in Punjab Sindh (45% and 30% of the immunization workforce respectively).

ICT, GB and AJK experience the highest shortage of SIS (60% and above) as shown in Figure 28 below:

[24] The number of posts occupied (in FTE) for nurses and LHWs differ from previous estimates of healthcare service delivery capacity (in Figure 9); these figures have been used for the calculation of the HR gap

Figure 28: Staffing gap (SIS) by provinces



Source: Provincial cMYPs

In average, approximately 39% of time of the available SIS (and 33% of the available vaccinators) is spent on PEI related activities nationwide (as shown in Figure 58 on page 82): occupation of SIS by PEI related duties was the highest in KP and Balochistan (63% and 59%) and the lowest in Sindh (19%) among polio affected provinces.

(4) Costing and Financing

See section 4 “Immunization Program Costing and Financing” (on page 65).

(5) Vaccine, Cold Chain and Logistics

75 out of 147 districts (51%) had sufficient number of supervisory or EPI field activity transport in working conditions in 2012, while vaccinators use transportation means for outreach in 5,060 (72%) of UC (see details by provinces in Figure 62 on page 85). The number of UC with adequate number of appropriate and functional cold chain equipment amounted to 5,684 (or 81% of all UCs), out of which ILR was available in 4,892 UCs.

Most of provinces experienced 1 or 2 month stock out of Polio in 2012. Waste management policies were available and implemented in almost all districts.

Vaccines and injection supplies shipped to Pakistan are delivered to a Federal EPI warehouse. There are 27 walk-in cold rooms in the warehouse.

Federal EPI cell contracts transportation services to deliver a) all commodities after custom clearance to the warehouse, and b) polio vaccines for Polio SIA to selected districts/provinces. Transportation of the rest of vaccines and injection supplies from the federal warehouse is managed by provinces.

Effective vaccine and stock management

- With WHO assistance the federal EPI has made an inventory and computerized all its vaccine and logistics management system in the federal store using standard software.
- In absence of an efficient vaccine forecasting system certain vaccines goes stock-out on some occasions and sometimes excess vaccine comes under threat of expiry.
- No proper maintenance service available for the expensive cold chain equipment.
- The system of repair and maintenance of cold chain is ad-hoc.
- EPI doesn’t have its own mechanical workshop at any level.

- Similarly the programme is lacking or inadequate availability of skilled manpower to repair these costly equipments when goes out of service.
- Transport for EPI field supervision activities is still lacking in parts of the country
- Supervision of district and health posts in cold chain management is still unsatisfactory and there are no guidelines or written operational procedure

Cold chain inventory

National Steering Committee endorsed building a national cold chain inventory data based on recommendations of an international mission on vaccine management in 2012. upon request of government of Pakistan and in response to mission's recommendation the Vaccine Management team Pakistan Country Office (PCO), UNICEF, under the overall guidance of Polio Team Lead, took initiative to develop a computer based cold chain inventory dataset for the country.

This Cold chain inventory system is developed by utilizing Cold Chain Equipment Manager (CCEM)[25]. Data for cold chain inventory was gathered from 2076 immunization centers and vaccines stored and was entered into CCEM 2.0 Pakistan version).

This cold chain database will be incorporated into Vaccine Logistic Management Information System (vLMIS) as discussed below and will give a real time picture on the current status of cold chain equipment in polio high-risk districts of Pakistan.

Vaccine Logistics Management Information System

Delivery project financed by USAID and implemented by John Snow, Incorporated has been introducing an integrated logistics management information system for health commodities covering areas of family planning, tuberculosis and immunization.

Vaccine logistics management information system (vLMIS) is expected to improve substantially vaccine supply and stock management via:

- Enabling EPI teams at all levels to assess real time data to ensure that vaccines and cold chain equipment are always available in sufficient quantities at the service delivery points to meet and-user needs;
- Bringing down wastage of vaccines and cold chain equipment
- Enabling policy/decision makers to take evidence based decisions with regard to forecasting, quantification, financing and procurement planning.

vLMIS is expected to turn EPI/PEI logistics from Push to Pull system with a visibility across EPI and Polio supply chain. Existing CCEM, VSSM and SDMS functions will be put together on one Government's platform (see http://lmis.gov.pk).

VLMIS software was developed and tested in November 2013 (Release 1). More functional versions of the software (with 5 functional/user modules and SMS reporting capabilities) will be released in 2014.

The project identified 54 vLMIS priority districts in consultation with the government and partners. The government together with WHO and Unicef nominated 50 officials as Trainers that underwent 3

[25] Microsoft Access based software developed by PATH in collaboration with USAID, UNICEF & WHO for strategic management, planning and forecasting cold chain equipment needs of the country

rounds of training of trainers (ToT) in 2013. In addition, province specific rollout training plans have been developed for training of >900 federal, provincial, district and UC levels officials (5 Provinces/FATA + 54 districts + 423 Lead UCs) on WMS and Vaccine Data Entry in the 1st half of 2014. Orientation of 555 federal, provincial, district and UC levels managers on vLMIS in 2014 is part of the plan. There is an intention to extend vLMIS coverage to remaining 97 districts (in 2014-2015).

(6) Surveillance and Reporting

In Pakistan, AFP surveillance began in 1997, but was given focused attention in 2000:

- National surveillance reporting started in Pakistan in 1995. Virological classification of cases has been adopted in Pakistan since 2000. Since 1999, the rate of non-polio acute flaccid paralysis below the age of 15 years has exceeded 2 per 100 000 with more than 80% adequate collection of stool samples.
- Supplementary surveillance was introduced in 2009 and samples are collected regularly from all the big cities of the provinces: Punjab (Lahore, Rawalpindi, Multan), Sindh (Karachi), Balochistan (Quetta), Khyber Pakhtunkhwa (Peshawar).

As confirmed by international reviews, Pakistan has a well-functioning and sensitive AFP surveillance system at national, provincial, and district levels. The system has achieved and maintained all indicators above the internationally agreed standards for certification since 2001.

AFP Surveillance is conducted through passive (Zero Reporting) and active (Active Surveillance) mechanisms. The system operates as per defined standard operating procedures with set timelines quality monitoring indicators. AFP detection rate varied from 1.96 to 7.5 by provinces in 2012 as shown in Figure 29 below:

Figure 29: AFP detection rate/100,000 population under 15 year of age by provinces and years

	2010	2011	2012
AJK	2.40	3.00	2.30
BAL	7.20	7.40	5.10
CDA		1.80	2.40
FAT	1.15	1.75	1.96
GB	4.40	5.50	4.40
ICT			6.30
KP			7.50
PUN	5.74	6.47	5.77
SIN	8.40	8.10	7.00

Source: Provincial cMYPs

The best available method to confirm the diagnosis of poliomyelitis is the isolation and identification of poliovirus from the stool. The World Health Organization (WHO) has developed a global network of laboratories to provide this service in collaboration with several other institutions. The virology laboratory at NIH Islamabad is the Regional Reference Laboratory (RRL) for polio eradication and continues to demonstrate very high standards of quality control and meeting the international targets for accuracy. The RRL will also play a key role in certification of polio eradication by verifying the absence of wild poliovirus circulation.

EPI Pakistan with the assistance of WHO has also established sentinel sites at tertiary care hospitals level to see the status of those diseases against them new vaccines will be included in the vaccination schedule. Sentinel surveillance for Rotavirus operates in Punjab and Sindh (Karachi), and sentinel Surveillance for meningitis (Hib/PCV) was established in Sindh.

The health management information system (HMIS) and or district health information system (DHIS) still appears to provide less representative data on EPI-related diseases and indicators than the routine

EPI reporting system. Coordination between the two systems is still limited. Gap in match between DTP3 survey coverage and officially reported figures varies between 1% to 54% across provinces (see Figure 64 on page 85) and amounted to 30 per cent points in 2012 (89% vs. 69%) as discussed in detail in section 1.3.1(1) "Immunization coverage trends" (on page 16).

National AEFI system is not active in provinces and no serious AEFI cases have been reported and investigated.

Timeliness and completeness of integrated VPD surveillance reports received at provincial level from districts varied across provinces from 30-64% and 31-100% respectively as shown in Figure 64 (on page 85).

All districts have been supplied with adequate number of AD syringes for routine immunization.

(7) Demand Generation, Communication and Advocacy

UNICEF carried out two barrier studies in 2004 and 2009 to assess the barriers to immunization services. In the context of devolution, UNICEF Health section is currently undertaking a Knowledge Attitude, Practice and Behaviour (KAPB) study to assess the key drivers of inequities in immunization and barriers to access immunization. The findings of this KAPB will inform the national communication strategy with costed provincial chapters with the technical support of UNICEF. The Polio specific communications and social mobilization activities supported by UNICEF in Pakistan were focused on ensuring the development of locally appropriate activities to address challenges unique to high risk areas in the WPV transmission zones of Balochistan, the North West Frontier and Sindh. District communication officers were deployed in the high risk districts in 2007 to support the development of appropriate strategies, including activities to address refusals, highly mobile populations and accessibility in security compromised areas.

UNICEF conducted a sociological (KAP) study in Balochistan and FATA in 2007 showed high awareness of polio diseases and vaccine availability throughout communities. Similar evidence on other VPDs and vaccination is not available.

For communication and community engagement; UNICEF Country Office has already initiated the process of converging Polio and EPI with the development of Integrated Advocacy, Social mobilization and Communication Strategic plan for Routine immunization including Polio and new vaccines (PCV-10). The strategic plan has behavior change communication strategy with clearly set behavioral objectives, key messages around routine immunization including polio and target audience specified at primary, secondary and tertiary level. Moreover, during the next six months, in the selected districts, the Polio COMNet staff shall be oriented on the integration of messages around Polio and routine immunization with the distribution of the pictorial, easy-to-use information, education, and communication material which could be integrated into their existing toolkits.

1.4 Summary – SWOT

Strength	Weaknesses
• Federal ○ Program management systems in place ○ Federal and Provincial Roles and responsibilities agreed ○ Effective coordination through various committees ○ Functional and sufficient cold chain system ○ Pool procurement of vaccines in place ○ National EPI policy in place ○ Effective procurement and supply system of vaccines and injection supplies ○ Commitment of the Federal and Provincial Government to finance vaccines (including co-financing) till June 2020 ○ Well-functioning and sensitive VPD and AFP surveillance system ○ Effective cooperation with in-country partners and international agencies and CSOs ○ EVM Improvement plans exist and under implementation ○ Data quality improvement plans being implemented ○ Sufficient funding of immunization ○ CCEOP developed and being implemented • Provincial ○ Low turnover of vaccinators.70% of vaccinators are working full time for routine immunization. ○ Stable supply of vaccines and injection supplies ○ Cold chain inventory database is available and regularly updated and informs decision-makers ○ Functional vLMIS in place in all districts ○ Functional AFP surveillance (Sindh, Punjab, KP) ○ Functional DHIS/VPD reporting systems (Balochistan, KP, Sindh, AJK)	• Federal: ○ Sub optimal use of resources due to weak integration of PEI and routine immunization infrastructure and operation ○ Inadequate staffing of the Federal EPI Cell (refer to strategic reviews) ○ AEFI policy is partially implemented • Provincial ○ Insufficient number of fixed EPI Centers ○ Substantial shortage of skilled immunization staff for routine immunization ○ Overburdened and demotivated EPI staff ○ UC micro plans not fully implemented in some provinces ○ Limited mobility support for vaccinators ○ Quality gaps in outreach services ○ Poor vaccine management at UC level /outreach ○ Weak capacity for vaccine forecasting and procurement and financial management ○ Understaffed Provincial EPI Cells and no dedicated EPI managers or technical EPI staff at sub-provincial levels ○ Lack of community awareness of the importance and benefits of immunization
Opportunities	**Threats**
• Federal: ○ Governments commitment to the attainment of the health related SDGs • Provincial: ○ Strong support of development partners ○ Availability of health field staff to be involved in immunization ○ Public-private partnerships and CSOs for service delivery, community mobilization and reporting Interest or involvement of political leadership in immunization	• Federal: ○ Sensitization of top management regarding fulfillment of co-financing obligation ○ Low and stagnant tax-to-GDP ratio, as the major impediment to a stable macro-economy • Provincial: ○ Security, poor law and order issues I some areas ○ Natural disasters ○ Increase in urban population ○ Illiteracy ○ Poverty ○ Political interference in staffing ○ Social and cultural barriers

2 Immunization objectives and strategies

2.1 Program objectives and milestones

Goal of the immunization program in Pakistan is to decrease VPD associated morbidity and mortality:

- Measles: Reduction of measles morbidity and mortality by 50% compared to the 2012 level.
- Polio: Interruption of transmission of indigenous wild Poliovirus by the end of 2015 and certification of a Polio Free Pakistan by the end of 2020
- Tetanus: Elimination of Neonatal Tetanus and maintain the elimination status till 2020.

	Cases of measles per 1 million population		**Cases of Polio**		**Cases of Tetanus** per 100,000 newborns	
	From	To by 2020	From	To by 2020	From	To by 2020
Punjab	34	20	2	0	0.8	0.5
Sindh	218	55	4	0	1.8	0.5
Balochistan	225	110	4	0	0.6	0.3
KP	488	150		0	1.0	0.5
AJK		<5		0		<1
CDA		<5		0		<1
FATA		<5	20	0		<1
GB		<5	1	0		<1
ICT		<5	0	0		<1

The objective of the national immunization program is to improve performance of the immunization system that is measured in terms of coverage and equity as listed below:

Indicators	**2012**	**2016**	**2017**	**2018**	**2019**	**2020**
1. Increase DTP3 coverage	64%	77%	81%	85%	89%	90%
2. Increase Measles 1 coverage	61%	72%	76%	79%	87%	90%
3. Increase the proportion of population protected at birth from neonatal tetanus	64%	65%	67%	70%	74%	77%
4. Increase OPV3 coverage	83%	77%	81%	85%	89%	91%
5. Increase PCV coverage	0%	77%	81%	85%	89%	90%
6. Increase IPV coverage	0%	50%	61%	72%	88%	90%
7. Increase Rota Coverage	0%	33%	54%	64%	87%	90%
8. Increase Hepatitis (birth dose) coverage	0%	49%	58%	69%	25%	28%
9. MR	0%				5%	90%
10. TCV	0%				19%	81%
11. Improve geographical equity - % of districts that have at or above 80% DTP3 coverage	20%	32%	41%	52%	62%	75%
12. Improve socio-economic equity[26],[27]	47%	40%	35%	30%	25%	20%
13. Decrease drop-out rate - percentage point difference between DTP1 and DTP3 coverage	18%	12%	11%	10%	9%	8%
14. Increased demand - % of children whose mothers intend to vaccinate children	TBD					TBD

Immunization system outcome targets (by provinces) are presented in Figure 67 on page 95.

[26] DTP3 coverage in the lowest wealth quintile is +/- X % points of the coverage in the highest wealth quintile
[27] PDHS 2012-13 figure was selected as baseline, that is slightly higher than PSLM 2011-12 finding (41 per centile point)

2.2 Strategies and main activities

2.2.1 Program Management

The objective of the immunization system component is to increase program management performance at federal, provincial and sub-provincial levels. It means that by 2020:

- Federal level:
  - Immunization program governance is streamlined
  - Federal EPI Cell structure, staffing and operation is optimized
- Provincial level:
  - Immunization program planning is integrated into provincial budgeting, namely:
    - EPI annual plans are developed and consistent with the provincial cMYP
    - PC1 are adjusted as needed and aligned with the EPI annual plans
  - Implementation annual progress reports are produced and discussed with key stakeholders regularly
  - The provincial cMYP is updated regularly reflecting either changes in the context (epidemiological, vaccine availability, etc.), resource availability or immunization system outcomes (achievements)
  - The turnover of EPI key managerial staff decreases
  - Coordination or interaction with EPI partners (donors, private entities and non-governmental organizations) increases (e.g. partners engage in decision-making (e.g. planning, assessment of achievements or challenges) regularly, as documented in meeting minutes)

Strategies and activities to achieve the component objective are as follows:

ISC Objective 1: **Increase program management performance**

Strategy 1.1 Streamline management processes (both at federal and provincial levels):

Activity 1.1.1 Review and develop effective and efficient management structure and procedures

(1)Revise job descriptions

(2)Revise or introduce new standard operating procedures and guidelines (VPD surveillance and AEFI)

(3)Revise or introduce new reporting mechanisms

(4)ISO certification for managerial processes

Activity 1.1.2 Carry out regular supportive supervision visits including following up results/recommendations of the previous visits

Activity 1.1.3 Assess competencies of key EPI management staff on a regular basis

(1)Develop assessment criteria/methodology

(2)Adjust regulations (introducing competency assessment as a mandatory procedure)

(3)Carry out assessments

(4)Assess identified HR gaps

Activity 1.1.4 Mobile Technical support as needed (e.g. for Annual Plan development, APR/JA development, urban immunization initiative, CCT,CSO engagement, cMYP revision)

Strategy 1.2 Management staff capacity building and motivation growth (see corresponding strategy under HR management component)

Strategy 1.3 Advocacy and partnership building (both at federal and provincial levels)

Activity 1.3.1 Produce regularly policy briefs/advocacy materials to share with high level officials

Activity 1.3.2 Attend high level meetings and present immunization program achievements, challenges and solutions

Activity 1.3.3 Organize consultations meetings with EPI partners and follow up implementation of decisions and actions agreed in the past

Activity 1.3.4 Explore possibility of engagement private sectors and CSOs in the implementation of the immunization program and make corresponding arrangements for implementation

Strategy 1.4 Keep National EPI Policy updated (federal level):

Activity 1.4.1 Review and refine the national EPI policy relating to the provision of immunization services to newborn children and pregnant women all over the country

Activity 1.4.2 Revise the EPI policy incorporating newly invented vaccines into EPI immunization schedule from time to time to protect children and pregnant women against VPD based on global, regional or country specific evidence

Strategy 1.5 Strengthen oversight by integrating PEI oversight structures into EPI performance monitoring (at federal level):

Activity 1.5.1 Develop a detailed integrated action plan (with resource allocation time-bound milestones and responsible entities) for the harmonization of PEI and routine immunization operation

Activity 1.5.2 For routine immunization see Activity 6.4.3 (on page 50)

Activity 1.5.3 Use Polio oversight mechanisms (at national, provincial, district and UC levels) for SIA (e.g. integrated Polio-Measles SIA)

Strategy 1.6 Increase effectiveness of the cooperation with and credibility of the country in front of international partner and donor community (at the federal level) see Strategy 3.1 (on page 43) under component "Costing and Financing"

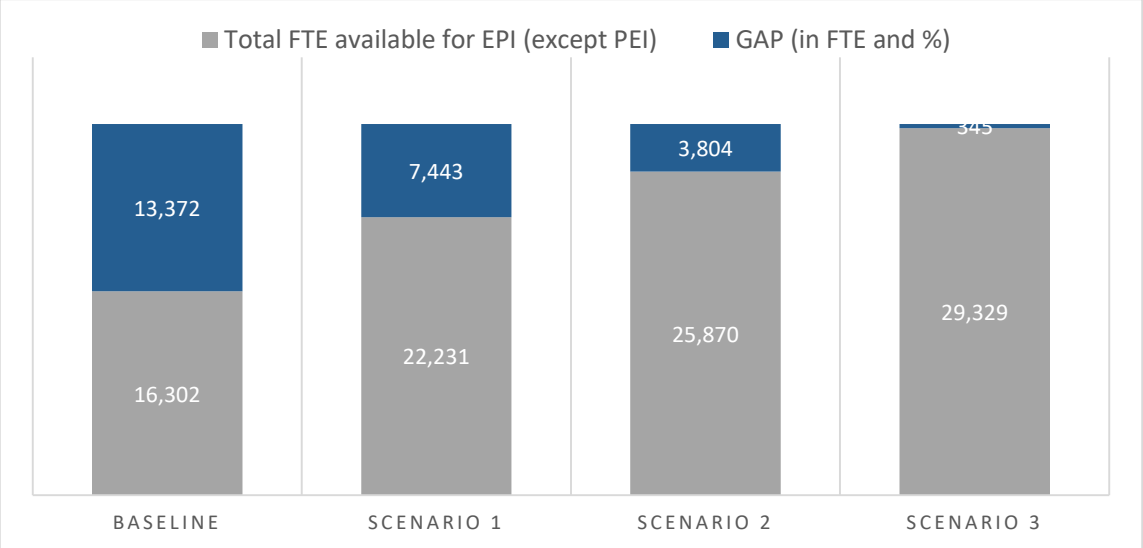
2.2.2 Human Resource Management

The objective of the immunization system component is to increase the availability of qualified human resources for the immunization program. It means that by 2020:

- Proportion of population served to skilled immunization staff (SIS) increases from 55% to 99%
- Managerial and technical positions are fully filled at the federal and district levels

Provinces elaborates several scenarios of mobilization of additional SIS and filling in the existing gap:

	Total FTE spent on immunization	FTE spent on PEI	**Total FTE available for EPI (except PEI)**	Total FTE Needed for EPI (except PEI)	**GAP (in FTE and %)**	
Baseline	26,778	10,476	**16,302**	29,674	**13,372**	45%
Scenario 1	32,707	10,476	**22,231**	29,674	**7,443**	25%
Scenario 2	36,268	10,476	**25,795**	29,674	**3,804**	13%
Scenario 3	39,727	10,473	**29,254**	29,594	**345**	1%



All provinces opted for scenario 3 that entails application of 2 strategies described below (Strategy 2.1 and Strategy 2.2).

Strategies and activities to achieve the component objective are as follows:

ISC Objective 2: **Increase the availability of qualified human resources for the immunization program (at provincial and district level)**

Strategy 2.1 Increase the number of SIS by mobilizing (or focusing on) vaccinators

Activity 2.1.1 Advertise vaccinator positions in provincial/local media

Activity 2.1.2 Conduct meetings with local authorities/communities promoting job of vaccinators (could be part of communication campaign)

Activity 2.1.3 Select and contract new vaccinators

Activity 2.1.4 Explore and provide professional/career growth opportunities to vaccinators

Strategy 2.2 Increase the number of SIS by integrating available qualified health professionals in the delivery of immunization services:

Activity 2.2.1 Assess opportunities (availability, readiness/willingness) for engagement of different categories of SIS into immunization program

Activity 2.2.2 Carry out consultations with relevant health authorities (vertical program management) and agree on feasible and sustainable arrangements

Activity 2.2.3 Revise the regulatory framework (standards/guidelines, scope of work) in order to ensure the engagement of SIS in the immunization as planned

Activity 2.2.4 Carry out trainings in immunization for LHW and mid-wives (as needed)

Strategy 2.3 Increase effectiveness of trainings of EPI medical and managerial staff:

Activity 2.3.1 Carry out refreshing training for each SIS at least once in 2 years (as per the national policy)

Activity 2.3.2 Carry out training of managerial staff in planning (e.g. vaccine forecasting, budgeting), reporting, decision making, VPD surveillance and supportive supervision and advocacy

Activity 2.3.3 Assess periodically competency of selected category of healthcare professionals involved in immunization

Activity 2.3.4 Introduce a system of pre and post trainings assessment of the knowledge of trainees and monitor quality of training through use of technology

Activity 2.3.5 Train immunization staff in medical, surveillance and logistics required for the introduction of new vaccines

Strategy 2.4 Increase motivation of key staff of the immunization program

Activity 2.4.1 Assess regularly motivations of selected category of HR of the immunization system

Activity 2.4.2 Develop and implement non-financial incentives (carrier growth opportunities, promotion, recognition/awards, etc.)

Activity 2.4.3 Explore possibilities for financial incentives (bonuses, performance based payments, etc.) and implement whenever feasible

Strategy 2.5 Integrate frontline workers and Polio staff into EPI through capacity building (linked to Activity 1.5.1 above):

Box 1: WHO Immunization in Practice topics

- Vaccine Preventable Target Diseases
- EPI Vaccines used in Pakistan
- Cold Chain
- Ensuring Safe Injections
- Planning Immunization Sessions to Reach Every child under 5
- Holding an Immunization Session
- Monitoring and Using Your Data
- Building Community Support for Immunization

Activity 2.5.1 Carry out orientation training for technical polio staff on "Immunization Monitoring Checklist"[28]

Activity 2.5.2 Conduct trainings on WHO's immunization in Practice (see Box 1 above)

Activity 2.5.3 Provide refresher/orientation training to Polio Technical staff and UCMOs for routine immunization planning

Activity 2.5.4 Provide training to PEOs, UCMOs and UCPWs on integrated VPD surveillance system

Activity 2.5.5 Carry out training on creating demand for Routine Immunization

Activity 2.5.6 Provide MLM training to PEO and UCMOs

2.2.3 Costing and Financing

The objective of the immunization system component is to increase financial efficiency and sustainability of the immunization program. It means that by 2020:

- Cost per fully immunization child:
  - Either increases from X$/PKR to Y$/PKR
  - Or remains within a range of X-Y $/PKR
- Immunization system outcome targets are balanced with the financial resources available:
  - Proportion of secured financial resources vs. planned
  - Coverage targets revised/adjusted to the availability of funding

ISC Objective 3: **Increase financial efficiency and sustainability of the immunization program**

Strategy 3.1 Increase effectiveness of the cooperation with and credibility of the country in front of international partner and donor community (at the federal level):

Activity 3.1.1 Represent the country in front of international agencies and donors

Activity 3.1.2 Facilitate development of national proposals/applications for financial and technical support from donors

Activity 3.1.3 Ensure timely and proper fulfillment of national reporting obligations and transparent financial accountability

Activity 3.1.4 Provide technical know-how acquired from the international professional organizations[29] and disseminate the same to Provinces/Areas for better implementation of immunization programs

Activity 3.1.5 Coordinate with international partners/donors to secure funds for the purchase of vaccines and financing of programmatic activities

Activity 3.1.6 Establish and operate financial mechanisms for ensuring timely payment of country's co-financing obligations and smoothing

[28] "focuses on 7 questions/observations covering session implementation, defaulter tracking, vaccine supply, cold chain maintenance, injection safety, AEFI and providing information to mothers"

[29] such as World Health Organization, Centre for Diseases Control & Prevention, Atlanta, USA and UNICEF

resource mobilization of funds for pooled procurement of vaccines and commodities review annually as per GAVI country Co-Financing Policy

Activity 3.1.7 Assess financial management and sustainability of provincial EPIs and provide recommendations for the revision and implementation of feasible and effective financial sustainability strategies

Strategy 3.2 Establishment of a reserve central (national) pool to cater for emergencies (linked to the Strategy 4.6[30] on page 45):

Activity 3.2.1 Development financial mechanisms and procedures for the replenishment of the buffer stock at the national level after emergencies

Activity 3.2.2 Endorsement of regulatory changes necessary for the operation of the reserve pool

Financial outlook and sustainability strategies are discussed in details in section 4 "Immunization Program Costing and Financing" and relevant sections of the provincial cMYPs.

2.2.4 Vaccine, Cold Chain and Logistics

The objective of the immunization system component is to improve/sustain uninterrupted supply of vaccines to immunization service delivery. It means that by 2020:

- Number (%) of EPI Centers experiencing stock-outs equals to zero
- % of districts with average EVM score above 80% increased (target to be defined after EVM assessment planned in 2014).

Strategies and activities to achieve the component objective are as follows:

ISC Objective 4: **Improve/sustain uninterrupted supply of vaccines to immunization service delivery**

Strategy 4.1 Upgrade/maintain adequate cold chain equipment and storage infrastructure

Activity 4.1.1 Assess needs for cold chain upgrade

Activity 4.1.2 Develop specifications and procurement plan (aligned with the availability of funding)

Activity 4.1.3 Purchase and install necessary activity

Activity 4.1.4 Develop preventive and curative maintenance plan to provide maintenance services on a regular basis

Activity 4.1.5 Construct new and/or refurbish existing warehouses at national, provincial and sub-provincial levels

Strategy 4.2 Improve vaccine management by implementing EVM Improvement plan

Activity 4.2.1 Carry out EVM assessment and develop IP

[30] If the National Immunization Policy is implemented and 6 month buffer stocks is established at the federal level (at least), sufficient volume of vaccines will be available to supply to emergency areas immediately; however, the buffer stock should be replenished within a predefined time framework. Therefore, if the buffer stock is available, the emergency pool becomes combination of a "virtual stock" of commodities and financial mechanisms

Activity 4.2.2 Revise the annual work plan in accordance with the EVM improvement plan

Activity 4.2.3 Report on the progress of implementation of the EVM improvement Plan

Strategy 4.3 Prepare cold chain and vaccine management for the introduction of new vaccine (the federal and provincial levels)

Activity 4.3.1 Assess and expand cold chain storage capacity (if needed)

Activity 4.3.2 Train vaccine management personnel (as needed, linked to Activity 4.2.2 above)

Box 2: vLMIS benefits for all steps of vaccine supply management

- ✓ Forecasting and quantification
- ✓ Financial arrangements
- ✓ Procurement planning (what, how and when)
- ✓ Supply and distribution planning
- ✓ Stock adjustments
- ✓ Determining cold chain and storage capacity
- ✓ Product expiry (FEFO)
- ✓ Vaccine wastages control

Strategy 4.4 Introduce integrated IT solutions for effective vaccine supply and stock management (see Box 2 above) (at federal level):

Activity 4.4.1 Develop advanced versions of vLMIS and integrate/interface with other MIS (releases 3.0 and 4.0)

Activity 4.4.2 Procure and install necessary IT equipment in all districts

Activity 4.4.3 Train end-users (designated specialists) at all levels

Activity 4.4.4 Introduce monitoring and SMS reporting in the vLMIS

Activity 4.4.5 Develop an integrated handheld Application for capturing the last mile dispensation

Strategy 4.5 Continue with the ongoing pooled procurement mechanism for vaccines and injection supplies (at the federal level):

Activity 4.5.1 Develop in consultation with provincial teams procedures for forecasting vaccine and injection supply needs and posting procurement requests, as well as for the payment by provinces

Activity 4.5.2 Endorse a pooled procurement mechanisms and revise regulations at federal and provincial as needed

Activity 4.5.3 Carry out pooled procurement in accordance with the regulations and standard operational procedures

Strategy 4.6 Establish vaccine and injection buffer stock in accordance with the National Immunization Policy requirements (at the federal and provincial levels)

Activity 4.6.1 Assess the availability of required funding (see section 4.2.2 "Resource requirements for the establishment of the buffer stock of vaccines" on page 68) as well as storage space and purchase the necessary volume of commodities

Activity 4.6.2 Revise the National Immunization Policy adjusting it to the availability of funds and/or storage capacity (as interim measure) if needed

2.2.5 Immunization Services Delivery

The objective of the immunization system component is to strengthen capacity of immunization service delivery. It means that by 2020:

- Geographical access increased: Number of population per each EPI fixed sites meets the minimum requirements defined by the National Immunization Policy (10,000 per SIS in urban areas and 5,000 per SIS in rural areas)
- Share of static/fixed immunization services delivered by EPI centers (vs. outreach) increased
- Average time EPI Centers provide immunization service per day increases from 6 to 7 hours per EPI center in selected districts
- Proportion of UC not having EPI centers decreased from 21% to 0%
- Proportion of UC not having Skilled Immunization Staff (SIS) decreased from 9% to 0%
- Proportion of UC delivering new vaccine increases to 100%

Strategies and activities to achieve the component objective are as follows:

ISC Objective 5:**Strengthen and optimize capacity of immunization service delivery**

Strategy 5.1 Make existing BHU/RHC functional (for EPI)

Activity 5.1.1 Evidence based mapping of health facilities to assess feasibility

Activity 5.1.2 Repair facility/infrastructure (where required)

Activity 5.1.3 Update/revise and implement guidelines to involve LHWs health houses in routine immunization

Activity 5.1.4 Recruit qualified staff (see corresponding strategy under component 2.2.2 "Human Resource Management")

Activity 5.1.5 Install cold chain equipment (see corresponding strategy under component 2.2.4 "Vaccine, Cold Chain and Logistics")

Activity 5.1.6 Build the Capacity of staff (existing and new)

Activity 5.1.7 Revised JDs of SIS (paramedics) to start vaccination at fixed sites and outreach (if required)

Strategy 5.2 Performance based contracting out (at the federal and provincial levels)

Activity 5.2.1 Develop a conceptual framework (or national guidelines) for contracting out immunization services

Activity 5.2.2 Develop ToR/Scope of Work for contracting out

Activity 5.2.3 Select and contract qualified immunization service providers

Activity 5.2.4 Conduct oversight of contract implementation

Activity 5.2.5 Assess performance and efficiency of the contracting out mechanism (linked with Program management component)

Strategy 5.3 Increase performance/efficiency (effective coverage) of existing EPI Centers

Activity 5.3.1 Revise regulations to improve performance appraisal and accountability system for human resource

Activity 5.3.2 Consensus on standardized denominator

Activity 5.3.3 Mobilize additional qualified staff SIS

Activity 5.3.4 Redistribution/ Rationalization of vaccinator's posting(s)

Activity 5.3.5 Re-functioning of non-functional EPI sites

Activity 5.3.6 Introduce contracting/financing mechanism

Activity 5.3.7 Regular supportive supervision of designated staff at EPI centers & outreach sites

Strategy 5.4 Promote / Improve Public private partnership to expand service delivery

Activity 5.4.1 Mapping of private sector health facilities for engagement in RI

Activity 5.4.2 Policy for engagement of private sector in RI

Activity 5.4.3 Development of SOPs and MOU

Activity 5.4.4 National and provincial consultative workshops

Activity 5.4.5 Implementation, monitoring and evaluation of PPP

Strategy 5.5 Increase performance/efficiency (effective coverage) from Outreach and Mobile service delivery

Activity 5.5.1 Revise policy / guidelines for service delivery strategies (province specific)

Activity 5.5.2 Improve quality of micro-planning by using PEI micro plans

Activity 5.5.3 Improve quality and frequency of monitoring

Activity 5.5.4 Ensure on-time and sufficient availability of resources for implementation of microplans and supervisory plans

Activity 5.5.5 Expand outreach and mobile services as per need of area

Strategy 5.6 Urban Immunization & Conditional Cash Transfer Initiative to expand service delivery

Activity 5.6.1 Profiling/mapping of resources and urban slums / settlements along with the profiling of settlements for CCT initiative

Activity 5.6.2 Development of guidelines & plans for urban immunization and Conditional Cash Transfer service delivery

Activity 5.6.3 Implementation, monitoring and evaluation of urban immunization and Conditional Cash Transfer activity plans

2.2.6 Monitoring, Surveillance and Reporting

The objective of the immunization system component is to increase performance of surveillance and routine monitoring/reporting. It means that by 2020:

- Reliability and accuracy of administrative data increased:
  - Discrepancy ratio (between administrative and survey data) decreases from 30% to <5%
  - % of reporting units receiving satisfactory DQS score/mark increases >95%
- Ability of surveillance to detect and report on certain cases increased:
  - National AEFI system is functional and serious cases of AEFI are reported and analyzed
  - Timeliness and completeness of integrated VPD surveillance reports received at provincial level improved (above 90% and 99% respectively)
  - Number of non-polio AFP cases detected and reported (>1 per 100,000 children under 15 years of age)
  - Number of discarded measles cases per 100,000 population

Strategies and activities to achieve the component objective are as follows:

ISC Objective 6: **Performance of surveillance and routine monitoring/reporting increased**

Strategy 6.1 Streamline data collection and reporting practices (integrate EPI routine monitoring into data management mainstream) (at the federal and provincial levels)

Activity 6.1.1 Assess main causes of data quality flaws

Activity 6.1.2 Introduce regular (FORMAL) feedback mechanism on the administrative reports of subordinated entities

Activity 6.1.3 Provide continuous supportive supervision

Activity 6.1.4 Carry out regular monitoring and evaluation of the implementation of immunization programs in purposively selected districts throughout the year.

Activity 6.1.5 Collect, clean and analyze coverage data received from the Provinces and provide a feedback to them pinpointing strengths and weaknesses of their immunization programme

Activity 6.1.6 Conduct DQS at regular interval at provincial and district level

Activity 6.1.7 Conduct biannual review meetings on immunization and VPD/AEFI surveillance at national level

Activity 6.1.8 Conduct regular review meetings on immunization and VPD/AEFI surveillance at the provincial level on quarterly basis and at the district level on monthly basis

Activity 6.1.9 Develop and use uniform reporting tools for all the levels

Activity 6.1.10 Develop uniform, standardized, synchronized online reporting system for all the areas and provinces with national dashboard

Activity 6.1.11 Generate alerts and outbreak response system

Activity 6.1.12 Activity Implementation of DQA-IP in all areas and provinces

Strategy 6.2 Expand surveillance network (primarily by 1) establishing new points/units or by 2) engaging existing capacities)

Activity 6.2.1 Provide logistical support

Activity 6.2.2 Capacity building

Activity 6.2.3 Revision of guidelines/forms

Activity 6.2.4 Conduct proficiency tests for laboratories (% of lab of the tests)

Activity 6.2.5 Expansion of VPD surveillance sites aligned with zero reporting sites included in AFP surveillance network

Activity 6.2.6 Expansion of sentinel surveillance sites for Rota, IBD and CRS

Strategy 6.3 Conduct regular immunization coverage evaluation surveys (both at federal and provincial levels:

Activity 6.3.1 Carry out data collection/field work

Activity 6.3.2 Analyze consistency between reported and surveyed coverage by districts and provide recommendations to EPI management teams

Activity 6.3.3 Promote integration of ICE findings into decision making (planning and budgeting)

Activity 6.3.4 Coverage Evaluation Survey (CES) exclusively on EPI by the Federal EPI every year; with provincial sampling at one year and district sampling at the other year

Strategy 6.4 Integrate EPI and PEI monitoring (both at the federal and provincial levels):

Activity 6.4.1 Introduce “Immunization Monitoring Checklists” in daily practice of Polio eradication Officers, UC Medical Officers and UC Polio Workers

Activity 6.4.2 Introduce the processing and analysis of the immunization monitoring checklists by the district polio control rooms including feedback to UC and District committees

Activity 6.4.3 Introduce information sharing by DHT at every DPEC meetings related to the performance of EPI

Activity 6.4.4 Implement integrated VPD surveillance with defined scope for PEO, DSO, PSO

Strategy 6.5 Strengthen VPD surveillance with the support of District Level PEI Staff (coordinated from the federal level but implemented at provincial and sub-provincial levels):

Activity 6.5.1 Conduct regular monitoring of timeliness and completeness of the weekly reporting from health facilities at district level and share the indicators in DPEC meeting through Polio Control room

Activity 6.5.2 Encourage health facility in-charges and other service providers for sending weekly report during their routine visits to the health facilities

Activity 6.5.3 Provide technical guidance to the health-facility in-charge or service providers explaining the surveillance system, their action point and its importance during their routine visit

Activity 6.5.4 Provide technical support to the District Surveillance Coordinator in compiling data and use of data to monitor basic surveillance indicators

Activity 6.5.5 Assist PEI teams in outbreak response investigation

Strategy 6.6 Strengthen VPD and AEFI surveillance system including alerts and outbreaks investigation and response

Activity 6.6.1 Ensure adequate comprehensive outbreak investigation and response by technical officers from EPI, PEI and PDSRU (FELTP)

Activity 6.6.2 Constitute AEFI and outbreak investigation and response committees at all levels. These committees ensure meeting on quarterly basis at the provincial level and on monthly basis at the district level even if there is no AEFI or outbreak and information sharing in the form of minutes of meeting

Activity 6.6.3 Constitute National and provincial Measles Elimination Expert Review Committee

Activity 6.6.4 Sanction post for District Surveillance Officer / Epidemiologist

Activity 6.6.5 Establishment of provincial reference labs for Measles Rubella testing

Activity 6.6.6 Development national VPD surveillance guidelines and update AEFI surveillance guidelines

Activity 6.6.7 Capacity building of staff on VPD and AEFI surveillance guidelines

Activity 6.6.8 Integration of VPD surveillance into integrated disease surveillance and response (IDSR)

2.2.7 Demand Generation, Communication and Advocacy

The objective of the immunization system component is improve knowledge and attitude toward immunization among target population. It means that by 2020:

- % of caregivers who understand benefits of immunization (or demonstrate proper knowledge of benefits) increased from X to Y
- % of caregivers will advise their friends/relatives/neighbors to vaccinate children regularly
- % of health education structures/systems operationalized to inform communities about the benefits of immunization. This will include training of human resource and committees at district/UC level.
- KAP Survey for frontline workers and community satisfaction survey

Baseline and target values will be defined based on the results of the UNICEF supported national KAPB survey conducted in 2014.

Strategies and activities to achieve the component objective are as follows:

ISC Objective 7: **Knowledge and attitude toward immunization improved among target population**

Strategy 7.1 (in short-run) continue community mobilization and communication interventions that proved being effective (as defined in provincial cMYPs)

Activity 7.1.1 De notify routine immunization as essential immunization

Strategy 7.2 (in long-run) Develop and implement evidence based communication strategies

Activity 7.2.1 Conduct social data research

Activity 7.2.2 Update strategic communication action plans

Strategy 7.3 Integration of EPI and EPI communication (coordinated from the federal level and implemented at provincial and sub-provincial levels), linked to Activity 1.5.1

Activity 7.3.1 Master Trainers training on routine immunization for all DHCSOs/UCOs of pilot districts in-line with the planning for regular trainings;

Activity 7.3.2 Production and distribution of revised community counselling cards on polio in addition to the routine immunization card;

Activity 7.3.3 Trickle down trainings by DHCSOs, supported by UCOs to all COMNet/ CBV staff in the pilot districts

Activity 7.3.4 Mobilization sessions by COMNet/ CBV staff in their catchment areas, staff to cover 60/70 households.

Activity 7.3.5 Assist “Community coalitions” organized by the Polio COMNet staff to promote routine immunization on an on-going basis

Activity 7.3.6 Train vaccinators and other frontline workers in Interpersonal Communication (IPC) using COMNet/CBV staff

Activity 7.3.7 Devise mechanisms to link COMNet/ CBV staff with the fixed centers ("so that the EPI programme can organize outreach services to vaccinate unvaccinated children")

Activity 7.3.8 National Training of Trainers on IPC and cascade trainings

Strategy 7.4 Inclusion of Routine Immunization in School curriculum (linked to NISP)

Activity 7.4.1 Develop educational-information materials and pretest

Activity 7.4.2 Endorse inclusion of RI in the school curriculum

Activity 7.4.3 Assess the effectiveness of the inclusion of RI in the school curriculum

Strategy 7.5 Dedicated Communication Structure

Activity 7.5.1 Advocacy session with SDGs Parliamentarian Task Force and sensitization to develop oversight structure and legislation

Activity 7.5.2 Develop ACSM committees at all levels

Activity 7.5.3 Develop a comprehensive communication/ACSM structure to promote Health education at all level

Activity 7.5.4 Capacity building on management of crisis management for Media Focal Person and health staff at all levels

Activity 7.5.5 ACSM technical support by partners

Activity 7.5.6 RED/REC approach strategy

Strategy 7.6 Integration and close coordination with line Departments i-e All vertical program, Education Department, LHW program, Information department, Population welfare Department etc

Activity 7.6.1 Develop integrated Task Force Committee

Activity 7.6.2 Sensitization on ACSM activities of Routine immunization & VPDs Surveillance

Activity 7.6.3 Opportunity/Event based ACSM activities supported by integrated partners

Strategy 7.7 Effective Public Private Partnership for demand generation

Activity 7.7.1 Periodic engagement of Media

Activity 7.7.2 Engagement of CSOs, PPAs and corporate sector etc. to increase demand generation and convert refusals

Strategy 7.8 Special focus require for Urban/slum, Rural and HRMP areas

Activity 7.8.1 Develop specific ACSM activities

Activity 7.8.2 Contract-out CSOs to raise demand generation in Urban/slum, Rural and HRMP areas specially in 9 major cities

2.3 Alignment with GVAP, Regional Targets and Health Sector Strategy

The national cMYP is aligned with most of GVAP and regional targets as shown in Annex 7 “GVAP Checklist” on page 105.

3 Implementation and M&E

3.1 Timelines for the cMYP

Timeline for the implementation of the cMYP is described in detail in provincial cMYPs. The timeline below depicts strategies and activities implemented exclusively at the federal level or at both levels:

Objective/strategies/activities			**2016**	**2017**	**2018**	**2019**	**2020**
ISC Objective 1:	Increase program management performance						
Strategy 1.1	Streamline management processes:						
	Activity 1.1.1	Review and develop effective and efficient management structure and procedures					
		(1)Revise job descriptions					
		(2)Revise or introduce new standard operating procedures and guidelines (VPD surveillance and AEFI)				■	
		(3)Revise or introduce new reporting mechanisms					
		(4)ISO certification for managerial processes				■	
	Activity 1.1.2	Carry out regular supportive supervision visits including following up results/recommendations of the previous visits	■	■	■	■	■
	Activity 1.1.3	Assess competencies of key EPI management staff on a regular basis	■	■	■	■	■
		(1)Develop assessment criteria/methodology	■				
		(2)Adjust regulations (introducing competency assessment as a mandatory procedure)	■				
		(3)Carry out assessments	■	■	■	■	■
		(4)Assess identified HR gaps				■	■
	Activity 1.1.4	Mobilize Technical support as needed (e.g. for Annual Plan development, APR development, cMYP revision)	■	■	■	■	■
Strategy 1.2	Management staff capacity building and motivation growth (see corresponding strategy under HR management component)						
Strategy 1.3	Advocacy and partnership building						
	Activity 1.3.1	Produce regularly policy briefs/advocacy materials to share with high level officials	■	■	■	■	■
	Activity 1.3.2	Attend high level meetings and present immunization program achievements, challenges and solutions	■	■	■	■	■
	Activity 1.3.3	Organize consultations meetings with EPI partners and follow up implementation of decisions and actions agreed in the past	■	■	■	■	■
	Activity 1.3.4	Explore possibility of engagement of non-state actors and CSOs in the implementation of the immunization program and make corresponding arrangements for implementation	■			■	■
Strategy 1.4	Keep National EPI Policy updated (federal level)						
	Activity 1.4.1	Review and refine the national EPI policy relating to the provision of immunization services to newborn children and pregnant women all over the country			■	■	■

Objective/strategies/activities			2016	2017	2018	2019	2020
	Activity 1.4.2	Revise the EPI policy incorporating newly invented vaccines into EPI immunization schedule from time to time to protect children and pregnant women against VPD based on global, regional or country specific evidence					
Strategy 1.5	Strengthen oversight by integrating PEI oversight structures into EPI performance monitoring (at federal level):						
	Activity 1.5.1	Develop a detailed integrated action plan (with resource allocation time-bound milestones and responsible entities) for the harmonization of PEI and routine immunization operation					
	Activity 1.5.2	For routine immunization see Activity 6.4.3:					
	Activity 1.5.3	Use Polio oversight mechanisms (at national, provincial, district and UC levels) for SIA (e.g. integrated Polio-Measles SIA)					
ISC Objective 2:	Increase the availability of qualified human resources for the immunization program						
Strategy 2.1	Increase the number of SIS by mobilizing (or focusing on) vaccinators						
	Activity 2.1.1	Advertise vaccinator positions in provincial/local media					
	Activity 2.1.2	Conduct meetings with local authorities/communities promoting job of vaccinators (could be part of communication campaign)					
	Activity 2.1.3	Select and contract new vaccinators					
	Activity 2.1.4	Explore and provide professional/career growth opportunities to vaccinators					
Strategy 2.2	Increase the number of SIS by integrating available qualified health professionals in the delivery of immunization services:						
	Activity 2.2.1	Assess opportunities (availability, readiness/willingness) for engagement of different categories of SIS into immunization program					
	Activity 2.2.2	Carry out consultations with relevant health authorities (vertical program management) and agree on feasible and sustainable arrangements					
	Activity 2.2.3	Revise the regulatory framework (standards/guidelines, scope of work) in order to ensure the engagement of SIS in the immunization as planned					
	Activity 2.2.4	Carry out trainings in immunization for LHWs and mid wives (as needed)					
Strategy 2.3	Increase effectiveness of trainings of EPI medical and managerial staff:						
	Activity 2.3.1	Carry out refresher training for each SIS at least once a year					
	Activity 2.3.2	Carry out training of managerial staff in planning (e.g. vaccine forecasting, budgeting), reporting, decision making, VPD surveillance and supportive supervision and advocacy					

Objective/strategies/activities			2016	2017	2018	2019	2020
	Activity 2.3.3	Assess periodically competency of selected category of healthcare professionals involved in immunization				■	■
	Activity 2.3.4	Introduce a system of pre and post trainings assessment of the knowledge of trainees and monitor quality of training through use of technology				■	■
	Activity 2.3.5	Train immunization staff in medical, surveillance and logistics required for the introduction of new vaccines				■	
Strategy 2.4	Increase motivation of key staff of the immunization program						
	Activity 2.4.1	Assess regularly motivations of selected category of HR of the immunization system				■	■
	Activity 2.4.2	Develop and implement non-financial incentives (carrier growth opportunities, promotion, recognition/awards, etc.)				■	■
	Activity 2.4.3	Explore possibilities for financial incentives (bonuses, performance based payments, etc.) and implement whenever feasible				■	■
Strategy 2.5	Integrate frontline workers and Polio staff into EPI through capacity building[31]						
	Activity 2.5.1	Carry out orientation training for technical polio staff on "Immunization Monitoring Checklist"				■	■
	Activity 2.5.2	Conduct trainings on WHO's immunization in Practice				■	■
	Activity 2.5.3	Provide refresher/orientation training to Polio Technical staff and UCMOs for routine immunization planning				■	■
	Activity 2.5.4	Provide training to PEOs, UCMOs and UCPWs on integrated VPD surveillance system				■	■
	Activity 2.5.5	Carry out training on creating demand for Routine Immunization				■	■
	Activity 2.5.6	Provide MLM training to PEO and UCMOs				■	■
ISC Objective 3:	Increase financial efficiency and sustainability of the immunization program.						
Strategy 3.1	Increase effectiveness of the cooperation with and credibility of the country in front of international partner and donor community						
	Activity 3.1.1	Represent the country in front of international agencies and donors	■	■	■	■	■
	Activity 3.1.2	Facilitate development of national proposals/applications for financial and technical support from donors		■		■	■
	Activity 3.1.3	Ensure timely and proper fulfillment of national reporting obligations and transparent financial accountability	■	■	■	■	■
	Activity 3.1.4	Provide technical know-how acquired from the international professional organizations and disseminate the same to Provinces/Areas for better implementation of immunization programs	■	■	■	■	■
	Activity 3.1.5	Coordinate with international partners/donors to secure funds for the	■	■	■	■	■

[31] The timeline will be refined after the completion of Activity 1.5.1

Objective/strategies/activities			2016	2017	2018	2019	2020
		purchase of vaccines and financing of programmatic activities					
	Activity 3.1.6	Establish and operate financial mechanisms for ensuring timely payment of country's co-financing obligations and smoothing resource mobilization of funds for pooled procurement of vaccines and commodities. Review annually as per GAVI country Co-Financing Policy					
	Activity 3.1.7	Assess financial management and sustainability of provincial EPIs and provide recommendations for the revision and implementation of feasible and effective financial sustainability strategies					
Strategy 3.2	Establishment of a reserve central (national) pool to cater for emergencies						
	Activity 3.2.1	Development financial mechanisms and procedures for the replenishment of the buffer stock at the national level after emergencies					
	Activity 3.2.2	Endorsement of regulatory changes necessary for the operation of the reserve pool					
ISC Objective 4:	Improve/sustain uninterrupted supply of vaccines to immunization service delivery						
Strategy 4.1	Upgrade/maintain adequate cold chain equipment						
	Activity 4.1.1	Assess needs for cold chain upgrade					
	Activity 4.1.2	Develop specifications and procurement plan (aligned with the availability of funding)					
	Activity 4.1.3	Purchase and install necessary activity					
	Activity 4.1.4	Develop preventive and curative maintenance plan to provide maintenance services on a regular basis					
	Activity 4.1.5	Construct new and/or refurbish existing warehouses at National, provincial and sub-provincial levels					
Strategy 4.2	Improve vaccine management by implementing EVM Improvement plan						
	Activity 4.2.1	Carry out EVM assessment and develop IP					
	Activity 4.2.2	Revise the annual work plan in accordance with the EVM improvement plan					
	Activity 4.2.3	Report on the progress of implementation of the EVM improvement Plan					
Strategy 4.3	Prepare cold chain and vaccine management for the introduction of new vaccine						
	Activity 4.3.1	Assess and expand cold chain storage capacity (if needed)					
	Activity 4.3.2	Train vaccine management personnel (as needed)					
Strategy 4.4	Introduce integrated IT solutions for effective vaccine supply and stock management						
	Activity 4.4.1	Develop advanced versions of vLMIS and integrate/interface with other MIS (releases 3.0 and 4.0)					

Objective/strategies/activities		2016	2017	2018	2019	2020
Activity 4.4.2	Procure and install necessary IT equipment in all districts				■	■
Activity 4.4.3	Train end-users (designated specialists) at all levels				■	■
Activity 4.4.4	Introduce monitoring and SMS reporting in the vLMIS				■	■
Activity 4.4.5	Develop an integrated handheld Application for capturing the last mile dispensation				■	■
Strategy 4.5	Continue with the ongoing pooled procurement mechanism for vaccines and injection supplies (at the federal level):					
Activity 4.5.1	Develop in consultation with provincial teams procedures for forecasting vaccine and injection supply needs and posting procurement requests, as well as for the payment by provinces				■	■
Activity 4.5.2	Endorse a pooled procurement mechanisms and revise regulations at federal and provincial as needed				■	■
Activity 4.5.3	Carry out pooled procurement in accordance with the regulations and standard operational procedures	■	■	■	■	■
Strategy 4.6	Establish vaccine and injection buffer stock in accordance with the National Immunization Policy requirements					
Activity 4.6.1	Assess the availability of required funding as well as storage space and purchase the necessary volume of commodities				■	■
Activity 4.6.2	Revise the National Immunization Policy adjusting it to the availability of funds and/or storage capacity (as interim measure) if needed				■	■
ISC Objective 5:	Strengthen capacity of immunization service delivery					
Strategy 5.1	Make existing BHU/RHC functional (for EPI)					
Activity 5.1.1	Evidence based mapping of health facilities to assess feasibility				■	■
Activity 5.1.2	Repair facility/infrastructure (where required)				■	■
Activity 5.1.3	Update/revise and implement guidelines to involve LHWs health houses in routine immunization				■	
Activity 5.1.4	Recruit qualified staff				■	■
Activity 5.1.5	Install cold chain equipment				■	■
Activity 5.1.6	Build the Capacity of staff (existing and new)				■	■
Activity 5.1.7	Revised JDs of SIS (paramedics) to start vaccination at fixed sites and outreach (if required)				■	
Strategy 5.2	Performance based contracting out					
Activity 5.2.1	Develop a conceptual framework (or national guidelines) for contracting out immunization services				■	
Activity 5.2.2	Develop ToR/Scope of Work for contracting out				■	
Activity 5.2.3	Select and contract qualified immunization service providers	■			■	■

Objective/strategies/activities		2016	2017	2018	2019	2020
Activity 5.2.4	Conduct oversight of contract implementation	■	■	■	■	■
Activity 5.2.5	Assess performance and efficiency of the contracting out mechanism (linked with Program management component)		■		■	■
Strategy 5.3	Increase performance/efficiency (effective coverage) of existing EPI Centers					
Activity 5.3.1	Revise regulations to improve performance appraisal and accountability system for human resource				■	
Activity 5.3.2	Consensus on standardized denominator				■	
Activity 5.3.3	Mobilize additional qualified staff SIS	■	■	■	■	■
Activity 5.3.4	Redistribution/ Rationalization of vaccinator's posting(s)				■	■
Activity 5.3.5	Re-functioning of non-functional EPI sites				■	■
Activity 5.3.6	Introduce contracting/financing mechanism	■	■	■	■	■
Activity 5.3.7	Regular supportive supervision of designated staff at EPI centers & outreach sites				■	■
Strategy 5.4	Promote / Improve Public private partnership to expand service delivery					
Activity 5.4.1	Mapping of private sector health facilities for engagement in RI				■	
Activity 5.4.2	Policy for engagement of private sector in RI				■	
Activity 5.4.3	Development of SOPs and MOU				■	
Activity 5.4.4	National and provincial consultative workshops				■	
Activity 5.4.5	Implementation, monitoring and evaluation of PPP				■	■
Strategy 5.5	Increase performance/efficiency (effective coverage) from Outreach and Mobile service delivery					
Activity 5.5.1	Revise policy / guidelines for service delivery strategies (province specific)				■	
Activity 5.5.2	Improve quality of micro-planning by using PEI micro plans				■	■
Activity 5.5.3	Improve quality and frequency of monitoring				■	■
Activity 5.5.4	Ensure on-time and sufficient availability of resources for implementation of micro plans and supervisory plans				■	■
Activity 5.5.5	Expand outreach and mobile services as per need of area				■	
Strategy 5.6	Urban Immunization & Conditional Cash Transfer Initiative to expand service delivery					
Activity 5.6.1	Profiling/mapping of resources and urban slums / settlements along with the profiling of settlements for CCT initiative				■	
Activity 5.6.2	Development of guidelines & plans for urban immunization and Conditional Cash Transfer service delivery				■	
Activity 5.6.3	Implementation, monitoring and evaluation of urban immunization and Conditional Cash Transfer activity plans				■	■

Objective/strategies/activities			2016	2017	2018	2019	2020
ISC Objective 6:	Performance of surveillance and routine monitoring/reporting increased						
Strategy 6.1	Streamline data collection and reporting practices (integrate EPI routine monitoring into data management mainstream)						
	Activity 6.1.1	Assess main causes of data quality flaws	■		■	■	■
	Activity 6.1.2	Introduce regular (FORMAL) feedback mechanism on the administrative reports of subordinated entities	■	■	■	■	■
	Activity 6.1.3	Provide continuous supportive supervision	■	■	■	■	■
	Activity 6.1.4	Carry out regular monitoring and evaluation of the implementation of immunization programs in randomly selected districts throughout the year.	■	■	■	■	■
	Activity 6.1.5	Collect, clean and analyze coverage data received from the Provinces and provide a feedback to them pinpointing strengths and weaknesses of their immunization programme	■	■	■	■	■
	Activity 6.1.6	Conduct DQS at regular interval[32]			■	■	■
	Activity 6.1.7	Conduct periodic review meetings on immunization at national level	■	■	■	■	■
	Activity 6.1.8	Conduct regular review meetings on immunization and VPD/AEFI surveillance at the provincial level on quarterly basis and at the district level on monthly basis				■	■
	Activity 6.1.9	Develop and use uniform reporting tools for all the levels				■	
	Activity 6.1.10	Develop uniform, standardized, synchronized online reporting system for all the areas and provinces with national dashboard				■	
	Activity 6.1.11	Generate alerts and outbreak response system				■	■
	Activity 6.1.12	Activity Implementation of DQA-IP in all areas and provinces				■	■
Strategy 6.2	Expand surveillance network						
	Activity 6.2.1	Provide logistical support					
	Activity 6.2.2	Capacity building					
	Activity 6.2.3	Revision of guidelines/forms					
	Activity 6.2.4	Conduct proficiency tests for laboratories (% of lab of the tests)					
	Activity 6.2.5	Expansion of VPD surveillance sites aligned with zero reporting sites included in AFP surveillance network				■	
	Activity 6.2.6	Expansion of sentinel surveillance sites for Rota, IBD and CRS				■	
Strategy 6.3	Conduct regular immunization coverage evaluation surveys						
	Activity 6.3.1	Carry out data collection/field work	■	■	■	■	■

[32] Frequency of DSQ is subject to modification

Objective/strategies/activities			2016	2017	2018	2019	2020
	Activity 6.3.2	Analyze consistency between reported and surveyed coverage by districts and provide recommendations to EPI management teams					
	Activity 6.3.3	Promote integration of ICE findings into decision making (planning and budgeting)					
	Activity 6.3.4	Coverage Evaluation Survey (CES) exclusively on EPI by the Federal EPI every year; with provincial sampling at one year and district sampling at the other year					
Strategy 6.4	Integrate EPI and PEI monitoring						
	Activity 6.4.1	Activity 6.4.1 Introduce "Immunization Monitoring Checklists" in daily practice of Polio eradication Officers, UC Medical Officers and UC Polio Workers					
	Activity 6.4.2	Introduce the processing and analysis of the immunization monitoring checklists by the district polio control rooms including feedback to UC and District committees					
	Activity 6.4.3	Introduce information sharing by DHT at every DPEC meetings related to the performance of EPI					
	Activity 6.4.4	Implement integrated VPD surveillance with defined scope for PEO, DSO, PSO					
Strategy 6.5	Strengthen VPD surveillance with the support of District Level PEI Staff						
	Activity 6.5.1	Conduct regular monitoring of timeliness and completeness of the weekly reporting from health facilities at district level and share the indicators in DPEC meeting through Polio Control room					
	Activity 6.5.2	Encourage health facility in-charges and other service providers for sending weekly report during their routine visits to the health facilities					
	Activity 6.5.3	Provide technical guidance to the health-facility in-charge or service providers explaining the surveillance system, their action point and its importance during their routine visit					
	Activity 6.5.4	Provide technical support to the District Surveillance Coordinator in compiling data and use of data to monitor basic surveillance indicators					
	Activity 6.5.5	Assist PEI teams in outbreak response investigation					
Strategy 6.6	Strengthen VPD and AEFI surveillance system including alerts and outbreaks investigation and response						
	Activity 6.6.1	Ensure adequate comprehensive outbreak investigation and response by technical officers from EPI, PEI and PDSRU (FELTP)					
	Activity 6.6.2	Constitute AEFI and outbreak investigation and response committees at all levels. These committees ensure meeting on quarterly basis at the provincial level and on monthly basis at the district level even if there is no					

Objective/strategies/activities			2016	2017	2018	2019	2020
		AEFI or outbreak and information sharing in the form of minutes of meeting					
	Activity 6.6.3	Constitute National and provincial Measles Elimination Expert Review Committee					
	Activity 6.6.4	Sanction post for District Surveillance Officer / Epidemiologist					
	Activity 6.6.5	Establishment of provincial reference labs for Measles Rubella testing					
	Activity 6.6.6	Development national VPD surveillance guidelines and update AEFI surveillance guidelines					
	Activity 6.6.7	Capacity building of staff on VPD and AEFI surveillance guidelines					
	Activity 6.6.8	Integration of VPD surveillance into integrated disease surveillance and response (IDSR)					
ISC Objective 7:	Knowledge and attitude toward immunization improved among target population						
Strategy 7.1	(in short-run) continue community mobilization and communication interventions that proved being effective						
	Activity 7.1.1	De notify routine immunization as essential immunization					
Strategy 7.2	Implement evidence based communication strategies						
	Activity 7.2.1	Conduct social data research					
	Activity 7.2.2	Update strategic communication action plans					
Strategy 7.3	Integration of EPI and EPI communication[33]						
	Activity 7.3.1	Master Trainers training on routine immunization for all DHCSOs/UCOs of pilot districts in-line with the planning for regular trainings;					
	Activity 7.3.2	Production and distribution of revised community counselling cards on polio in addition to the routine immunization card					
	Activity 7.3.3	Trickle down trainings by DHCSOs, supported by UCOs to all COMNet/ CBV staff in the pilot districts					
	Activity 7.3.4	Mobilization sessions by COMNet/ CBV staff in their catchment areas, staff to cover 60/70 households					
	Activity 7.3.5	Assist “Community coalitions” organized by the Polio COMNet/ CBV staff to promote routine immunization on an on-going basis					
	Activity 7.3.6	Train vaccinators and other frontline workers in Interpersonal Communication (IPC) using COMNet/ CBV staff					
	Activity 7.3.7	Devise mechanisms to link COMNet staff with the fixed centers					
	Activity 7.3.8	National Training of Trainers on IPC and cascade trainings					
Strategy 7.4	Inclusion of Routine Immunization in School curriculum (linked to NISP)						
	Activity 7.4.1	Develop educational-information materials and pretest					

[33] The timeline will be refined after the completion of Activity 1.5.1

Objective/strategies/activities		2016	2017	2018	2019	2020
Activity 7.4.2	Endorse inclusion of RI in the school curriculum					
Activity 7.4.3	Assess the effectiveness of the inclusion of RI in the school curriculum					
Strategy 7.5	Dedicated Communication Structure					
Activity 7.5.1	Advocacy session with SDGs Parliamentarian Task Force and sensitization to develop oversight structure and legislation					
Activity 7.5.2	Develop ACSM committees at all levels					
Activity 7.5.3	Develop a comprehensive communication/ACSM structure to promote Health education at all level					
Activity 7.5.4	Capacity building on management of crisis management for Media Focal Person and health staff at all levels					
Activity 7.5.5	ACSM Technical support by partners					
Activity 7.5.6	RED/REC approach strategy					
Strategy 7.6	Integration and close coordination with line Departments i-e All vertical program, Education Department, LHW program, Information department, Population welfare Department etc					
Activity 7.6.1	Develop integrated Task Force Committee					
Activity 7.6.2	Sensitization on ACSM activities of Routine immunization & VPDs Surveillance					
Activity 7.6.3	Opportunity/Event based ACSM activities supported by integrated partners					
Strategy 7.7	Effective Public Private Partnership for demand generation					
Activity 7.7.1	Periodic engagement of Media					
Activity 7.7.2	Engagement of CSOs, PPAs and corporate sector etc. to increase demand generation and convert refusals					
Strategy 7.8	Special focus require for Urban/slum, Rural and HRMP areas					
Activity 7.8.1	Develop specific ACSM activities					
Activity 7.8.2	Contract-out CSOs to raise demand generation in Urban/slum, Rural and HRMP areas specially in 9 major cities					

3.2 Monitoring and Evaluation

3.2.1 M&E Framework for immunization

National immunization program impact and outcome level targets are outlined in section 2.1 “Program objectives and milestones” (on page 37) and serve as a national performance framework. Contribution of provincial immunization programs toward achieving national immunization program coverage targets are presented in 9 provincial/areas respective cMYP costing tools).

3.2.2 Monitoring and Evaluation Strategy and Plan

The Federal EPI cell provides methodological guidance for the standardization of performance indicators defined in provincial cMYPs.

Provincial EPI teams are responsible for data collection, performance measurement, reporting and analysis of the progress of program implementation (as outlined in respective sections of provincial cMYPs).

The Federal EPI cell synthesizes provincial immunization program performance reports annually and prepared the national (progress) report to share with in-country stakeholders and international partners (e.g. Annual Progress Report to submitted to GAVI).

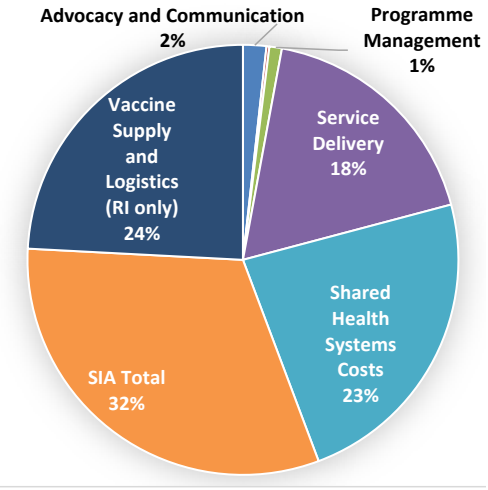
4 Immunization Program Costing and Financing

4.1 Current program costs and financing

The total cost of immunization program amounted to 238.7 US$ million in 2012 as shown in Figure 30 below:

Figure 30: Baseline Cost Profile (shared costs and campaigns included)

Category	2012
Vaccine Supply and Logistics (RI only)	$4,179,030
Service Delivery	$516,685
Monitoring and Disease Surveillance	$2,231,469
Advocacy and Communication	$42,873,835
Program Management	$55,917,287
SIA Total	$75,301,701
Shared Health Systems Costs	$57,698,816
Grand Total	**$238,718,823**



SIA accounted for one third of the total cost (75.3 US$ million), and the remaining costs were allocated to vaccine supply and logistics (24%), shared health system resources (23%) and service delivery (18%). Distribution of immunization program costs by provinces is shown in Figure 69 (on page 110): Punjab accounted for the half of annual costs followed by Sindh (20%) and KP (13%).

98% of SIA costs were spent on polio campaigns in 2012 as shown in Figure 83 (on page 123): 43.95 US$ million was the cost of OPV and 29.95 US$ million constituted operational costs.

Figure 31: Cost structure by provinces and major cost categories, routine immunization (2012)

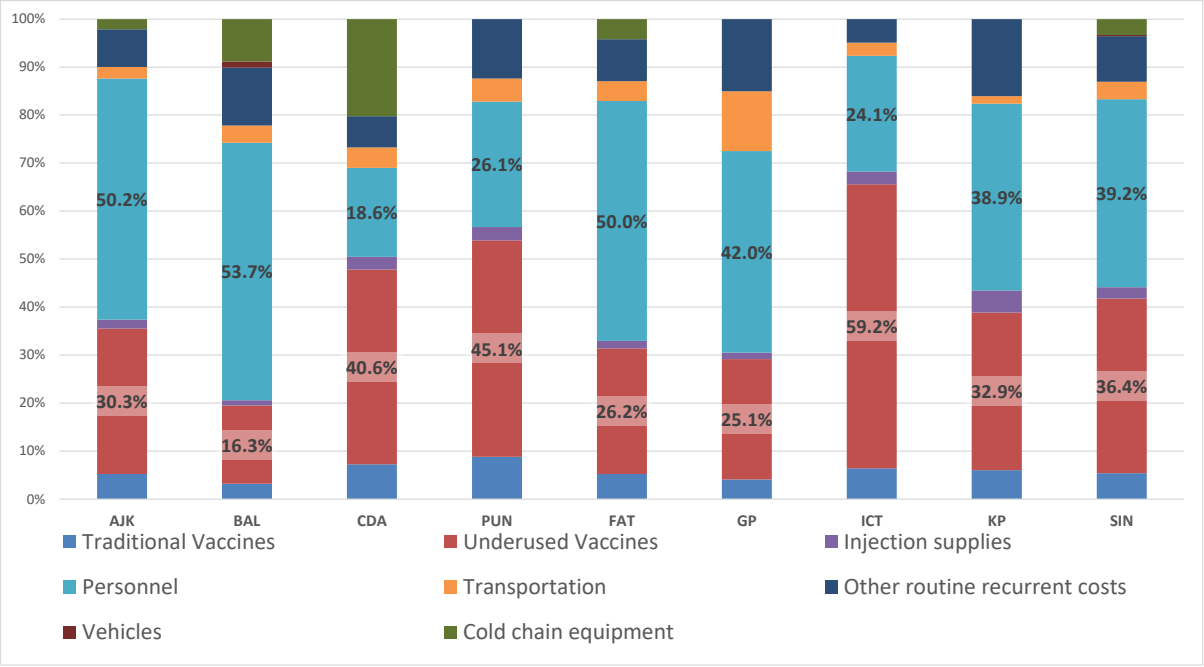
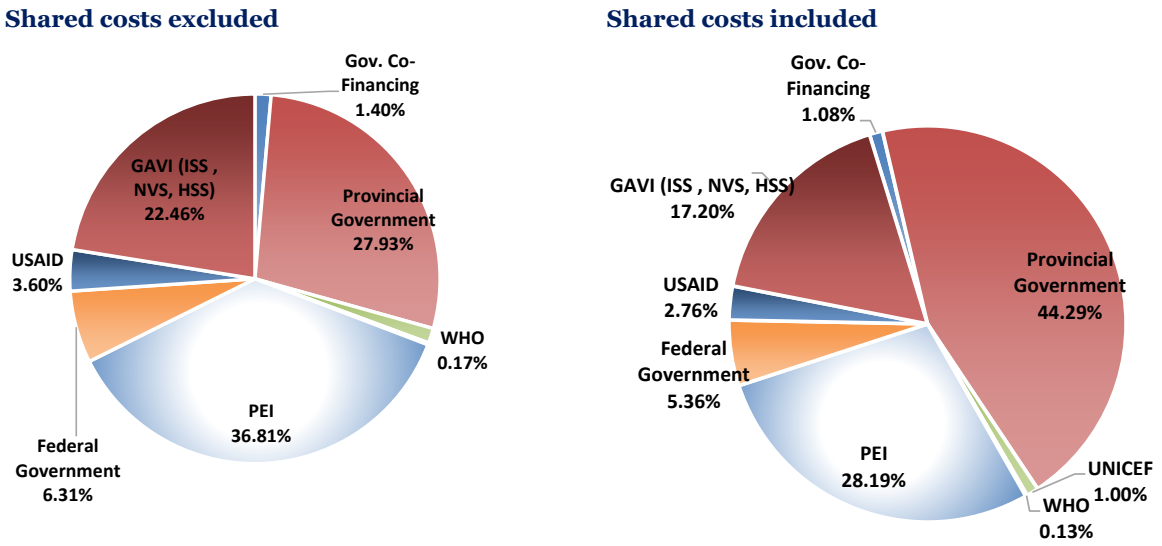


Figure 31 above illustrates that underused vaccines and labor were major cost drivers in the baseline year (accounting for 37.0% and 35.7% of Routine Immunization costs – 105.6 US$ million). Vaccine and injection supplies absorbed 46.4% of the total cost (see Figure 70 on page 110). It is noteworthy that personnel costs prevailed in Balochistan (53.7%), AJK (50.2%) and FATA (50.0%).

More detailed analysis of the personnel cost structure (see Figure 71 on page 111) shows that shared labor costs dominated (56%) reaching as high as 70% of total labor costs in Punjab in 2012.

Figure 32: Baseline Financing Profile (with and without shared costs)



If shared (healthcare system) costs are not taken into account, PEI/NEAP was the major source of financing in the baseline year constituting 36.81% of total financing followed by provincial governments (with 27.93% share) and GAVI (with 22.46% share) as shown in Figure 32 above. With shared costs provincial governments were the major source of financing with 44.29% share followed by PEI (28.19%). Federal government's share was 5.36% plus 1.08% accounting for co-financing of GAVI supported vaccine (Pentavalent).

Figure 33: Immunization program baseline indicators (National)

Total Immunization Expenditures	**$180,793,176**
Campaigns	**$75,301,701**
Routine Immunization only	**$105,491,475**
Per Capita (Routine Only)	**$0.60**
Per DTP3 child (Routine Only)	**$29**
% Vaccines and supplies (Routine)	**46.5%**
% Government funding	**57%**
% Total health expenditures	**2.0%**
% Gov. health expenditures	**19.9%**
% GDP	**0.048%**
Total Shared Costs	**$54,662,109**
% Shared health systems cost	**23%**
TOTAL	**$235,455,285**

Cost per DTP3 child was 29 US$ in 2012 as shown in Figure 33 above; Routine immunization costs constituted 0.048% of GDP and 2% of total health expenditures (THE). Shared health care system costs constituted 23% of the total immunization system costs. Baseline financial indicators by provinces are presented in Figure 72 (on page 112).

4.2 Future resource requirements

4.2.1 Overview

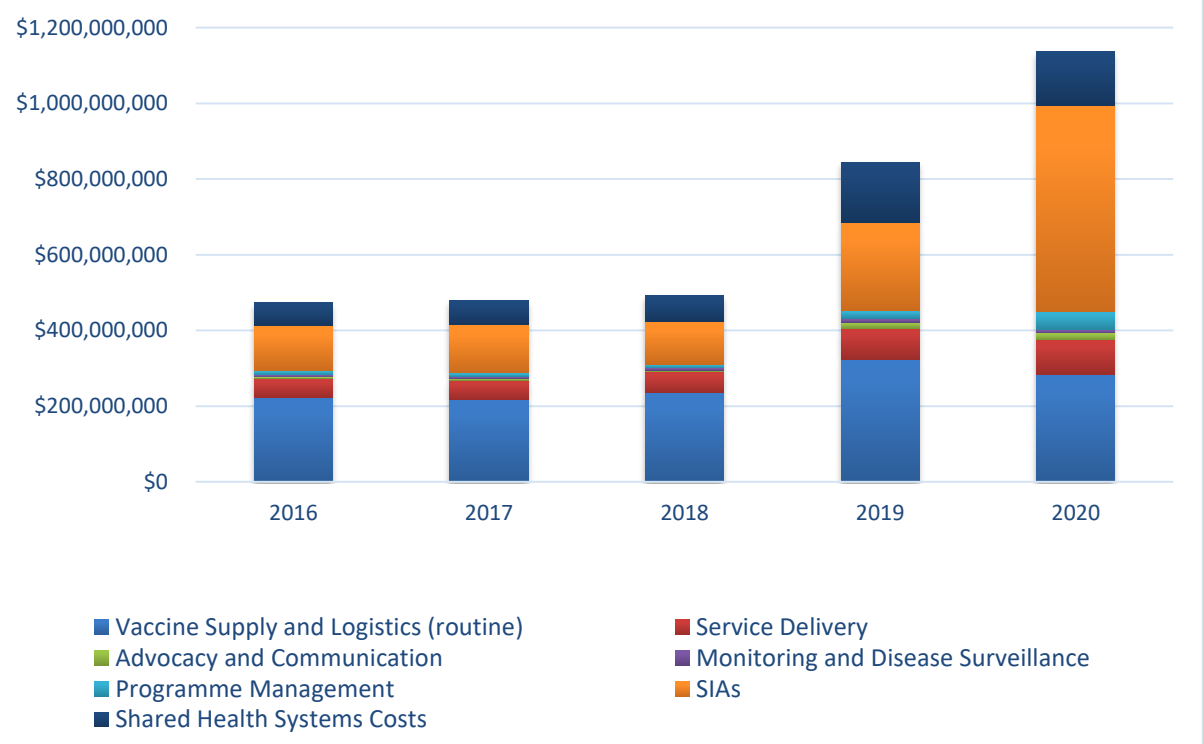
Total resource requirement for 2016-2020 is estimated at 3.42 US$ billion as shown in Figure 34 below: SIA is expected to absorb 33% of resources and the remaining to be allocated to routine immunization (including shared health system costs). The share of vaccines and logistics (for routine immunization) amounts to 1.28 US$ billion (or 37.5% of total resource requirements).

Figure 34: Total resource requirements (2016-2020) by immunization system components - National

Category	TOTAL	
Vaccine Supply and Logistics (routine only)	$1,283,410,069	37.5%
Service Delivery	$331,146,377	9.7%
Advocacy and Communication	$47,641,514	1.4%
Monitoring and Disease Surveillance	$31,909,471	0.9%
Programme Management	$104,863,496	3.1%
Supplemental Immunization Activities (SIA)	$1,135,403,831	33.0%
Shared Health Systems Costs	$492,871,859	14.4%
GRAND TOTAL	$3,427,246,618	**100%**

Total resource requirements increase from 473 US$ million in 2016 up to 1,141 US$ million in 2020 as shown in Figure 35 below:

Figure 35: Total resource requirements by immunization system components and years



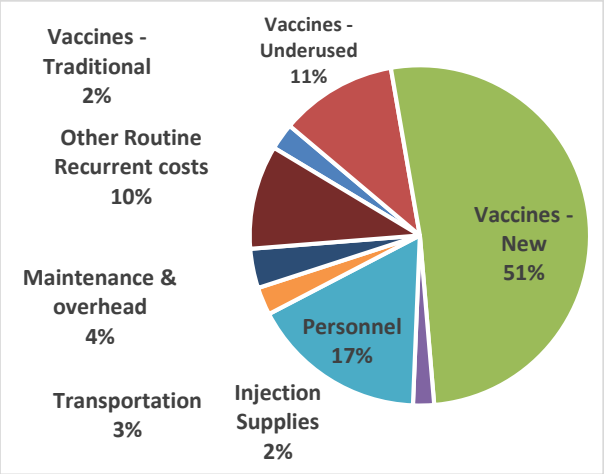
Annual resource requirements increase mainly due to the cost of vaccines and logistics (introduction of Rota, MR, TCV and expected upgrade of vaccine storage and cold chain). TCV will be introduced in Sindh in 2019, and in all other provinces/areas in 2020. MR will be introduced in all provinces/areas in the second half of 2020. Hence, the Measles will be continued till the 1st half of 2020.

Resource requirements by major components and provinces are presented in details in Figure 73 (on page 113) and Figure 74 (on page 114): Routine immunization (recurrent costs) vary from 22.7% in FATA to 98.7% in Federal (49.9% in average for all provinces).

New vaccines account for 51% of total resource requirements as shown in Figure 36 below:

Figure 36: Future resource requirements by cost categories (routine immunization)

Cost Categories	TOTAL
Vaccines - Traditional	$43,290,578
Vaccines Underused	$190,410,157
Vaccines New	$879,232,123
Injection Supplies	$34,175,596
Personnel	$285,902,623
Transportation	$45,243,754
Maintenance & overhead	$64,115,351
Other Routine Recurrent costs	$168,761,974
Total	$1,711,132,156



All vaccines and injection supplies constitute 66% of resource requirements and personnel is the 2nd largest cost category 17%.

Resource requirements for routine immunization by provinces and cost categories are presented in Figure 76 on page 115): personnel remains the major cost driver in Balochistan (38.3%), FATA (29.3%), AJK (32.5%) and GB (32.8%).

A detailed structure of total resource requirements of the entire immunization program by cost categories and provinces is presented in Figure 77 (on page 116).

4.2.2 Resource requirements for the establishment of the buffer stock of vaccines

National Immunization Policy stipulates that buffer stock for routine immunization vaccines should exist at the national (equal to 6 month of consumption), provincial (equal to 3 months of consumption) and district (equal to 1 month of consumption) levels.

Figure 37: Cost of establishing and maintaining buffer stock by provinces and years of establishing the buffer stock

	Year of creating the buffer			
	2015	2016	2017	2018
AJK	$1,313,240	$1,097,688	$1,313,240	$1,313,240
BAL	$2,055,510	$1,995,146	$2,055,510	$2,055,510
CDA	$335,094	$268,175	$297,737	$335,094
FAT	$1,229,650	$1,229,650	$1,229,650	$1,229,650
GB	$432,750	$432,750	$432,750	$432,750
ICT	$176,155	$138,841	$154,610	$176,155
KP	$9,902,272	$8,051,586	$9,902,272	$9,902,272
PUN	$29,915,668	$25,150,805	$27,935,881	$29,915,668
SIN	$11,488,999	$10,508,708	$11,488,999	$11,488,999
FED	$102,013,440	$100,375,879	$102,013,440	$102,013,440
Total	**$158,862,777**	**$149,249,227**	**$156,824,086**	**$158,862,777**

Source: Provincial cMYPs

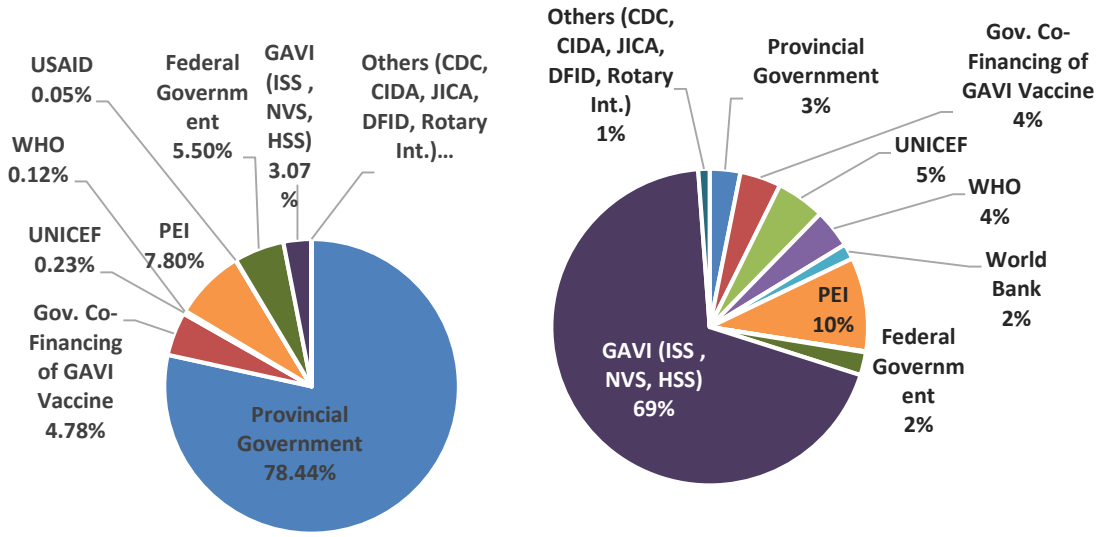
The amount of 22.9 million US$ has to be allocated to procure the necessary volume of vaccines and injection supplies in 2017; In year 2019 spending on keeping the buffer stock at the required level is minimal – 12.8 million US$, however the resource requirement increases in 2020 to $27.8 million US$.

4.3 Future financing and funding gaps of the immunization program

Total financing of the immunization program is estimated at 2,087.1 US$ Million if only secured financing is considered and at 847 US$ Million with probable financing.

Figure 38: Financing structure by sources and types of financing

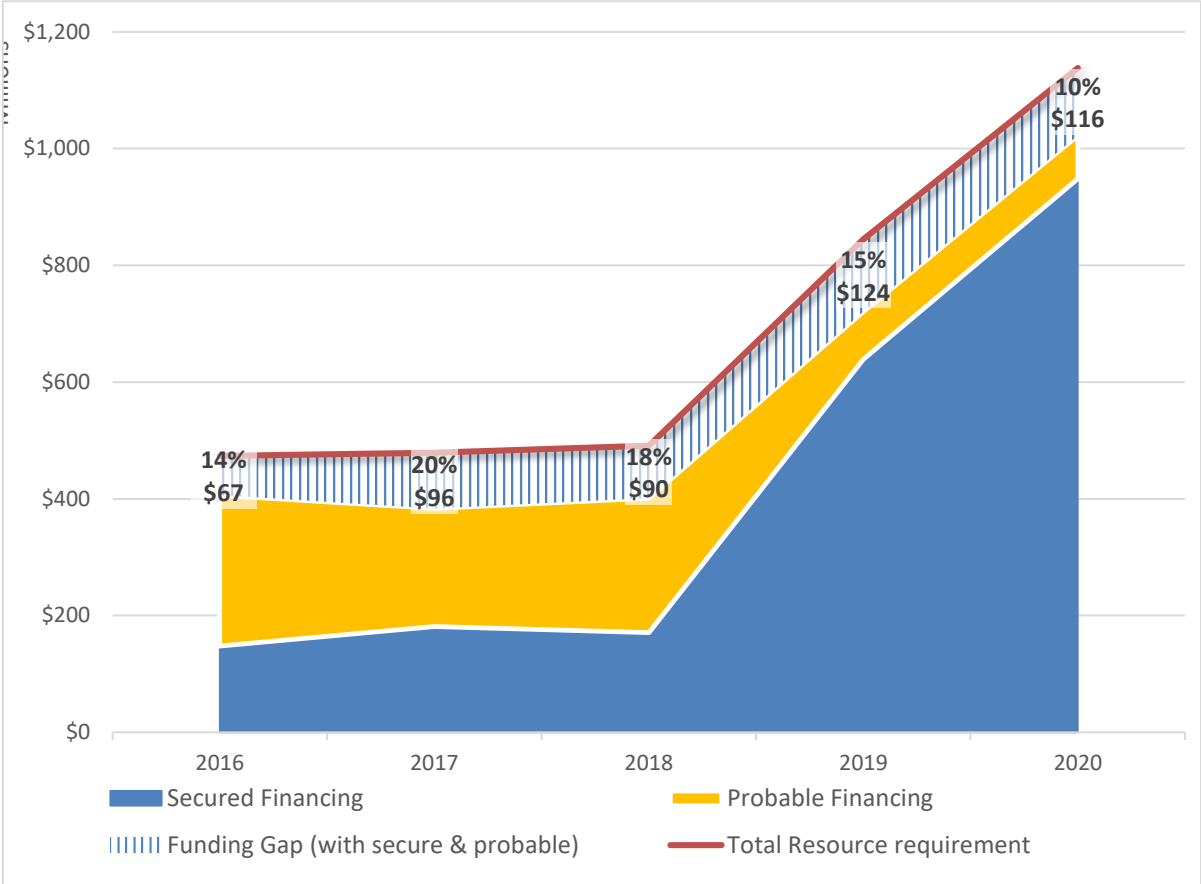
Secured financing **Probable financing**



Majority (78.4%) of secured financing comes from the government, followed by Federal Govt (5.5%), and Government (co-financing - 4.78%) as shown in Figure 38 above. GAVI accounts for 69% of probable financing followed by PEI (10%), UNICEF (5%), and Government (co-financing – 4%). Financing of the immunization program by provinces is presented in Figure 78 (on page 118).

As shown in Figure 79 (on page 120) in comparison with financing projection, the resource requirement keeps growing from 2016- 2020. The funding gap is 14% (67 US$ million) in 2016 and 10% (116 US$ million) in 2020 as presented in Figure 39 below:

Figure 39: Financing and funding gap by Years



The total funding gap (with secure and probable funding) for 2016-2020 is estimated at the level of 14% of total resource requirements (or 493.1 US$ million) including shared healthcare system costs.

4.4 Funding gap analysis

Funding gap amounts (without shared costs) to 1.17 US$ billion with only secured financing and 342 US$ million if probable financing is considered as shown in Figure 40 below:

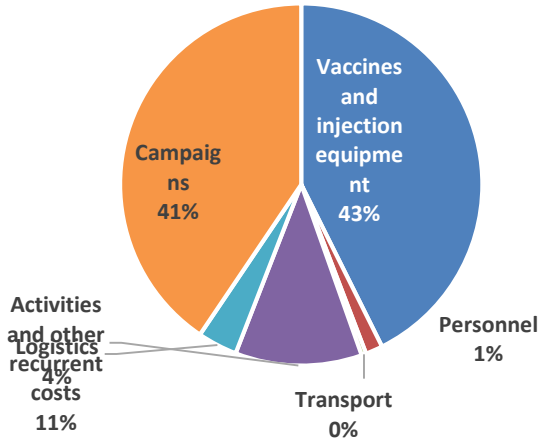
Figure 40: Funding gap (without shared costs) by types of financing (2016-2020)

Composition of the funding gap	Gap (secured)	Gap (secured + probable)
Vaccines and injection equipment	$502,255,144	$472,399
Personnel	$18,045,649	$17,508,454
Transport	$4,865,327	$4,865,327
Activities and other recurrent costs	$133,286,719	$42,643,302
Logistics	$41,814,415	$15,523,058
Campaigns	$477,599,540	$261,101,179
Total	**$1,177,866,794**	**$342,113,718**

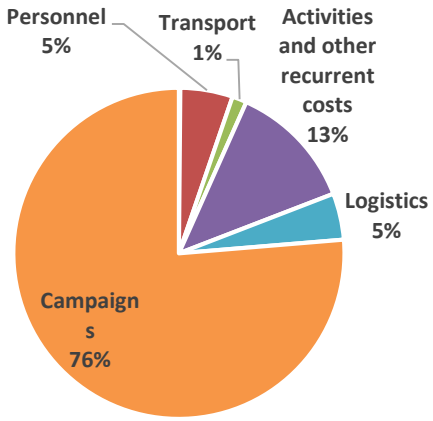
The funding gap with only secure financing mainly consists of 2 components: vaccines and injection supplies (43%) and campaigns (41%) as shown in Figure 41 below.

Figure 41: Structure of the funding gap by types of financing (national, 2016-2020)

Secured financing



Secured + Probable financing



Probable financing allows to fill the vaccine and injection supply component of the funding gap completely – it is related to the success of application to GAVI for Rota, MR and TCV.

The share of campaigns in the funding gap increases (up to 76%) when probable funding is considered although in absolute terms the gap decreases from 477.6 US$ million to 261.1 US$ million (due to 216.5 US$ million probable financing for campaigns).

Funding gap related to personnel and transport remains unaffected with probable financing (in absolute terms) resulting in slight increase of its share in the funding gap structure (5% and 1% correspondingly).

Funding gap structure by type of financing and provinces is presented in Figure 80 and Figure 81 on page 122. It shows that probable funding is sufficient to fill the funding gap for routine immunization.

Probable financing allows to fill more than half of the funding gap related activities and other routine costs and its share in the funding gap remains 20% (with secure financing only) to 42% (with probable financing). Further breakdown of this component (see Figure 82 on page 122) shows that: 18 US$ million funding gap (or 42% of this component cost) is related to other routine and recurrent cost, while 11.9 US$ million funding gap (or 28% of this component cost) is related to cold chain maintenance and overhead.

Figure 42: Breakdown of "Activities and other reccurent costs" funding gap by cost categories and types of financing

	Secured financing		Probable financing		% of resource requirement
Cold chain maintenance and overheads	$20,123,024	15%	$11,989,296	28%	28%
Maintenance of other capital equipment	$4,807,363	4%	$53,451	0%	1%
Building overheads (electricity, water…)	$4,851,596	4%	$795,539	2%	5%
Short-term training	$13,657,962	10%	$4,235,714	10%	29%
IEC/social mobilization	$30,056,944	22%	$3,751,375	9%	8%
Disease surveillance	$17,500,714	13%	$2,623,467	6%	8%
Program management	$15,719,025	12%	$1,124,893	3%	3%
Other routine recurrent costs	$26,570,090	20%	$18,069,568	42%	44%
Total	**$133,286,719**	**100%**	**$42,643,302**	**100%**	

4.5 Financial sustainability

Financial sustainability of immunization programs is the primary responsibility of provincial health authorities and effective financial sustainability strategies are elaborated in respective provincial cMYPs.

Financial sustainability is not the end itself but critical condition for the attainment of immunization outcomes. If funds necessary to finance planned campaigns or introduction of new vaccines could not be mobilized then the financial sustainability will be restored by postponing the planned interventions pending availability of funds. However, it will affect programmatic effectiveness dramatically although financial sustainability (in terms of balancing resource requirements and funding) will be achieved.

The most critical component of the funding gap for the overall sustainability (programmatic and financial) is related to personnel and infrastructure (transport and logistics). Although the shortage of funding is not large in absolute terms (64.7 US$ million for 5 years, or in average 13 US$ million per annum), these three factors determine the country's ability to scale up the delivery of quality immunization services. In fact, 13 US$ million per year is the cost of achieving substantial increase in routine immunization coverage.

The funding gap structure and severity of shortage related to "Activities and other recurrent costs" (see Figure 42 on page 71) raises concerns on the quality and reliability of immunization services and overall performance.

Out of 493.1 US$ Million funding gap (with probable financing), majority of the funds will be financed by the government (mostly provincial) due to the nature of costs (personnel, transport, maintenance costs, disease surveillance, program management and other routine costs). Funds for IEC/Social mobilization and short-term trainings (10 US$ million) can be mobilized from in-country partners donors if the government fails to secure financing from the budget.

Synchronization of PEI and non-polio (routine and other SIA) efforts and more efficient sharing of the resources on the ground (including joint micro-planning at UC level) can serve as an effective sustainability strategy in terms saving financial resources and achieving programmatic synergies.

5 Annexes

Annex 1: Statistical and technical details

Figure 43: Description of provinces by administrative structure and target population (2012)

Provinces	Number of:						Average Population Per UC
	Districts	UC	Birth cohort	Surviving infants	Pregnant women	Total Population	
AJK	10	203	145,471	134,270	148,381	4,156,319	20,474
BAL	30	607	290,347	267,990	296,154	8,295,628	13,667
CDA	1	16	31,806	29,357	32,443	908,754	56,797
FAT	14	416	150,561	138,967	153,572	4,301,732	10,341
GB	7	110	45,011	41,816	45,912	1,286,039	11,691
ICT	1	12	16,536	15,263	16,867	472,454	39,371
KP	25	1,040	907,543	854,906	925,694	25,929,799	24,932
PUN	36	3,520	3,218,012	2,970,225	3,282,373	91,943,208	26,120
SIN	23	1,166	1,373,099	1,267,471	1,400,561	39,231,406	33,646
Total	**147**	**7,090**	**6,178,386**	**5,720,265**	**6,301,956**	**176,525,339**	**24,898**

Source: Provincial cMYP (situational analysis tools and cMYP Costing Tools)

Figure 44: Population projections by sources: NISP and provincial cMYPs

01. NISP

	Total Population			Live Birth			Surviving Infants			Pregnant Women		
	2012	2014	2018	2012	2014	2018	2012	2014	2018	2012	2014	2018
Pakistan	172,825,579	179,032,927	192,124,481	6,048,895	6,266,152	6,724,357	5,583,130	5,802,457	6,226,754	6,169,873	6,391,475	6,858,844
Punjab	91,943,208	95,245,517	102,210,224	3,218,012	3,333,593	3,577,358	2,970,225	3,086,907	3,312,633	3,282,373	3,400,265	3,648,905
Sindh	39,231,406	40,640,474	43,612,257	1,373,099	1,422,417	1,526,429	1,267,371	1,317,158	1,413,473	1,400,561	1,450,865	1,556,958
KP	22,985,802	23,811,379	25,552,556	804,503	833,398	894,339	742,556	771,727	828,158	820,593	850,066	912,226
Bstan	8,295,628	8,593,580	9,221,975	290,347	300,775	322,769	267,990	278,518	298,884	296,154	306,791	329,225
FATA	3,802,163	3,938,724	4,226,739	133,076	137,855	147,936	122,829	127,654	136,989	135,737	140,612	150,895
AJK	3,629,337	3,759,691	4,034,614	127,027	131,589	141,211	117,246	121,852	130,762	129,567	134,221	144,036
GB	1,555,430	1,611,296	1,729,120	54,440	56,395	60,519	50,248	52,222	56,041	55,529	57,523	61,730
ICT/CDA	1,382,605	1,432,263	1,536,996	48,391	50,129	53,795	44,665	46,420	49,814	49,359	51,132	54,871

02. cMYP

	Total Population			Live Birth			Surviving Infants			Pregnant Women		
	2012	2014	2018	2012	2014	2018	2012	2014	2018	2012	2014	2018
Pakistan	178,341,452	185,423,671	200,473,409	6,241,951	6,489,828	7,016,569	5,778,564	6,027,786	6,526,178	6,366,790	6,619,625	7,156,901
Punjab	91,943,208	95,245,517	102,210,222	3,218,012	3,333,593	3,577,358	2,970,225	3,086,907	3,312,633	3,282,373	3,400,265	3,648,905
Sindh	39,231,406	40,640,474	43,612,256	1,373,099	1,422,417	1,526,429	1,267,371	1,317,158	1,413,473	1,400,561	1,450,865	1,556,958
KP	25,929,799	27,375,547	30,513,367	907,543	958,144	1,067,968	854,905	905,446	1,017,773	925,694	977,307	1,089,327
Bstan	8,295,628	8,593,581	9,221,975	290,347	300,775	322,769	267,990	278,518	298,884	296,154	306,791	329,225
FATA	4,156,319	4,359,068	4,794,718	145,471	152,567	167,815	134,270	141,277	155,397	148,381	155,619	171,171
AJK	4,156,319	4,359,068	4,794,718	145,471	152,567	167,815	134,270	141,277	155,397	148,381	155,619	171,171
GB	4,156,319	4,359,068	4,794,718	145,471	152,567	167,815	134,270	141,277	155,397	148,381	155,619	171,171
ICT/CDA	472,454	491,348	531,434	16,536	17,197	18,600	15,263	15,925	17,224	16,867	17,541	18,972

Figure 45: School enrollment by levels of education and gender (2010-12)

School enrollment indicators	2010	2011	2012
School enrollment, primary (% gross):	**94.8**	**92.3**	**92.9**
Female	87.0	85.1	86.3
Male	102.0	98.9	99.0
School enrollment, primary (% net):	**74.0**	**72.0**	**72.5**
Female	67.9	66.4	67.3
Male	79.6	77.2	77.2
Primary completion rate, total (% of relevant age group):	**66.9**	**66.6**	**71.9**
Female	60.3	60.1	66.1

School enrollment indicators	2010	2011	2012
Male	73.1	72.7	77.2
Adjusted net enrollment rate, primary (% of primary school age children):	**74.0**	**72.0**	**72.5**
Female	67.9	66.4	67.3
Male	79.6	77.2	77.2
School enrollment, secondary (% net)		**34.5**	**36.1**
Female		29.6	30.6
Male		39.2	41.3
School enrollment, tertiary (% gross)		**8.3**	**9.5**
Female		8.0	9.3
Male		8.6	9.7

Source: The World Bank (2014)

Definition of indicators:

School enrollment, primary (% gross)	Total is the total enrollment in primary education, regardless of age, expressed as a percentage of the population of official primary education age.
School enrollment, primary (% net)	Total is the ratio of children of the official primary school age who are enrolled in primary school to the total population of the official primary school age.
Primary completion rate, total (% of relevant age group)	Total is the total number of new entrants in the last grade of primary education, regardless of age, expressed as percentage of the total population of the theoretical entrance age to the last grade of primary. This indicator is also known as "gross intake rate to the last grade of primary."
Adjusted net enrollment rate, primary (% of primary school age children)	Adjusted net enrollment is the number of pupils of the school-age group for primary education, enrolled either in primary or secondary education, expressed as a percentage of the total population in that age group.
School enrollment, secondary (% net)	Total is the ratio of children of the official secondary school age who are enrolled in secondary school to the population of the official secondary school age.
School enrollment, tertiary (% gross)	Total is the total enrollment in tertiary education (ISCED 5 and 6), regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.

Figure 46: Poverty indicators

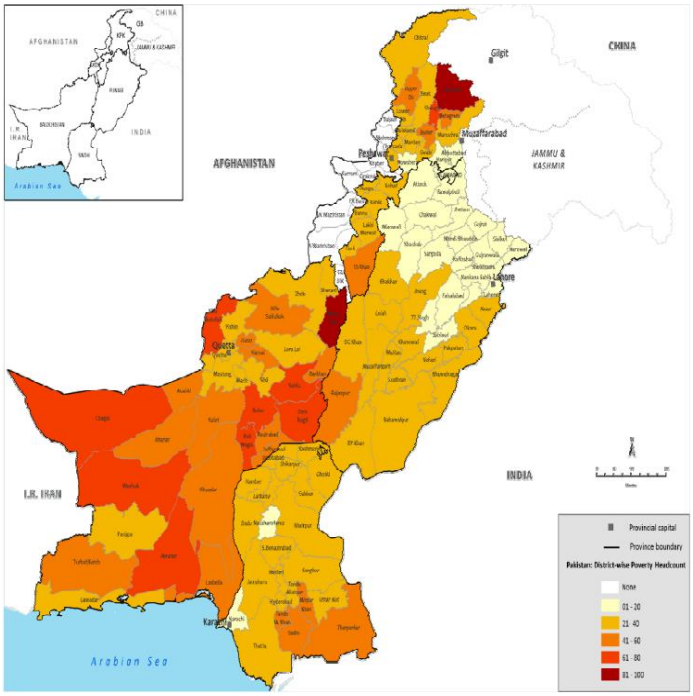
	2006	2008
Poverty headcount ratio at $2 a day (PPP) (% of population)	60.98	60.19
Poverty headcount ratio at $1.25 a day (PPP) (% of population)	22.58	21.04
Poverty gap[34] at $2 a day (PPP) (%)	18.78	17.94
Poverty gap at $1.25 a day (PPP) (%)	4.06	3.49
GINI index[35]	32.74	30.02
Poverty headcount ratio at national poverty line (% of population)	22.3	
Poverty headcount ratio at rural poverty line (% of rural population)	27	
Poverty headcount ratio at urban poverty line (% of urban population)	13.1	

[34] Poverty gap is the mean shortfall from the poverty line (counting the nonpoor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.

[35] GINI index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Source: The World Bank 2014

Figure 47: District wise incidence of poverty (headcount ratio)



Source: SDPI

Figure 48: Federal government expenditures and revenues (in million PKR)

		2009-10	2010-11	2011-12	2012-13	2013-14
Expenditures						
I	Revenue Expenditure	2,333,701	2,498,582	2,589,746	3,233,905	3,691,581
I.A	Current Expenditure	2,017,255	2,295,921	2,209,324	2,803,621	3,196,083
	Health services	6,743	7,455	7,811	9,512	9,863
I.B	Development Expenditure	316,446	202,661	380,422	430,284	495,498
II	Capital Disbursement	243,319	179,549	203,886	591,800	535,246
	Total Expenditures	**2,577,020**	**2,678,131**	**2,793,632**	**3,825,705**	**4,226,827**
	Current Expenditure as % of total	86.44%	91.89%	85.31%	86.69%	86.58%
	Health service as % of current expenditure	0.33%	0.32%	0.35%	0.34%	0.31%
Revenues						
I.A	Revenue receipts (net)	1,396,670	1,238,200	1,334,297	1,560,351	1,917,708
I.B	Internal Resources	375,690	520,299	527,570	442,310	734,609
I.C	External resources	381,175	131,878	128,650	-1,676	130,458
	Loans	*450,218*	*254,720*	*229,010*	*187,094*	*467,437*
	Grants	*127,768*	*35,103*	*34,930*	*29,102*	*29,782*
	Less repayment	*-196,811*	*-157,945*	*-135,290*	*-217,872*	*-366,761*
I.	**Total Receipts**	**2,153,535**	**1,890,377**	**1,990,517**	**2,000,985**	**2,782,775**
II	**Change in provincial cash balance**	**77,568**	**119,805**	**-37,290**	**-62,172**	**23,101**
III	**Privatization Proceeds**					**79,200**
IV	**Credit from Banking System**	**89,110**	**452,219**	**711,670**	**1,508,487**	**974,987**

Total Resources	**2,320,213**	**2,462,401**	**2,664,897**	**3,447,300**	**3,860,063**

Source: Monthly Statistical Bulletin February 2014, the State Bank of Pakistan

Figure 49: Findings of PDHS: Immunization coverage by household characteristics, 2012-13[36]

Background characteristic	BCG	DPT[1] 1	DPT[1] 2	DPT[1] 3	Polio[2] 0	Polio[2] 1	Polio[2] 2	Polio[2] 3	Measles	All basic vaccinations[3]	No vaccinations	Percentage with a vaccination card seen	Number of children
Sex													
Male	86.3	79.5	74.8	67.2	69.9	93.0	89.3	86.1	63.0	56.0	4.9	36.6	1,050
Female	84.0	78.0	70.6	63.1	69.0	91.7	89.0	84.5	59.7	51.5	5.9	35.5	1,024
Birth order													
1	90.4	84.4	79.8	73.0	73.9	93.5	90.8	87.9	70.6	63.5	3.4	40.6	566
2-3	84.3	79.0	72.8	65.8	71.0	91.6	89.9	85.5	60.7	53.7	5.8	38.4	736
4-5	85.8	80.5	73.0	66.0	67.4	91.1	87.7	83.7	60.6	53.3	6.6	36.0	417
6+	77.9	67.3	61.0	50.3	61.5	93.2	86.7	82.5	49.1	39.3	6.3	23.8	356
Residence													
Urban	93.0	87.9	85.8	79.0	84.9	93.9	91.1	86.8	74.3	65.8	2.6	45.7	640
Rural	81.7	74.7	66.9	59.0	62.5	91.6	88.3	84.6	55.6	48.4	6.7	31.7	1,434
Region													
Punjab	91.6	87.2	81.0	76.3	72.0	97.4	95.2	92.4	70.0	65.6	1.5	40.7	1,215
Urban	94.4	90.5	88.9	86.5	86.4	95.3	94.7	91.0	78.1	74.4	1.6	46.6	390
Rural	90.3	85.6	77.2	71.4	65.2	98.3	95.5	93.1	66.2	61.5	1.4	37.9	825
Sindh	78.5	65.1	56.8	38.6	68.9	87.2	82.2	77.5	44.6	29.1	8.5	25.9	437
Urban	92.8	86.3	83.5	66.5	83.9	92.5	85.4	80.1	71.1	51.5	2.8	46.9	178
Rural	68.6	50.5	38.5	19.5	58.6	83.6	80.0	75.8	26.4	13.7	12.4	11.5	260
Khyber Pakhtunkhwa	79.7	77.1	73.9	69.6	70.8	83.6	79.5	75.7	57.8	52.7	12.0	39.7	309
Urban	89.3	82.4	79.3	74.4	82.6	91.2	88.4	84.2	63.1	58.0	4.7	41.2	50
Rural	77.8	76.0	72.9	68.6	68.5	82.2	77.8	74.0	56.8	51.7	13.4	39.4	259
Balochistan	48.9	37.7	33.7	27.1	34.8	78.1	74.9	60.6	37.3	16.4	20.8	8.0	88
Urban	72.2	58.6	56.2	46.2	67.4	81.6	79.3	68.9	49.1	35.9	16.7	22.3	15
Rural	44.1	33.4	29.1	23.2	28.0	77.4	74.0	58.9	34.9	12.3	21.6	5.1	73
ICT Islamabad	96.5	95.1	93.2	91.2	90.9	97.0	89.4	85.6	85.2	73.9	2.7	52.6	9
Gilgit Baltistan	78.6	62.4	62.2	55.3	40.7	89.6	85.2	75.2	51.0	47.0	9.4	29.2	16
Mother's education													
No education	78.4	68.3	59.7	50.9	60.8	90.6	86.2	82.0	47.2	39.8	7.2	27.9	1,118
Primary	89.2	86.0	80.0	74.4	74.6	91.7	89.3	85.4	70.0	62.0	5.6	40.1	361
Middle	94.9	91.1	91.1	86.9	78.9	98.2	97.4	93.7	81.2	76.4	0.2	48.0	156
Secondary	94.5	92.7	90.3	84.8	79.9	93.1	92.8	92.0	79.9	73.6	4.0	48.9	249
Higher	97.2	98.1	97.5	88.1	88.7	97.6	95.0	88.7	87.6	75.6	0.5	49.4	190
Wealth quintile													
Lowest	70.6	52.0	40.9	29.9	51.4	85.9	82.0	76.7	35.1	23.4	12.4	18.5	456
Second	84.3	80.4	73.5	67.1	63.4	92.6	87.6	84.6	60.6	53.9	5.1	27.4	444
Middle	86.7	83.1	77.2	69.2	69.9	94.4	91.6	87.1	62.5	57.4	4.4	41.4	400
Fourth	90.4	87.8	85.0	78.8	77.8	94.6	93.2	89.8	72.1	65.4	2.5	46.3	437
Highest	97.3	95.9	93.7	88.0	90.3	95.1	92.9	89.7	82.8	75.4	1.5	51.5	338
Total	85.2	78.8	72.7	65.2	69.4	92.3	89.2	85.3	61.4	53.8	5.4	36.0	2,074

Source: National Institute of Public Studies. "Pakistan Demographic and Health Survey 2012-2013". December 2013. Islamabad, Pakistan.

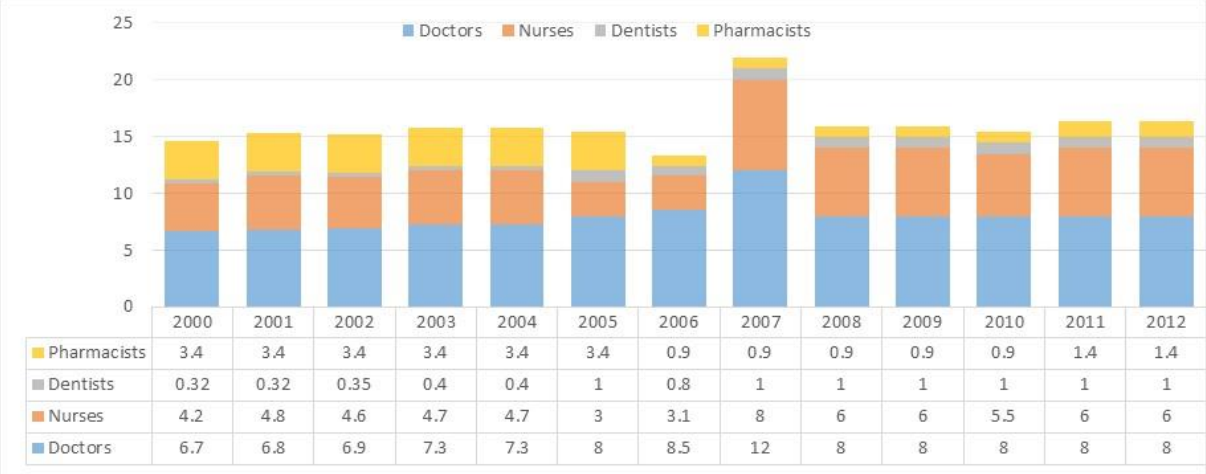
Figure 50: Frequency of problems in accessing health care as reported by CBAW by federal entities

	National	PUN	SIN	KP	BAL	ICT	GB
Getting permission to go for treatment	**17.7**	**10.3**	**19.1**	**34.2**	**57.1**	**6.5**	**20.2**
Getting money for advice or treatment	**29.7**	**19.5**	**32.4**	**57**	**62.4**	**11.3**	**50.4**
Distance to health facility	**37.1**	**25.7**	**43.5**	**63**	**69.7**	**13.6**	**57.5**
Not wanting to go alone	**53.1**	**45.1**	**56.2**	**75.1**	**73.1**	**25.4**	**66.2**
Management of transport	**40.3**	**28.1**	**51**	**62.8**	**72.6**	**15.9**	**69.2**
At least one problems accessing health care	**63.2**	**55.3**	**66.5**	**85.2**	**81.3**	**32.8**	**76.2**

Source: National Institute of Public Studies. "Pakistan Demographic and Health Survey 2012-2013". December 2013. Islamabad, Pakistan.

[36] Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report) and percentage with a vaccination card, by background characteristics, Pakistan 2012-13

Figure 51: Human resource for health by categories and years



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Pharmacists	3.4	3.4	3.4	3.4	3.4	3.4	0.9	0.9	0.9	0.9	0.9	1.4	1.4
Dentists	0.32	0.32	0.35	0.4	0.4	1	0.8	1	1	1	1	1	1
Nurses	4.2	4.8	4.6	4.7	4.7	3	3.1	8	6	6	5.5	6	6
Doctors	6.7	6.8	6.9	7.3	7.3	8	8.5	12	8	8	8	8	8

Source: WHO EMRO regional database

Figure 52: Immunization coverage and inequity by years, Pakistan (PSLM)

	2004-05	2005-06	2006-07	2007-08	2008-09	2010-11	2011-12
FIC - Based on record	49	49	50	51	51	53	56
FIC - Based on record and recall	77	71	76	73	78	81	80
Record Based							
DTP3	**50**	**53**	**53**	**55**	**51**	**56**	**58**
DTP3 Urban	62	63	65	66	61	67	70
DTP3 Rural	43	49	48	51	47	51	53
OPV3	50	55	53	56	50	53	59
Measles	49	52	51	53	51	53	57
Recard and Recall based							
DTP3	**80**	**77**	**82**	**79**	**84**	**92**	**83**
DTP3 Urban	89	89	90	88	93	83	90
DTP3 Rural	74	73	79	76	81	85	79
OPV3	81	96	84	93	81	79	96
Measles	78	76	77	76	79	82	81
Wealth inequity - FIC (Record based)							
1st Quintile				40			41
5th Quintile				70			82
Inequity				**30**			**41**

Source: PSLM Reports, Pakistan Bureau of Statistics

Figure 53: FIC by years and provinces (PSLM)

	1999-91	2001-02	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2010-11	2011-12
Pakistan	**75**	**53**		**77**	**71**	**76**	**73**	**78**	**81**	**80**
Punjab		57	50	84	76	83	76	85	86	86
Sindh		45		73	71	65	67	69	75	71
KP		57		76	64	76	74	73	77	80
Balochistan		23		62	48	54	57	43	56	37
AJK		78		83	89	77	82	94	79	83
GB					64	79	68		68	77
FATA										80

Sources: Planning Commission, government of Pakistan. MDG Report 2013

Figure 54: FIC by Provinces, residence, gender, years and data collection methods

Based on record

		2007-08			2010-11			2011-12		
		Male	Female	**Both**	Male	Female	**Both**	Male	Female	**Both**
Punjab	Urban	68	69	**68**	69	62	**66**	79	69	**74**
	Rural	57	51	**54**	59	57	**58**	61	61	**61**
	Overall	**59**	**56**	**58**	**62**	**59**	**60**	**66**	**64**	**65**
Sindh	Urban	55	50	**53**	69	62	**66**	79	69	**74**
	Rural	28	25	**26**	28	26	**27**	27	20	**23**
	Overall	**38**	**34**	**36**	**40**	**40**	**40**	**42**	**33**	**37**
KP	Urban	57	67	**62**	58	59	**58**	74	77	**76**
	Rural	46	51	**49**	49	52	**50**	53	60	**56**
	Overall	**48**	**54**	**51**	**50**	**53**	**52**	**56**	**63**	**60**
Balochistan	Urban	48	45	**46**	28	41	**35**	41	47	**44**
	Rural	31	34	**33**	20	15	**18**	26	14	**119**
	Overall	**36**	**37**	**37**	**22**	**23**	**22**	**30**	**19**	**24**
National	Urban	62	62	**62**	64	60	**62**	70	64	**67**
	Rural	48	46	**47**	50	48	**49**	53	50	**51**
	Overall	**52**	**50**	**51**	**54**	**52**	**53**	**59**	**54**	**56**

Based on recall and record

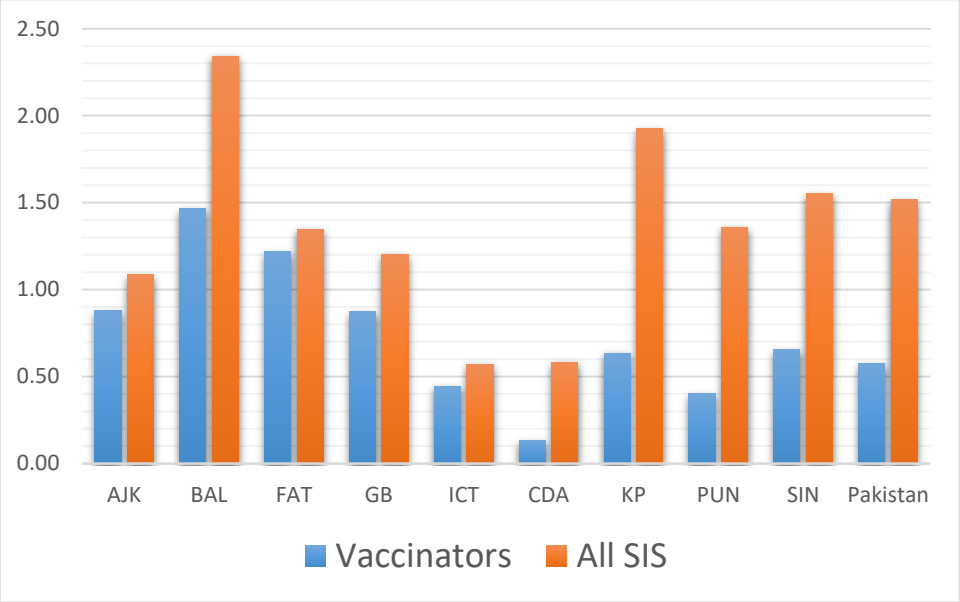
		2007-08			2010-11			2011-12		
		Male	Female	**Both**	Male	Female	**Both**	Male	Female	**Both**
Punjab	Urban	83	84	**83**	89	83	**86**	89	85	**87**
	Rural	78	68	**73**	87	85	**86**	85	88	**86**
	Overall	**79**	**73**	**76**	**87**	**84**	**86**	**86**	**87**	**86**
Sindh	Urban	83	76	**0**	83	87	**85**	91	89	**90**
	Rural	64	55	**59**	70	64	**67**	55	58	**56**
	Overall	**71**	**62**	**67**	**74**	**75**	**77**	**82**	**77**	**80**
KP	Urban	87	74	**74**	81	86	**84**	60	78	**69**
	Rural	65	78	**72**	77	77	**77**	82	76	**79**
	Overall	**69**	**80**	**74**	**78**	**77**	**77**	**82**	**77**	**89**
Balochistan	Urban	75	74	**74**	81	86	**84**	60	78	**69**
	Rural	47	52	**50**	45	45	**45**	37	23	**29**
	Overall	**55**	**58**	**57**	**55**	**56**	**56**	**42**	**32**	**37**
National	Urban	83	81	**82**	86	84	**85**	89	85	**87**
	Rural	71	67	**69**	80	77	**79**	77	76	**77**
	Overall	**75**	**71**	**73**	**82**	**79**	**81**	**81**	**79**	**80**

Source: PSLM 2011-12 Report. Pakistan Bureau of Statistics

Figure 55: High risk polio areas by provinces and districts

District	Tehsils	Union Councils	Target Population
Punjab	**19**	**448**	**3,094,109**
1 Multan	4	131	743,798
2 D.G.Khan	3	59	479,495
3 Rajanpur	4	43	389,739
4 Muzaffargarh	4	93	729,802
5 R.Y.Khan	4	122	751,275
SIN	**45**	**490**	**2,908,912**
1 Ghotki	5	35	305,016
2 Larkana	4	80	278,941
3 Kashmore	3	37	191,967
4 Shikarpur	4	50	244,292
5 Jacobabad	3	40	216,878
6 Kambar	7	40	278,238
7 Sukkur	4	46	252,496
8 Khairpur	8	76	400,714
9 Baldia	1	8	112,277
10 Gaddap	1	8	172,906
11 G. Iqbal	1	14	161,730
12 Hyderabad	4	56	293,457
KP	**6**	**171**	**892,477**
1 Charsada	3	49	261,644
2 Mardan	2	75	391,701
3 Nowshera	1	47	239,132
FATA	**23**	**435**	**836,842**
1 Khyber	4	69	229,372
2 Mohmand	7	90	131,504
3 Kurram	3	79	142,484
4 Orakzai	3	56	84,053
5 Wazir-n	3	72	141,755
6 Wazir-s	3	69	107,674
BAL	**12**	**162**	**1,015,838**
1 Jaffarabad	2	47	200,009
2 Nasirabad	3	28	126,110
3 K. Abdullah	2	27	143,464
4 Pishin	3	27	106,120
5 Quetta	2	33	440,135

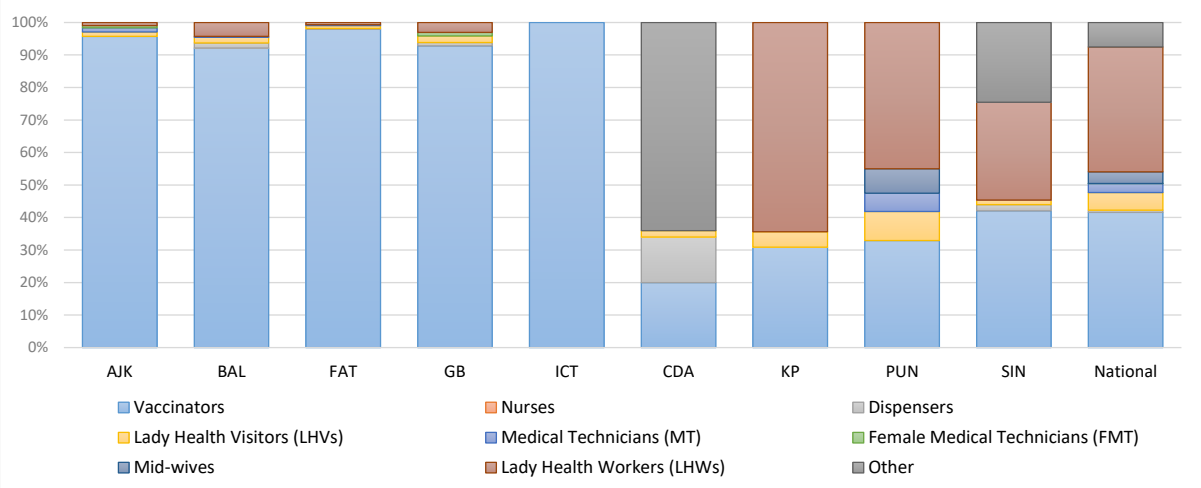
Figure 56: Ratio of vaccinators and SIS to total population and surviving infants (per 10,000) by provinces



Provinces	Per population		Per surviving infants	
	Vaccinators	All SIS	Vaccinators	All SIS
AJK	0.88	1.09	27.2	33.6
BAL	1.46	2.34	45.3	72.5
FAT	1.22	1.35	37.7	41.7
GB	0.87	1.21	26.8	37.1
ICT	0.44	0.57	13.8	17.7
CDA	0.13	0.58	4.1	18.1
KP	0.63	1.92	19.2	58.4
PUN	0.40	1.36	12.4	42.1
SIN	0.66	1.55	20.3	48.0
Pakistan	**0.58**	**1.52**	**17.8**	**46.8**

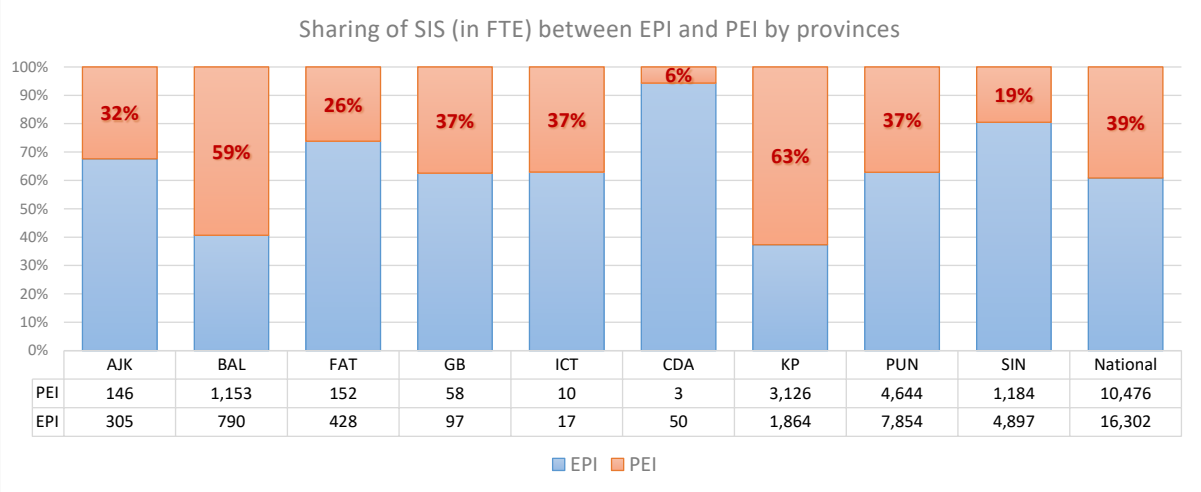
Source: Provincial cMYPs

Figure 57: Structure of SIS (by medical staff categories) by provinces (2012)

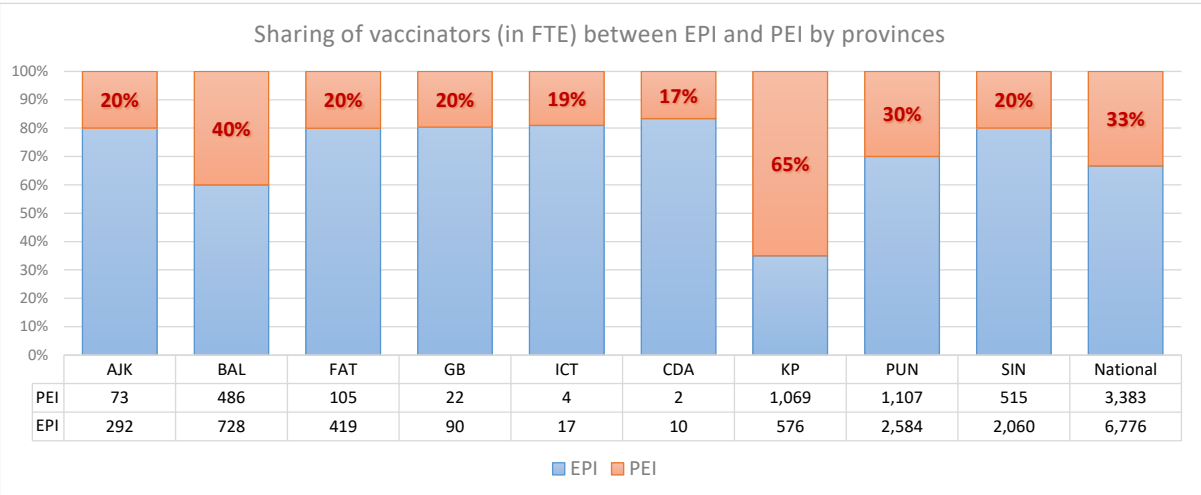


Source: Provincial cMYPs

Figure 58: Distribution of immunization workforce between PEI and EPI by provinces



	AJK	BAL	FAT	GB	ICT	CDA	KP	PUN	SIN	National
PEI	146	1,153	152	58	10	3	3,126	4,644	1,184	10,476
EPI	305	790	428	97	17	50	1,864	7,854	4,897	16,302



	AJK	BAL	FAT	GB	ICT	CDA	KP	PUN	SIN	National
PEI	73	486	105	22	4	2	1,069	1,107	515	3,383
EPI	292	728	419	90	17	10	576	2,584	2,060	6,776

Source: Provincial cMYPs

Figure 59: Selected healthcare financing indicators 1995-2011, Pakistan

Indicators	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
External resources on health as % of THE	0.8	0.7	0.7	0.7	0.7	0.8	1.1	1.4	1.5	1.9	2.7	2.6	3.0	3.8	3.4	3.8	5.1
GGHE as % of THE	26.1	27.5	25.4	20.5	19.4	21.6	21.1	28.8	24.1	25.6	26.8	31.2	27.2	26.1	26.2	28.2	27.1
Private expenditure on health (PvtHE) as % of THE	73.9	72.5	74.6	79.5	80.6	78.4	78.9	71.2	75.9	74.4	73.2	68.8	72.8	73.9	73.8	71.8	72.9
GGHE as % of General government expenditure	2.7	2.9	2.8	2.4	2.4	2.4	2.4	3.0	2.8	3.0	3.1	3.5	3.2	3.2	3.3	3.4	3.6
Social security funds as % of GGHE	5.1	4.8	4.9	5.7	5.6	5.7	5.7	4.6	4.9	4.5	4.4	3.9	4.1	3.7	3.5	3.4	3.2
Out of pocket expenditure as % of PvtHE	97.7	97.7	97.7	81.9	82.3	80.6	78.0	78.0	80.2	81.3	81.4	82.0	85.3	87.5	88.8	88.0	86.6
Out of pocket expenditure as % of THE	72.2	70.8	72.9	65.1	66.3	63.2	61.6	55.5	60.9	60.5	59.5	56.4	62.1	64.7	65.5	63.2	63.2
THE per capita (in current US$)	15.2	15.1	14.8	15.6	15.7	15.0	13.1	14.9	15.8	17.7	19.2	21.7	26.1	28.9	26.3	28.0	29.6
THE per capita in PPP$ (PKR per US$)	47.5	50.7	50.7	55.4	58.6	49.6	47.6	51.8	51.9	56.1	59.7	63.8	74.1	83.7	74.4	74.5	68.9
GGHE per capita (in current US$)	3.9	4.1	3.8	3.2	3.0	3.2	2.8	4.3	3.8	4.5	5.1	6.7	7.1	7.5	6.9	7.9	8.0
GGHE per capita PPP$ (PKR per US$)	12.4	13.9	12.9	11.3	11.4	10.7	10.0	14.9	12.5	14.4	16.0	19.9	20.1	21.8	19.5	21.0	18.7
GGHE as % of GDP	0.9	0.9	0.9	0.7	0.7	0.7	0.6	0.9	0.7	0.7	0.7	0.9	0.8	0.9	0.8	0.8	0.7
OOPS / capita at exchange rate	11.0	10.7	10.8	10.1	10.4	9.4	8.1	8.3	9.6	10.7	11.4	12.2	16.2	18.7	17.3	17.7	18.7
In million PKR																	
Rest of the world funds / External resources	4.7	5.3	6.1	6.6	7.3	8.7	13.4	18.5	21.1	30.6	48.0	54.9	78.8	130.4	123.2	155.6	229.8
Total expenditure on health	611	712	814	968	1,095	1,159	1,199	1,340	1,399	1,611	1,808	2,108	2,607	3,410	3,667	4,145	4,522
General government expenditure on health	159	196	207	198	212	251	253	386	337	412	485	657	708	889	961	1,169	1,225
Ministry of Health	13.8	15.5	16.7	18.6	17.8	20.0	20.6	51.8	60.8	68.5	88.7	121.7	111.3	140.5	146.8	185.2	0.0
Social security funds	8.1	9.3	10.2	11.2	11.9	14.2	14.3	17.8	16.6	18.7	21.3	25.8	29.0	32.6	33.9	39.6	39.6
Private expenditure on health	452	517	607	769	883	908	947	954	1,062	1,199	1,323	1,451	1,898	2,521	2,706	2,976	3,298
Private insurance	1.0	1.1	1.3	1.4	1.6	2.1	2.4	2.4	2.6	3.1	3.7	4.2	4.7	5.2	6.9	8.1	10.1
Out of pocket expenditure	441	505	594	630	726	732	738	744	852	974	1,077	1,190	1,620	2,205	2,404	2,620	2,856
Gross Domestic Product	18,659	21,202	24,283	26,777	29,384	38,261	42,099	44,527	48,756	56,406	64,998	76,232	86,730	102,428	127,240	148,037	180,329
Final consumption expenditure of Households and Non-profit institutions serving households	13,514	15,452	18,182	19,297	22,240	28,840	32,111	33,299	36,010	41,847	50,015	57,202	65,438	78,353	103,381	121,889	151,600
General government expenditure	5,955	6,845	7,510	8,237	8,772	10,430	10,488	13,073	12,220	13,755	15,619	18,912	22,237	28,150	29,247	34,188	34,227
In million current US$																	
Rest of the world funds / External resources	15.0	15.0	15.0	15.0	15.0	16.0	22.0	31.0	37.0	53.0	81.0	91.0	130.0	185.0	151.0	183.0	266.0
Total expenditure on health	1,931	1,974	1,981	2,148	2,212	2,161	1,937	2,244	2,422	2,765	3,039	3,497	4,292	4,844	4,488	4,865	5,238
General government expenditure on health	503	542	503	440	429	467	408	647	583	708	816	1,090	1,166	1,263	1,176	1,372	1,418
Ministry of Health	44.0	43.0	40.0	41.0	36.0	37.0	33.0	87.0	105.0	118.0	149.0	202.0	183.0	200.0	180.0	217.0	
Social security funds	26.0	26.0	25.0	25.0	24.0	26.0	23.0	30.0	29.0	32.0	36.0	43.0	48.0	46.0	41.0	46.0	46.0
Private expenditure on health	1,428	1,432	1,478	1,708	1,783	1,693	1,529	1,598	1,839	2,057	2,223	2,407	3,125	3,581	3,312	3,493	3,819
Private insurance	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	5.0	5.0	6.0	7.0	8.0	7.0	8.0	10.0	12.0
Out of pocket expenditure	1,394	1,398	1,444	1,399	1,467	1,365	1,192	1,246	1,475	1,672	1,809	1,974	2,666	3,132	2,942	3,076	3,308
Gross Domestic Product	58,968	58,766	59,066	59,443	59,361	71,319	67,981	74,554	84,424	96,821	109,213	126,482	142,793	145,478	155,716	173,764	208,851
Final consumption expenditure of Households and Non-profit institutions serving households	42,708	42,829	44,226	42,838	44,929	53,758	51,853	55,754	62,352	71,831	84,038	94,907	107,738	111,284	126,517	143,073	175,578
General government expenditure	18,821	18,973	18,268	18,286	17,722	19,441	16,937	21,890	21,160	23,610	26,244	31,377	36,610	39,982	35,793	40,129	39,641

Source: WHO GHED

Figure 60: The number of cases of VPD by years

VPD	1980	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Diphtheria	14,328	6,520	1,402	670	1,450	3,179	2,720	2,011	167	1,371	26	72	34	28	9	13	26	20	12	13	19	22	26	24	23	42	11	32	34	37	22	98
Measles	28,573	19,890	21,004	17,322	26,686	42,304	45,996	55,543	2,349	21,785	617	2,967	1,967	1,421	1,720	1,090	1,848	2,333	2,940	2,064	3,849	3,903	4,740	4,248	2,981	7,641	2,801	1,129	863	4,321	4,386	8,046
Pertussis	42,947	50,932	51,680	38,677	55,659	53,835	47,676	62,382	1,324	24,545	140	276	473	411	180	201	238	103	222	160	109	233	167	97	133	313	267	169	164	109	156	60
Polio	2,980	3,506	901	595	2,159	643	1,214	935	811	777	1,147	1,046	1,803	527	508	341	1,147	341	558	199	119	90	103	53	28	40	32	117	89	144	198	74
Rubella																															189	483
Tetanus (neonatal)	1,085	907	881	535	576	1,064	2,300	1,971	1,449	1,067	1,430	1,737	1,685	1,842	1,580	2,012	2,053	1,918	1,555	1,380	1,107	935	812	551	518	548	586	809	781	508	505	320
Tetanus (total)	2,738	3,856	4,880	5,599	8,143	6,137	3,190	2,164	1,494	4,080	1,544	1,875	1,858	1,940	1,687	2,125	2,119	1,957	1,610	1,465	1,184	1,016	890	649	697	610	743	984	816	559	516	320

Source: WHO vaccine preventable diseases: monitoring system. 2013 global summary[37]

Figure 61: DTP3 coverage estimates by years ans sources, Pakistan (detailed)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
DTP3 - Country Official Estimates	80	78	76	68	67	65	80	83	83	73	85	88	89	**89**
DTP3 - JRF Administrative coverage			76	69	71	67	72	86	88	73	88	99	93	94
DTP3 - WHO/UNICEF Estimates	**58**	**62**	**65**	**68**	**67**	**65**	**80**	**83**	**83**	**69**	**76**	**86**	**80**	**81**
DTP3 - Survey (PDHS)								**59**						**69**
FIC - Survey (PDHS)								47						54

Source: WHO, UNICEF, NISP

[37] http://apps.who.int/immunization_monitoring/globalsummary/incidences?c=PAK

Figure 62: Immunization system performance - cold chain and transportation details by provinces (2012)

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	National
7.1 Percentage of districts with a sufficient number of transport in working condition	70% (7)	0% (0)	100% (1)	100% (14)	100% (7)	100% (1)	50% (13)	25% (9)	100% (23)	***0% (75)***
7.2 Number of UC with vaccinators using transportation means for outreach	20 (10%)	0 (0%)	12 (75%)	132 (32%)	65 (59%)	12 (100%)	436 (42%)	3,378 (96%)	1,005 (89%)	***5,060 (72%)***
9.1 Number of UC with adequate numbers of appropriate and functional cold chain equipment vs. Number of UC with functioning health facilities	182 (90%)	420 (69%)	43 (269%)	180 (43%)	99 (90%)	12 (100%)	946 (91%)	2,841 (81%)	961 (86%)	***5,684 (81%)***
9.1. a) With ILR	122 (60%)	380 (63%)	18 (113%)	155 (37%)	88 (80%)	9 (75%)	930 (89%)	2,560 (73%)	630 (56%)	***4,892 (69%)***
9.1.b) With any kind of refrigerators	60 (30%)	40 (7%)	25 (156%)	25 (6%)	11 (10%)	3 (25%)	16 (2%)	281 (8%)	331 (29%)	***792 (11%)***

Source: Provincial cMYPs

Figure 63: Immunization system performance – service delivery details by provinces (2012)

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	National
11. Number of functioning EPI Centers	352	474	43	180	117	18	994	3,343	1,458	***6,979***
11.1 Number of population per each EPI fixed sites	11,808	17,500	21,134	23,899	10,002	26,247	23,000	27,500	26,908	***25,294***
11.2 Proportion of area covered by immunization service to the total populated area		55%					80%		91%	
11.3 Proportion of UC not having EPI centers	10%|21	37%|227	38%|6	57%|236	10%|11	0%	9%|94	19%|679	9%|101	***13%|915***
11.4 Proportion of UC not having Skilled Immunization Staff (SIS)	10%|21		0%		10%|11	0%	9%|94	4%|142	9%|101	***7%|489***
12.1 Share of immunization services delivered by EPI centers	80%	25%		43%			90%	20%	100%	
12.2 Average time EPI Centers provide immunization service per day	6	6	6	6	6	6	8	6	6	

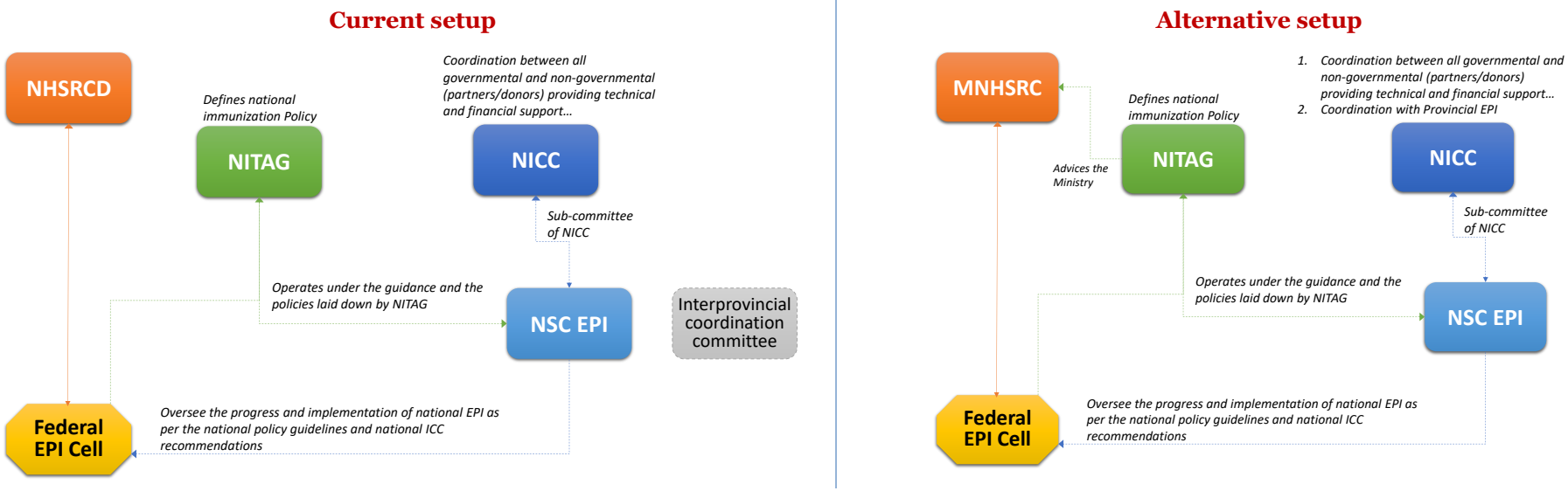
Source: Provincial cMYPs

Figure 64: Immunization system performance – surveillance and reporting by provinces (2012)

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN
13.1 Percentage of integrated VPD surveillance reports received at provincial level from districts compared to number of reports expected									
13.1.a Timeliness	50%	30%	50%	50%	50%	50%	70%	70%	64%
13.1.b Completeness	100%	31%	100%	100%	100%	100%	90%	80%	94%
13.2 AFP detection rate/100,000 population under 15 year of age	2.30	5.10	2.40	1.96	4.40	6.30	7.50	5.70	7.00
13.3 % suspected measles cases for which a laboratory test was conducted	30%	11%	74%	30%	30%	20%	30%	3051	34%
13.4 Number of neonatal deaths for which a follow up investigation conducted		7	0	0	0	0	0	-	-
13.5 Sentinel Surveillance for Rotavirus established	No	No	No	No	No	No	No	Yes	Yes
13.6 Sentinel Surveillance for meningitis (Hib/PCV) established	No	No	No	No	No	No	No	-	Yes
13.7 % of suspected meningitis cases tested for Hib/pneumococcal disease according to standard protocol	0%	No	0%	0%	0%	0%	No	-	-
14.1 % gap in match between DTP3 survey coverage and officially reported figures	36%	38%		-	-	1%	19%	12%	54%
15.1 % of districts (or UC?) that have been supplied with adequate (equal or more) number of AD syringes	100%	100%	100%	100%	100%	100%	100%	100%	100%
16.1 National AEFI System is Active with a designated national/provincial	No	No	No	No	No	No	No	No	No
16.2 Number of serious AEFI cases reported and investigated	No	No	No	No	No	No	No	No	No

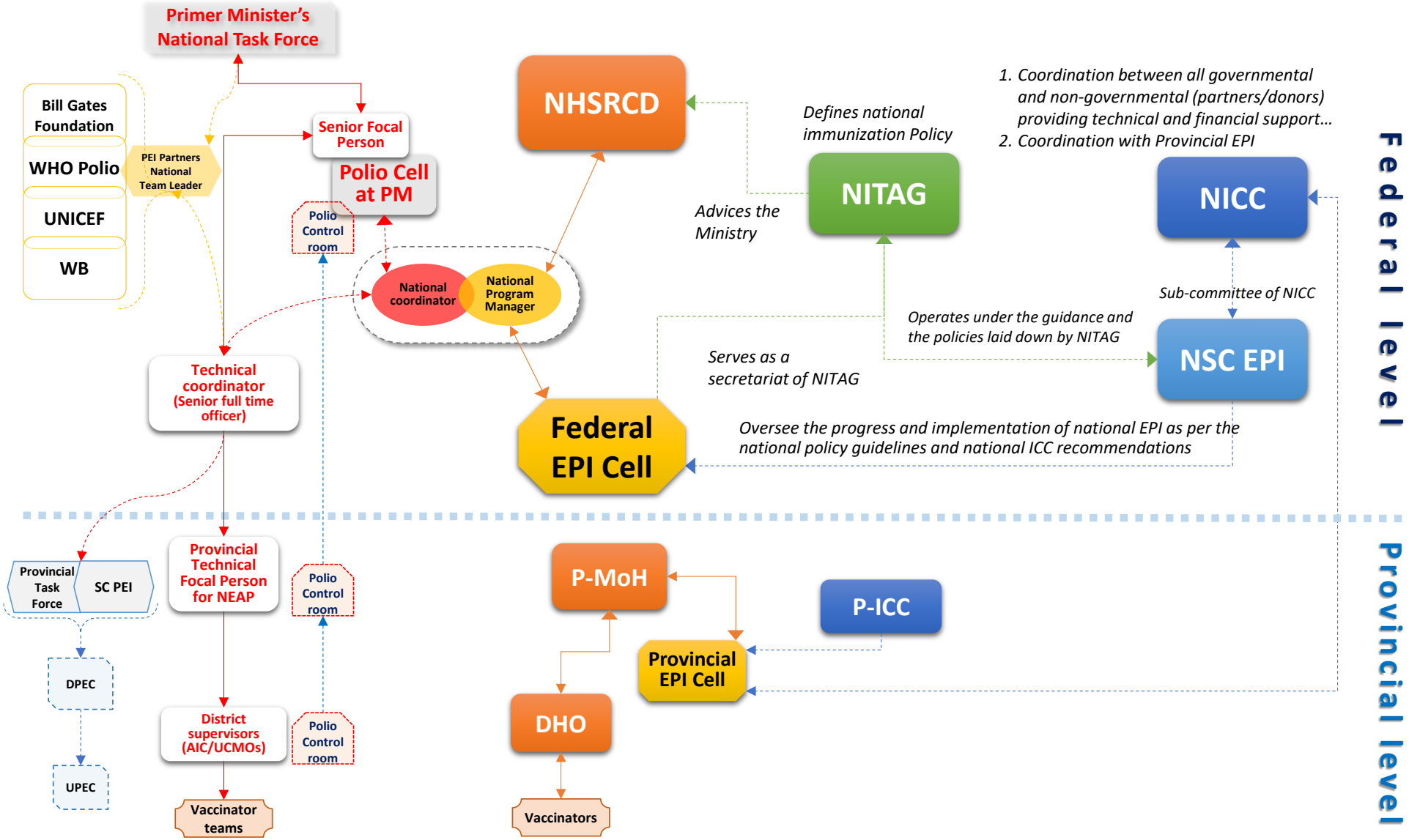
Source: Provincial cMYPs

Figure 65: Governance arrangements, EPI, Federal level



Source: National EPI Policy and Strategic Guideline, Pakistan 2013 (Draft)

Figure 66: Governance and administration schemes of EPI and PEI at the federal and provincial levels



Annex 2: Summary of SWOT Analysis by Provinces

	Strength	Weaknesses	Opportunities	Threats
Sindh	• Low turnover of vaccinators • Service delivery infrastructure • Functional AFP surveillance • Information system available • EPI integrated in healthcare system	• Insufficient number of fixed EPI centers • Mobility of vaccinators is compromised due to old motorcycles and increased fuel prices • Core EPI staff is overburdened and demotivated (at all levels) • Insufficient number of cold chain equipment – all kinds at all levels • Vaccines are not in provincial budget • Understaffed provincial EPI unit and no EPI technical staff at the district level • Significant difference in coverage figures between coverage program (administrative) data and survey results • Inadequate budget for routine expenses and delayed released of finances • Unknown status of community knowledge of and attitude toward immunization	• Public-Public and Public-Private partnerships (for service delivery and community mobilization) • 44% of population covered by LHWs • Mobile health in EPI service delivery successfully implemented in Karachi	• Lack of political commitment • Political interference in staffing • Natural disasters • Security issues
Punjab	• Well-structured program • Trained HR (vaccinators, LHVs) • Regular EPI budget for salaries and overheads • Well placed infrastructure (for fixed and outreach) • Disease surveillance dashboard and AFP surveillance system	• Substantial shortage of vaccinators • Demotivated vaccinators and EPI supervisors • Deficient and low quality outreach sessions • UC micro plans are not implemented • Deficient fixed sites in urban areas including slums particularly mega cities • Frequent polio SIAs • No proper warehouse at provincial and sub-provincial levels • Lack of vaccine management and weak vaccine supply and distribution system • Shortage of vehicles for distribution of vaccines • Lack of program ownership by decision makers • Understaffed Provincial EPI cell and lack of capacity among managerial staff • Weak monitoring and supervision system and inflated coverage data • Lack of awareness among community regarding immunization • Shortage of EPI funds	• Huge network of health field staff (LHWs, H&N Supervisors, etc.) • Huge number of PEI workers moving house to house and PEI developed infrastructure for communication • Strong support of the development partners	• Political interference particularly at district level • Illiteracy and poverty • Overreliance on donors (for vaccines, cold chain equipment, etc.) • Misconceptions in the community that polio vaccination protects children for all EPI diseases

	Strength	Weaknesses	Opportunities	Threats
Balochistan	• Program management structure available at provincial and district levels • EPI coordinator in each district • Sufficient allocations and supply of vaccines • Adequate provincial cold storage space • PEI monitoring structure available • MIS systems (DHIS and VPD) in place • Acceptance of RI in community is comparatively good as compared to PEI	• Shortage of vaccinators and lack of capacity of SIS • Inadequate number of EPI static centers • Limited number of outreach sessions • Lack of micro-planning at the UC level • Lack of special micro-plans for security compromised areas • Lack of involvement of LHWs in immunization • Lack of public private partnership initiatives • Insufficient number of vehicles/motorcycles • Major involvement of vaccination staff in PEI • High turnover of key EPI managerial staff • Minimal use of other qualified health staff in immunization • Lack of effective vaccine management • Insufficient cold chain equipment and transportation • Release of budget is irregular, limited and not timely • No AEFI surveillance system • Lack of awareness among community regarding the importance and benefits of immunization	• LHWs & CMWs available • New political set up and interest in EPI strengthening • Partners support to EPI available	• Political interference • Limited fiscal space • Notables influence to install Solars, ILRs and Cold Chain equipment at their homes. • Social and cultural barriers • Poor law and order situation, security problems • Illiteracy and poverty • Frequent power breakdowns
KP	• Increasing services provision at doorsteps • Strong administrative structures • Availability of cold rooms at provincial and divisional levels • District staff on the recurrent budget • AFP surveillance system in place • Functional DHIS and VPD reporting systems	• Insufficient service delivery capacity: high population to EPI provider ratio and compromised outreach services • Substantial shortage of SIS for EPI • One third of health facilities without EPI Centers • Difficulty in access distant communities in security compromised areas • Community acceptability of RI services • Weak cold chain system and inadequate transportation capacity • Provincial warehouse not as per required • Low storage capacity of provincial, divisional and district stores • Poor vaccine stock management at facility and district levels • Highly centralized management with limited mid-level management capacity • Routine EPI is low priority for district health team • Lack of staff and skill mix at district level • Low share of EPI in current budget • Weak financial and procurement management capacities • Monitoring structures non-functional at the district and UC levels • Misconceptions about routine immunization among mothers	• Partner support for routine EPI • Linkages with KPH • LHWs (and other paramedics) availability and involvement in RI • PEI outreach workers for community mobilization • Plan to integrate health services • Increased fiscal space • Availability of PEI monitoring structures	• Poor law and order situation • Traditional norms and practices • Illiteracy • Religious extremism • Hilly terrain • Large scale migration • PEI workload overshadowing routine immunization • Ban on recruitment by the provincial government • Political appointments

	Strength	Weaknesses	Opportunities	Threats
AJK	• Availability of fixed EPI centers in high proportion of union councils • Separate management structure for immunization program at provincial level • Availability of fulltime dedicated EPI program manager at provincial level • All notified positions of vaccinator are filled • Negligible turnover of vaccinators • An extensive network of immunization system in place across AJK • PI staff is paid through non-recurrent annual budget • Continuity of funding for the existing staff through regular budget • Availability of functional cold chain equipment in a large majority of union councils • Proximity to Federal EPI Cell for collecting vaccines • Formal reporting system in place	• A substantial number of health facilities operating without EPI services leading to high dependence on outreach immunization services • Poorly functioning outreach immunization services • EPI service provision limited to fixed centers • Difficulty in target setting for union councils • Lack of UC level micro planning • Lack of focus on dropout from vaccination • Low storage capacity for vaccine and other logistics • Inadequate planning for effective vaccine management • Inadequate transport facility for vaccinators • Inadequate refresher trainings for vaccinators • Paramedical staff not trained in immunization protocols • Poor capacity of provincial EPI office due absence of qualified technical staff for surveillance, monitoring and evaluation, cold chain management • Absence of bottom-up planning system (from UC upwards) • EPI not integrated with other MCH programs • No rationalization of operation expenditures by determining unit costs • No budget line item for vaccine procurement • Absence of feedback mechanism from provincial and district levels • Lack of staff qualified in surveillance • Irregular reporting from health facility level • No context specific communication strategy is available • Immunization staff not trained in social mobilization and communication • Lack of advocacy to policy makers and other stakeholders	• AJK government's initiative on developing an integrated approach in health service delivery • Support from external partners • New Government's commitment towards immunization program • Presence of other paramedical staff (nurses, LHV, health technicians) for involvement in vaccination activities • Availability of multiple mechanism for communication (radio, TV, print media) • Public demand for establishing EPI centers	• Escalation of border security issues across LoC • Natural disasters • Geographical landscape not suitable for maintaining a single warehouse for vaccine storage • Lack of involvement in broader policy processes can sideline immunization system • Political interference in staff relocation • Media hype created by incorrect reporting of morbidity and mortality by vaccine preventable diseases • Social barriers against immunization

	Strength	Weaknesses	Opportunities	Threats
FATA	• Immunization a recognized government responsibility • National immunization policy and schedule in place • Separate management structure for immunization program at provincial level • An extensive network of immunization system in place across FATA • Availability of established fixed EPI centers in all agencies and FRs • Availability of fulltime dedicated EPI program manager at provincial level • All notified positions of vaccinator are filled • Negligible turnover of vaccinators who are appointed on permanent basis • EPI staff is paid through non-recurrent annual budget • Continuity of funding for the existing staff through regular budget • Availability of functional cold chain equipment in a majority of union councils	• A substantial number of health facilities operating without EPI services leading to high dependence on outreach immunization services • Poorly functioning outreach immunization services • EPI service provision limited to fixed centers • Difficulty in target setting for union councils • Lack of UC level micro planning • Lack of focus on dropout from vaccination • No human resource management policy • Poor capacity of EPI Office at FATA secretariat due to non-availability of qualified technical staff for surveillance, monitoring and evaluation, cold chain management • Paramedical staff not trained in immunization protocols • Inadequate refresher trainings for vaccinators • Program managers not formally trained in MLM trainings • Dependence upon a substantial number of vaccinators supported through GAVI • Weak planning and monitoring processes • Absence of bottom-up planning system (from UC upwards) • EPI not integrated with other MCH programs • EPI managers not trained in costing and financing • No rationalization of operation expenditures by determining unit costs • No budget line item for vaccine procurement • Low storage capacity for vaccine and other logistics at provincial level • Dependence on KPK for storage of vaccines • Inadequate planning for effective vaccine management • Inadequate transport facility for vaccinators • Inability to maintain or repair installed cold chain equipment due to the lack of technical capacity and/or adequate financing • Lack of staff qualified in surveillance • Irregular reporting from health facility level • Lack of validation of reported data • No context specific communication strategy is available	• Availability of a large number of paramedical staff who can be trained in vaccination • Involvement of top political leadership in PEI • Support from external partners • Availability of multiple mechanism for communication (radio, TV, print media) • Involvement of political and religious leadership	• Escalation of military conflicts • Hilly and difficult terrain • Precarious law and order situation • Limited availability of trained human resource • Limited fiscal space on account of dependence upon the Federal government • Donor fatigue • Community opposition to immunization especially against Polio • Media hype created by incorrect reporting of morbidity and mortality by vaccine preventable diseases • Social barriers against immunization • Frequent power breakdowns

	Strength	Weaknesses	Opportunities	Threats
GB	• Availability of established fixed EPI in all districts • 90% EPI centers are functional • National immunization policy and schedule in place • Separate management structure for immunization program at provincial level • An extensive network of immunization system in place across GB • Availability of fulltime dedicated EPI program manager at provincial level • All notified positions of vaccinator are filled • Negligible turnover of vaccinators who are appointed on permanent basis • EPI staff is paid through non-recurrent annual budget • Continuity of funding for the existing staff through regular budget • Availability of functional cold chain equipment in a majority of union councils	• A substantial number of health facilities operating without EPI services leading to high dependence on outreach immunization services • Poorly functioning outreach immunization services • EPI service provision limited to fixed centers • Poor capacity of provincial EPI office due absence of qualified technical staff for surveillance, monitoring and evaluation, cold chain management • Paramedical staff partially trained in immunization protocols • Inadequate refresher trainings for vaccinators • Program managers not formally trained in MLM trainings • Weak planning and monitoring processes • EPI not integrated with other MCH programs • EPI managers not trained in costing and financing • No rationalization of operation expenditures by determining unit costs • No budget line item for vaccine procurement • Low storage capacity for vaccine and other logistics at provincial level • Inadequate planning for effective vaccine management • Inadequate transport facility for vaccinators • Weak rationalization of POL for district staff • Lack of technical expertise for repair and maintenance • Lack of staff qualified in surveillance • Irregular reporting from health facility level • No context specific communication strategy is available • Immunization staff not trained in social mobilization and communication	• Involvement of top political leadership in PEI • Involvement of top bureaucratic leadership in immunization activities • Support from external partners • Availability of a large number of paramedical staff who can be trained in vaccination	• Natural disasters • Sensitive law and order situation due to sectarian conflicts • Escalation of sectarian conflicts • Hilly and difficult terrain • Limited availability of trained human resource • Limited fiscal space on account of dependence upon the Federal government • Donor fatigue • Frequent power breakdowns • Media hype created by incorrect reporting of morbidity and mortality by vaccine preventable diseases • Social barriers against immunization

	Strength	Weaknesses	Opportunities	Threats
ICT	• National immunization policy and schedule in place • Separate management structure for immunization program at provincial level • A network of immunization system in place across ICT Self-initiative of developing tools for monitoring and supervision • Availability of fulltime dedicated EPI program manager at provincial level • All notified positions of vaccinator are filled • Negligible turnover of vaccinators who are appointed on permanent basis • Focus on long-term staff retention through recruitment of vaccinators from union councils of their residence • EPI staff is paid through recurrent annual budge • Availability of established fixed EPI centers in all union councils • 100% EPI centers are functional • Small administrative unit and easy to manage • Availability of functional cold chain equipment in 100% union councils • Availability of up-to-date surveillance and reporting guidelines and standardized case definitions	• 60-65% population requires coverage through outreach immunization services • EPI service provision limited to fixed centers • Difficulty in target setting for union councils • Lack of focus on dropout from vaccination • Low storage capacity for vaccine and other logistics at district level • Inadequate planning for effective vaccine management • Inadequate transport facility for vaccinators • Lack of technical expertise for repair and maintenance • Use of Federal government's HR policy in conflict with National EPI Policy for vaccinators recruitment • Poor capacity of provincial EPI office due absence of qualified technical staff for surveillance, monitoring and evaluation, cold chain management • Paramedical staff not trained in immunization protocols • Inadequate refresher trainings for vaccinators • Program managers not formally trained in MLM trainings • Weak planning and monitoring processes • Absence of annual development plans • Lack of continuity in bottom-up planning system (from UC upwards) • Tools for monitoring and supervision developed but not standardized • EPI not integrated with other MCH programs • EPI managers not trained in costing and financing • No rationalization of operation expenditures by determining unit costs • No budget line item for vaccine procurement • No use of surveillance data for program management • Absence of feedback mechanism from federal and district levels • Lack of staff qualified in surveillance • Irregular reporting from health facility level • Lack of validation of reported data • No context specific communication strategy is available • Immunization staff not trained in social mobilization and communication	• Donor support for RED strategy • Availability of a large number of paramedical staff who can be trained in vaccination • Involvement of top political leadership in PEI • Presence of other paramedical staff for involvement in vaccination activities • Availability of space for constructing warehouse in government health facilities • Availability of multiple mechanism for communication (radio, TV, print media) • High literacy rates • Donor support	• Limited fiscal space on account of dependence upon the Federal government • Frequent power breakdowns • Limited fiscal space on account of dependence upon the Federal government • Media hype created by incorrect reporting of morbidity and mortality by vaccine preventable diseases • Social barriers against immunization among population migrating from KPK • Sensitive law and order situation due to influx from KPK who are not registered in ICT • Seasonal migration from Murree and AJK 4-5 UCs for 4-5 months

	Strength	Weaknesses	Opportunities	Threats
CDA	• National immunization policy and schedule in place • Improvisation for developing a network of immunization system in place • Availability of established fixed EPI centers both in public and private sector • 100% notified EPI centers are functional • Availability of functional cold chain equipment in 100% EPI centers • Availability of transport facility for vaccinators • Regularization of GAVI support EPI staff • Training of health care providers from other than CDA employees on immunization practices • Human resources available in private health sector • Availability of up-to-date surveillance and reporting guidelines and standardized case definitions	• Absence of health centers in rural areas • EPI service provision in urban areas limited to fixed centers • Difficulty in target setting due to lack of information on actual population size • Lack of focus on dropout from vaccination • Low storage capacity for vaccine and other logistics at district level • Inadequate planning for effective vaccine management • Lack of technical expertise for repair and maintenance • Use of Federal government's HR policy in conflict with National EPI Policy for vaccinators recruitment • Poor capacity of provincial EPI office due absence of qualified technical staff for surveillance, monitoring and evaluation, cold chain management • Absence of fulltime dedicated EPI coordinator at DHS level • 25 vacant positions of vaccinators (out of 80 required) • Absence of EPI guidelines for private sector • Weak planning and monitoring processes • Absence of annual development plans • Weak management structure for immunization program • Program managers not formally trained in MLM trainings • EPI managers not trained in costing and financing • No rationalization of operation expenditures by determining unit costs • No budget line item for vaccine procurement • No use of surveillance data for program management • Absence of feedback mechanism from DHS to surveillance sites • Lack of staff qualified in surveillance • Irregular reporting from health facility level • Lack of validation of reported data • No context specific communication strategy is available • Immunization staff not trained in social mobilization and communication	• Involvement of top bureaucratic leadership in immunization activities especially for PEI • Availability of space for constructing warehouse in government health facilities • Large private health sector and involvement of private healthcare providers in immunization • Availability of multiple mechanism for communication (radio, TV, print media) • High literacy rates • Donor support	• Non-availability of LHWs in rural areas • Limited fiscal space for PHC activities • Frequent power breakdowns • Limited availability of services in CDA health centers • Media hype created by incorrect reporting of morbidity and mortality by vaccine preventable diseases • Seasonal migration from Murree and AJK for 4-5 months • Social barriers against immunization among population migrating from KPK

Source: Provincial cMYPs

Annex 3: Immunization program objectives and milestones

Figure 67: Immunization program outcome indicators with baseline and targets (2020) by federal entities[38]

Indicators		AJK		BAL		CDA		FAT		GB		ICT		KP		PUN		SIN	
		2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**	2012	**2020**
1	Increase DTP3 coverage	65%	**82%**	27%	**75%**	87%	**94%**	44%	**70%**	55.3%	**88%**	91%	**94%**	70%	**90%**	76%	**95%**	39%	**85%**
2	Increase Measles 1 coverage	64.5%	**40%**	37%	**40%**	87%	**46%**	50%	**45%**	51%	**41%**	85%	**46%**	58%	**43%**	70%	**48%**	45%	**43%**
3	Increase the proportion of population protected at birth from neonatal tetanus	63.5%	**70%**	23%	**50%**	25%	**60%**	35%	**60%**	51.8%	**55%**	75%	**60%**	66%	**70%**	74%	**90%**	54%	**75%**
4	Increase OPV3 coverage	81.7%	**83%**	61%	**85%**	87%	**94%**	44%	**70%**	75.2%	**85%**	91%	**94%**	76%	**95%**	92%	**95%**	39%	**85%**
5	Increase PCV coverage	-	**82%**	-	**80%**	0%	**94%**	0%	**70%**	0%	**85%**	0%	**94%**	0%	**90%**		**95%**	0%	**85%**
6	Increase IPV coverage	-	**82%**	-	**75%**		**94%**	0%	**70%**	0%	**80%**	0%	**94%**	0%	**90%**		**95%**	0%	**85%**
7	Increase Rota coverage	-	**82%**	-	**75%**		**94%**	0%	**70%**	0%	**85%**	0%	**94%**	0%	**90%**		**95%**	0%	**85%**
8	Increase Hepatitis (birth dose) coverage		**80%**	-	**30%**		**0%**						**0%**	0%	**50%**			0	**75%**
9	MR	0%	**40%**		**40%**		**46%**		**45%**		**41%**		**46%**		**43%**		**47%**		**43%**
10	TCV	0%	**80%**		**80%**		**80%**		**85%**		**80%**		**80%**		**80%**		**80%**		**85%**
11	Increase the proportion of fully immunized children	45.6%	**70%**	16	**65%**	75%	**80%**	50%	**70%**	47%	**80%**	73.9%	**80%**		**80%**	66%	**77%**	0%	**80%**
12	Improve geographical equity - % of districts(UC) that have at or above 80% DTP3 coverage	60%	**80%**	0	**60%**	36%	**100%**	7%	**77%**	0%	**100%**	100%	**100%**	53%	**90%**	--	**61%**	29%	**75%**
13	Improve socio-economic equity - difference in DTP3 coverage between the lowest and highest wealth quintiles	27%	**10%**	-	**-**	-	**↓25%**		**↓25%**	-	**↓25%**	-	**↓25%**	43%	**15%**	--	**--**	33%	**15%**
14	Decrease drop-out rate - percentage point difference between DTP1 and DTP3 coverage	14.8%	**4%**	11%	**<10**	12%	**4%**	13%	**4%**	7.1%	**4%**	10%	**4%**	10%	**7%**	11	**<10**	30%	**8%**
15	Increased demand - % of children whose mothers intend to vaccinate children		**50%**	-	**50%**		**↑25%**		**↑25%**		**↑25%**		**↑25%**	-	**35%**	-	**↑2%**	26%	**-**

Source: Provincial cMYPs

[38] Symbols ↓↑ mean an increase/decrease in per cent points from the baseline value

Figure 68: Cost of maintaining the buffer stock at national, provincial and district levels by federating entities and years

	2016	2017	2018	2019	2020	Total
AJK		$73,407	$119,506	$172,552		**$365,465**
BAL		$587,042	$136,366		$951,162	**$1,674,570**
CDA			$20,582	$12,749		**$33,331**
FAT	$100,030	$212,419	$289,844	$242,238		**$844,531**
GB	$106,367	$44,905	$67,243	$34,254		**$252,769**
ICT			$6,445		$184,376	**$190,821**
KP		$665,408	$1,408,769	$1,542,004		**$3,616,181**
PUN			$1,555,794		$6,646,406	**$8,202,200**
SIN		$2,886,804	$1,051,754	$556,470	$3,044,531	**$7,539,559**
FED		$18,449,768	$12,288,695	$10,253,341	$16,989,033	**$57,980,837**
Total	**$206,397**	**$22,919,753**	**$16,944,998**	**$12,813,608**	**$27,815,508**	**$80,700,264**

Source: Provincial cMYPs

Annex 4: Description of governance entities

Impact assessment committee

Purpose:	Conduct in-depth program review of EPI
Composition:	Headed by the Chief Health Planning Commission Members: • Ministry of National Health Services, Regulation and Coordination, • NPM-EPI, • Representative from the Ministry of Finance, • Representative of EAD, • Provincial and Federating Managers • One member each from WHO and UNICEF.
Operation:	Meeting quarterly conducting desk review of programmatic and financial reports of the EPI Carrying out coordination field visits

Project Implementation Coordination Committee (PICC)

Purpose:	1. Oversee and review the technical and financial progress of the project and 2. PSDP funds. 3. Provide guidance to the program in proper implementation of the project and resolve bottlenecks which create problem in its implementation. 4. To *monitor project at provincial* level on periodic basis
Composition:	Financial Advisor Ministry of National Health Services, Regulation and Coordination Sr. JS PDM/Health, Ministry of National Health Services, Regulation and Coordination Chief Health Planning, P&D National Programme Manager EPI (Secretary) Director Generals Health Services of all provinces Provincial Programme Managers EPI Co-opted members (any) with permission of Chairman
Operation:	Meets as and when required

National Interagency Co-ordination Committee (NICC)

Purpose:	1. **Coordinate** support at national level from government and partner agencies to strengthen EPI and polio eradication activities in Pakistan. 2. **Mobilize** the national government and NGOs to eradicate polio and control other vaccine-preventable disease. 3. **Assist** Pakistan in becoming self-sufficient in its immunization programmes. 4. **Establish** a forum for exchange of information and dialogue on immunization programmes in the country and facilitate that dialogue by making data information sources readily available. 5. **Ensure** the availability of appropriate policies, advice and tools to the Pakistan government. 6. **Assist** the international and national community in identifying and developing support for new disease control programmes when appropriate intervention tools, such as new vaccines become available. 7. **Advise** the government in specific areas related to EPI and Polio Eradication where partner agencies have specialized expertise.

	8. **Review** progress towards Polio Eradication. Improving EPI and plans for further activities.
Composition:	Chair: Federal Minister of Mo National Health Services, Regulation and Coordination Co-chair: Federal Secretary of Mo National Health Services, Regulation and Coordination 1) Financial Advisor National Health Services, Regulation and Coordination 2) JS Health Ministry of National Health Services, Regulation and Coordination 3) Chief Health Planning 4) Director General Health Services of all Provinces 5) Provincial Programme Managers EPI 6) National Program Manager EPI 7) Members from concerned organizations and government departments ▪ World Health Organization (WHO) ▪ United Nations Children Fund (UNICEF) ▪ World Bank ▪ Government of Japan ▪ Rotary International ▪ United States Agency for International Development (USAID) ▪ Department of International Development (DFID) ▪ Canadian International Development Agency (CIDA) ▪ Private Sector Organizations (Aga Khan University)
Operation:	Meets quarterly

National Steering committee for EPI

Purpose:	Oversee the progress and implementation of national EPI as per the national policy guidelines and national ICC recommendations. Ensure routine EPI duties and responsibilities laid upon officials at all levels are balanced and properly executed in harmony with other priority areas such as Polio Eradication, Measles elimination and Neonatal Tetanus elimination Exercise supportive leadership to obtain cooperation and involvement of other government and non-government organizations in EPI activities Monitor progress, seek evidence on performance and achievement, capitalize on success and solve problems
Composition:	• National Programme Manager, EPI. • National Coordinator, National Program for FP & PHC • Director, M&E, Federal EPI • Health Education Advisor – Ministry of Health • In-charge/Virologist - Regional Reference Laboratory, NIH. • WHO National Team Leader for Polo Eradication Initiative • WHO Medical Officer - EPI • Chief Health & Nutrition –UNICEF • Health Specialist (Immunization) – UNICEF • Programme Communication Specialist – UNICEF • Health Advisor – EPI, JICA Pakistan • Representatives from Rotary International • Representative from WB, USAID, DFID, CIDA.
Operation:	Hold Quarterly *provincial* meeting

NITAG

Purpose:	Guide policy makers in the Federal Ministry of Health and Federal EPI of Paista to make evidence based immunization related policy decision for routine immunization activities and for national emergencies Conduct policy analysis and formulate strategies for control, elimination and eradication of VCD Bridging partnerships among different immunization stakeholders from other government and non-government organizations, associations, bodies and civil societies
Composition:	• Formed by the executive order of the Ministry of NHSRC (on the basis of a proposal from Federal EPI "in accordance with the NSC EPI decision") • Core members – independent experts (meeting specific criteria) from the following fields ○ Pediatrics ○ Infectious disease epidemiology ○ Immunology ○ Clinical Research ○ Virology ○ Microbiology ○ Health Economics ○ Social sciences • Liaison members (not participate in final decision making): ○ National Program Manager, EPI (secretary of the NITAG) ○ Chief Health, Planning Commission ○ Chief, Public Health Division, National Institute of Health ○ National Team Leader – PEI, World Health Organization ○ Chief – Health & Nutrition, UNICEF ○ Medical Officer – EPI, World Health Organization ○ Executive Director – Pakistan Medical Research Council ○ President – Pakistan Pediatrics Association
Operation:	Policy guideline and recommendations are submitted to the Ministry for final approval and implementation Frequency of meetings – as needed

National Task Force for Polio Eradication

Purpose:	Oversee and monitor the progress made against National Emergency Plan of Action for polio eradication throughout the country with especial focus on high risk districts. Ensure that appropriate support is available to all provinces for successful implementation of District/Agency/Town Specific Plans for polio eradication.
Composition:	• Prime Minister Islamic Republic of Pakistan (Chairman) • Governor Khyber Pakhtunkhwa / FATA • Chief Ministers of all provinces • Federal Minister for IPC • Special Assistant to Prime Minister (SAPM) for Social Sector • Principal Secretary to Prime Minister Representative of the Chief of Army Staff • Federal Secretary IPC National Coordinator • PM's Polio Monitoring Cell /Focal Person • National Programme Manager EPI

	• Representatives of WHO, UNICEF, Rotary and Bill Gates Foundation, WB and USAID • Any other nominee
Operation:	Meets every six months to review the following aspects of Polio eradication initiative: 1. The progress made in provinces against Emergency Plan of Action 2011 for eradication of Polio and direct the federal and provincial governments to take remedial measures 2. Inter-provincial and inter sectoral coordination and give direction on issues if any of them hampering the efforts. 3. Adequate resources are secured for the implementation of National Emergency Plan of Action for polio eradication.

Provincial Task Force / Steering Committee for Polio Eradication

Purpose:	Oversee and monitor the progress made against National Emergency Plan of Action for polio eradication in province.
Composition:	• Chief Minister/ Chief Secretary - Chairman • Secretary, Health Department - Secretariat • Technical Focal Person for National Emergency Action Plan for Polio Eradication in Chief Minister Office – to be nominated by Chief Secretary • Secretary, Department of Education, Information, Local Government, Auqaf and Home. • Director General Health Services • Provincial EPI Manager along with Provincial Head of PRSP/PPHI • Provincial Heads of development partners (WHO, UNICEF, Rotary, etc.) • Any other nominee of Chief Secretary All Deputy Commissioners/ District Coordination Officers of the province / Political Agents (PA) of FATA will attend the meeting of PSC/PTF.
Operation:	Meet every two months to review and monitor the following aspects of Polio eradication initiative 1. Progress made in province against National Emergency Plan of Action for eradication of Polio and provide guidance on challenges being faced by each district. 2. Involvement of district and sub-district level arm of government to assume the responsibility of ensuring implementation of District Specific plan. 3. Involvement of the line departments and assigning specific roles and tasks to each department for the successful campaign implementation. 4. The plan and progress for advocacy and social mobilization activities at provincial and sub-provincial levels and ensure availability of adequate resources and their optimal use.

Annex 5: WHO Support to EPI in Pakistan 2014-2015 - key areas and activities

1 Support country in developing and updating cMYP, annual Plan of Action and microplan at national, provincial, district and lower administrative levels.
- 1.1 Technical assistance to the Federal and Provincial health ministry and health departments in developing cMYP and annual Plan of Action. Technical assistance to districts and below district level in developing operational microplan.
  - 1.1.1 cMYP development individually for every province/area and then combine to form the national cMYP
  - 1.1.2 Development of annual PoA for every province/area and at national level in the line of respective cMYPs
  - 1.1.3 Development of operational micro-plan at district and lower administrative levels
- 1.2 Holding workshops at national, provincial, district level for developing cMYP, annual PoA and operational microplan
- 1.3 Training of national and provincial immunization managers/officers and other stakeholders in developing cMYP and annual PoA. Capacity building of the district and lowest administrative unit immunization managers, immunization staff and officials of support agencies in developing operational microplan following RED approach

2 Support country in strengthening routine immunization
- 2.1 Technical assistance to the federal and provincial EPI for strengthening routine immunization
- 2.2 Capacity building of federal and provincial immunization staff and service providers in vaccine management, data quality improvement, cold chain management, service delivery
- 2.3 Operational expenses for strengthening routine immunization
- 2.4 Supply and logistics for strengthening routine immunization

3 Support country in introducing new vaccines in the national immunization schedule
- 3.1 Support country in introducing new vaccine in the national immunization schedule
- 3.2 Technical assistance in submitting application for new vaccine introduction
- 3.3 Training of immunization staff in introduction of new introduction
- 3.4 Development, revision, printing and distribution of immunization tools, forms, guidelines for new vaccine introduction
- 3.5 Operational expenses for new vaccine introduction
- 3.6 Post Introduction Evaluation

4 Support country in monitoring, evaluation and use of surveillance and immunization data
- 4.1 Use of surveillance and immunization data for monitoring and evaluation of the immunization program
  - 4.1.1 Technical assistance to the national and provincial EPI on using surveillance and immunization data for monitoring and evaluation of immunization program
  - 4.1.2 Capacity building of the national, provincial, district immunization staff on using surveillance and immunization data for monitoring and evaluation of immunization program
  - 4.1.3 Operational expenses for monitoring and evaluation of the immunization program at different levels
  - 4.1.4 Review of surveillance and immunization data through periodical review meetings, DQS, desk review and surveys
  - 4.1.5 Supply and logistics for conducting monitoring and evaluation of the immunization program

5 Support country in developing and implementing national measles, rubella/CRS, NT elimination strategy and introduction of Hep B birth dose
- 5.1 Planning and implementing Measles SIA at national and sub-national level to raise immunity against measles among the susceptible age group
  - 5.1.1 Technical assistance to the national, provincial and district level in planning and implementing Measles SIA

- 5.1.2 Training of immunization staff at various level in micro planning and implementation of Measles SIA
- 5.1.3 Operational expenses for implantation, monitoring and evaluation of the measles SIA
- 5.1.4 Monitoring and evaluation of Measles SIA and review of qualitative and quantitative aspects of Measles SIA through established monitoring system and independently
- 5.1.5 Providing support for supply and logistics for conducting Measles SIA

5.2 Improvement of routine coverage for both 1st and 2nd dose of measles vaccination

5.3 Maternal and Neonatal Tetanus (MNT) SIA in selected areas according to risk assessment

5.4 Introduction of Hep B birth dose

6 Support country in strengthening integrated VPD surveillance including measles and rubella/congenital rubella syndrome surveillance

6.1 Strengthening Integrated Vaccine Preventable Diseases (VPD) Surveillance including case-based measles/Rubella surveillance

- 6.1.1 Technical assistance for integrated VPD surveillance including case-based measles surveillance
- 6.1.2 Capacity building of the national, provincial, district surveillance staff, laboratory staff and service providers at different levels on integrated VPD surveillance including case-based measles surveillance
- 6.1.3 Operational expenses for the national integrated VPD surveillance including case-based measles surveillance and the national laboratory
- 6.1.4 Supplies and logistics for the national measles laboratory
- 6.1.5 Laboratory support for Measles surveillance as a part of the integrated VPD surveillance to the national laboratory
- 6.1.6 Review of integrated VPD surveillance system including case-based measles/Rubella surveillance

6.2 Support country in establishing Congenital Rubella Syndrome (CRS) sentinal surveillance

7 Support National Verification Committees on measles/rubella elimination

7.1 Establishment of Measles/Rubella elimination verification committees

8 Support National Immunization Technical Advisory Group and Inter-agency Coordination Committee in decision making on country need for new vaccine products through providing relevant data for inform decision making

8.1 Strengthening the decision making process of NITAG and ICC

9 Sentinel surveillance for IBD and Rotavirus diarrhea

9.1 IBD and Rotavirus Surveillance

Annex 6: WB support to immunization (EPI) in Pakistan (NISP project outline)

1 Strengthening management and Governance

1.1 Strengthening management (including Planning) and supervisory systems:

1.1.1 revision of ToRs,

1.1.2 Mid-level Management training

1.1.3 development of supervisory checklists at each tier (assistant supervisor, Tehsil/taluka level, district supervisor (DSV), district EPI coordinator/DHO, provincial program . manager), training

1.1.4 Provision of vehicles (POL) and travelling allowances

1.2 Conduct Relevant trainings (on financial management) to the available FM staff and recruitment of competent skill based FM staff

1.3 Building Financial Management and Procurement capacity. **Procurement unit established and/or supported in each provincial office**

1.4 Strengthening provincial EPI information systems (potentially including DHIS), reporting and Data Management capacity:

1.4.1 Supervisory visits, regular and refresher training of M&E technicians,

1.4.2 building capacity for data verification (HR assigned)

1.4.3 installation or update software

1.5 Enhancing Use of IT for improved management, Automation of management information processing to reduce redundancy and increase information flow. Integration of information systems - (potentially as an extension of Deliver)

2 Improving Service Delivery performance:

2.1 Application of RED strategy to inform micro plans to revise services delivery (including fixed site vs outreach)

2.2 Development of a Master Micro plan system, with coordinated plans developed down to UC level, available electronically and maintained

2.3 Development of Logistics System (USAID Deliver), strengthening of WHO VSSM

2.4 Expansion or rehabilitation of provincial cold room capacity to a minimum of 6 months' supply plus buffer

2.5 Performance-based bonuses for Districts. Institution of a program of high level political recognition of the highest achieving provinces, with transfer of a cash incentive for distribution amongst EPI staff. Based on independently verified monitoring data

2.6 Performance-based bonuses for top 15% vaccinators. Institution of a performance based cash incentive for the highest performing staff, based on independently verified monitoring data

2.7 Human Resources - functioning EPI centers in each health facility, 2 vaccinators per UC, 25% of vaccinators are females

3 Demand Generation

3.1 Social Marketing and behavior change - CSO contracts, support for health education promotion units at provincial and federal levels, CSO contracts in place. Coverage of urban slum populations.

3.2 Routine Immunization inclusion in School Curriculum

Annex 7: GVAP Checklist

GVAP Strategies	Key Activities	Activity included in cMYP			
		Yes	No	Not applicable	New activity needed
Strategic objective 1: All countries commit to immunization as a priority.					
Establish and sustain commitment to immunization.	Ensure legislation or legal framework in all countries, including provisions for a budget line for immunization, and for monitoring and reporting.	✓			
	Develop comprehensive national immunization plans that are part of overall national health plans through a bottom-up process including all stakeholders.			✓	
	Set ambitious but attainable country-specific targets within the context of morbidity and mortality reduction goals.	✓			
	Scrutinize, defend, and more closely follow immunization budgets, disbursements and immunization programme activities.	✓			
	Support local civil society organizations and professional associations to contribute to national discussions of immunizations and health.	✓			
Inform and engage opinion leaders on the value of immunization.	Explore models to promote collaboration between the stakeholders that generate evidence on immunization and those who use it to set priorities and formulate policies.	✓			
	Develop and disseminate the evidence base on the public health value of vaccines and immunization and the added value of achieving equity in access and use of immunization.	✓			
	Develop and disseminate the evidence base for the broad economic benefits of immunization for individuals, households, communities, and countries.	✓			
	Include immunization in the agendas of governing body meetings at all levels and in other social, health and economic forums.	✓			
Strengthen national capacity to formulate evidence-based policies.	Create or strengthen independent bodies that formulate national immunization policies (for example, NITAGs or regional technical advisory groups).			✓	
	Develop more effective ways for National Regulatory Agencies (NRAs), Health Sector Coordination Committees (HSCCs), and Interagency Coordination Committees (ICCs) to support immunization programmes as part of disease control programmes and preventive health care.	✓			
	Create regional forums and peer-to-peer exchange of information, best practices and tools.				✓
	Create expanded and more transparent mechanisms for aggregating, sharing, and using information to monitor commitments.				✓
Strategic objective 2: Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility.					
Engage individuals and communities on the benefits of immunization	Engage in a dialogue which both transmits information and responds to people's concerns and fears.	✓			
	Utilize social media tools and lessons from commercial and social marketing efforts.	✓			
	Leverage new mobile and Internet-based technologies.	✓			

GVAP Strategies	Key Activities	Activity included in cMYP			
		Yes	No	Not applicable	New activity needed
and hear their concerns.	Include immunization in the basic education curriculum.	✓			
	Conduct communications research.	✓			
Create incentives to stimulate demand.	Create incentives to households and health workers for immunization, where appropriate and while respecting the autonomy of beneficiaries (for example, cash or in-kind transfers, bundling of services, media recognition).	✓			
	Conduct social research to improve the delivery of immunization services and the ability to meet the needs of diverse communities.	✓			
Build advocacy capacity.	Recruit new voices, including those of educators, religious leaders, traditional and social media personalities, family physicians, community health workers, and trained immunization champions (among others).	✓			
	Train healthcare workers on effective communication techniques, especially to address vaccine hesitancy and to respond to reports of serious adverse events following immunization in order to maintain trust and allay fears.	✓			
	Engage, enable and support in-country CSOs to advocate to local communities and policy-makers and in local and global media regarding the value of vaccines.	✓			
	Create national or regional advocacy plans that involve in-country CSOs.	✓			
	Link global, national and community advocacy efforts with professional and academic networks.	✓			
Strategic objective 3: The benefits of immunization are equitably extended to all people.					
Develop and implement new strategies to address inequities.	Recast "Reaching Every District" to "Reaching Every Community" to address inequities within districts.	✓			
	Engage underserved and marginalized groups to develop locally tailored, targeted strategies for reducing inequities.	✓			
	Introduce appropriate new vaccines in national immunization programmes (see also Objective 5).	✓			
	Establish a life course approach to immunization planning and implementation, including new strategies to ensure equity across the life span.			✓	
	Prevent and respond to vaccine-preventable diseases during disease outbreaks, humanitarian crises, and in conflict zones.	✓			
Build knowledge base and capacity to enable equitable delivery.	Track each individual's immunization status, leveraging immunization registries, electronic databases and national identification number systems.	✓			
	Take advantage of community structures to enhance communication and deliver services (for example, traditional birth attendants, birth registries).	✓			
	Involve CSOs in community outreach and planning.			✓	
	Develop new approaches to community engagement for urban and peri-urban areas.	✓			
	Train health workers and CSOs on how to engage communities, identify influential people who can assist in planning, organizing and monitoring health and immunization programmes, identify	✓			

GVAP Strategies	Key Activities	Activity included in cMYP			
		Yes	No	Not applicable	New activity needed
	community needs and work with communities to meet those needs.				
	Conduct operational and social science research to identify successful strategies to reduce inequities and improve the quality and delivery of immunization services.	✓			
Strategic objective 4: Strong immunization systems that are an integral part of a well-functioning health system.					
Develop comprehensive and coordinated approaches.	Ensure that global vaccine programmes focusing on eradication and elimination goals are incorporated into national immunization programmes.	✓			
	Ensure that new vaccine deployment is accompanied by comprehensive disease control plans	✓			
	Ensure coordination between the public and private sectors for new vaccine introduction, reporting of vaccine-preventable diseases and administration of vaccines, and ensure quality of vaccination in the public and private sectors.	✓			
	Consider the inclusion of vaccines in health programmes across the life course.			✓	
Strengthen monitoring and surveillance systems.	Improve the quality of all immunization administrative data and promote its analysis and use at all administrative levels to improve programme performances.	✓			
	Develop and promote the use of new technologies for collection, transmission and analysis of immunization data.	✓			
	Further strengthen, improve quality and expand disease surveillance systems to generate information based on laboratory confirmed cases for decision-making, monitoring the impact of immunization on morbidity and mortality and changes in disease epidemiology.	✓			
	Ensure capacity for vaccine safety activities, including capacity to collect and interpret safety data, with enhanced capacity in countries that introduce newly developed vaccines.	✓			
Strengthen capacity of managers and frontline workers.	Ensure that immunization and other primary health care programmes have adequate human resources to schedule and deliver predictable services of acceptable quality.	✓			
	Increase levels of pre-service, in-service and post-service training for human resources, and develop new, relevant curricula that approach immunization as a component of comprehensive disease control.	✓			
	Promote coordinated training and supervision of community-based health workers.	✓			
Strengthen infrastructure and logistics.	Innovate to improve cold chain capacity and logistics, as well as waste management.	✓			
	Minimize the environmental impact of energy, materials and processes used in immunization supply systems, both within countries and globally.	✓			
	Staff supply systems with adequate numbers of competent, motivated and empowered personnel at all levels.	✓			
	Establish information systems that help staff accurately track the available supply.	✓			

GVAP Strategies	Key Activities	Activity included in cMYP			
		Yes	No	Not applicable	New activity needed
Strategic objective 5: Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies.					
Increase total amount of funding.	Establish a commitment for governments to invest in immunization according to their ability to pay and the expected benefits.	✓			
	Engage new potential domestic and development partners and diversify sources of funding.	✓			
	Develop the next generation of innovative financing mechanisms.			✓	
Increase affordability for middle-income countries.	Explore differential pricing approaches to define explicit criteria for price tiers and the current and future prices to be made available to lower middle-income and middle-income countries.			✓	
	Explore pooled negotiation or procurement mechanisms for lower-middle-income and middle income countries.			✓	
Improve allocation of funding in low- and middle-income countries.	Strengthen budgeting and financial management in-country to better integrate financial and health care planning and priority setting.	✓			
	Coordinate funding support from development partners and other external sources.	✓			
	Evaluate and improve funding support mechanisms on the basis of their effectiveness in reaching disease goals.	✓			
	Base funding on transparency and objectivity in order to ensure the sustainability of programmes.	✓			
	Promote the use of cost and cost-benefit arguments in fund raising, decision-making, and defence of immunization funding.	✓			
	Explore pay-for-performance funding systems.	✓			
Secure quality supply	Build and support networks of regulators and suppliers to share best practices and to improve quality assurance capabilities and quality control.			✓	
	Develop tools to strengthen global standardization of manufacturing and regulatory processes.			✓	
	Strengthen national regulatory systems and develop globally harmonized regulations.			✓	
	Ensure a forum where countries can communicate expected demand for vaccines and technologies and provide guidance to manufacturers on desired product profiles.			✓	
Strategic objective 6: Country, regional and global R&D innovations maximize the benefits of immunization.					
Expand capabilities and increase engagement with end-users.	Engage with end users to prioritize vaccines and innovations according to perceived demand and added value.			✓	
	Establish platforms for exchange of information on immunization research and consensus building.			✓	
	Build more capacity and human resources in low- and middle-income countries to conduct R&D and operational research.			✓	
	Increase networking among research centres for efficient building of partnerships among high-, middle- and low-income countries' institutions.			✓	
	Promote collaboration between traditional research disciplines and scientists from disciplines not previously engaged in vaccine research.			✓	

GVAP Strategies	Key Activities	Activity included in cMYP			
		Yes	No	Not applicable	New activity needed
Enable the development of new vaccines	Research on the fundamentals of innate and adaptive immune responses, particularly in humans.			✓	
	Research on immunologic and molecular characteristics of microbes.			✓	
	Improve understanding of the extent and causes of variation in pathogen and human population responses to vaccines.			✓	
Accelerate development, licensing and uptake of vaccines.	Promote greater access to technology, know-how and intellectual property for adjuvants and their formulation into vaccines.			✓	
	Develop non-syringe delivery mechanisms and vaccine packaging that best suit the needs and constraints of countries' programmes.			✓	
	Develop thermo-stable rotavirus and measles vaccines.			✓	
	Develop new bioprocessing and manufacturing technologies.			✓	
	Develop a global, regulatory science research agenda.			✓	
	Adopt best practices in portfolio and partnership management for R&D			✓	
Improve programme efficiencies and increase coverage and impact.	Research the use of more effective information through modern communication technologies.	✓			
	Conduct representative epidemiological, immunological, social and operational studies and investigations of vaccine impact to guide health economics analysis.	✓			
	Perform operational research on improved delivery approaches for life course immunization, and vaccination in humanitarian emergencies, fragile states and countries in and emerging from conflict.	✓			
	Perform research on interference effects and optimum delivery schedules.			✓	
	Perform research to develop improved diagnostic tools for conducting surveillance in low-income countries.			✓	

Annex 8: Costing and financing (National)

Figure 69: Immunization programcosts in 2012 by cMYP components and provinces

Category	AJK	BAL	FAT	GB	ICT	KP	PUN	SIN	FED	CDA	TOTAL
Vaccine Supply and Logistics (routine only)	$1,671,215	$3,311,361	$1,653,716	$474,460	$214,287	$7,600,403	$27,601,015	$14,504,737	$346,833	$320,789	**$57,698,816**
Service Delivery	$1,855,800	$5,346,812	$2,154,300	$652,237	$80,307	$6,564,924	$13,770,814	$11,120,644	$1,232,695	$95,303	**$42,873,835**
Advocacy and Communication	$0	$72,186	$163,383	$3,000	$0	$1,387,899	$2,170,876	$35,556	$346,130	$0	**$4,179,030**
Monitoring and Disease Surveillance	$0	$282,981	$0	$0	$0	$15,556	$196,148	$22,000	$0	$0	**$516,685**
Program Management	$0	$328,304	$9,333	$68,120	$4,667	$661,667	$788,899	$285,778	$82,702	$2,000	**$2,231,469**
Supplemental Immunization Activities (SIA) (includes vaccine and operation costs)	$1,239,822	$7,984,126	$2,122,574	$194,434	$95,270	$4,979,795	$44,801,426	$13,726,007	$0	$158,248	**$75,301,701**
Shared Health Systems Costs	$1,953,184	$4,666,101	$528,592	$455,547	$64,707	$9,388,563	$30,760,349	$6,813,200	$1,255,178	$31,867	**$55,917,287**
GRAND TOTAL	**$6,720,021**	**$21,991,870**	**$6,631,898**	**$1,847,797**	**$459,237**	**$30,598,806**	**$120,089,527**	**$46,507,921**	**$3,263,538**	**$608,206**	**$238,718,823**
% of Total	**3%**	**9%**	**3%**	**1%**	**0%**	**13%**	**50%**	**19%**	**1%**	**100%**	

Figure 70: Routine immunization costs (2012) by major cost categories and provinces

Cost categories	AJK	BAL	CDA	PUN	FAT	GP	ICT	KP	SIN	Total
Traditional Vaccines	$183,565	$298,075	$30,317	$3,927,426	$207,407	$48,695	$19,125	$977,460	$1,398,747	**$7,090,817**
Underused Vaccines	$1,069,988	$1,521,589	$169,638	$20,072,614	$1,041,547	$300,658	$177,085	$5,332,073	$9,445,898	**$39,131,090**
New Vaccines	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
Injection supplies	$65,184	$102,790	$10,985	$1,236,262	$63,564	$15,978	$8,045	$747,561	$617,932	**$2,868,301**
Personnel	$1,771,707	$5,013,238	$77,640	$11,629,261	$1,988,899	$502,980	$72,132	$6,312,720	$10,177,401	**$37,545,978**
Transportation	$84,093	$333,574	$17,663	$2,141,553	$165,400	$149,257	$8,175	$252,204	$943,243	**$4,095,163**
Other routine recurrent costs	$276,922	$1,128,733	$27,182	$5,520,637	$347,248	$180,249	$14,699	$2,608,430	$2,457,716	**$12,561,816**
Vehicles	$0	$116,667	$0	$0	$0	$0	$0	$0	$72,222	**$188,889**
Cold chain equipment	$75,556	$826,978	$84,667	$0	$166,667	$0	$0	$0	$855,556	**$2,009,422**
Other capital equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
Total	**$3,527,015**	**$9,341,644**	**$418,092**	**$44,527,752**	**$3,980,732**	**$1,197,817**	**$299,261**	**$16,230,448**	**$25,968,715**	**$105,491,475**

Figure 71: Personnel cost structure by provinces (2012)

	AJK	BAL	CDA	FATA	GB	ICT	KP	PUN	SIN	Total Provinces
Salaries of full-time NIP health workers	$1,682,133	$4,120,870	$76,760	$1,952,713	$465,067	$70,592	$6,217,373	$10,471,245	$9,633,261	**$34,690,014**
Per-diems for outreach vaccinators/mobile teams	$24,333	$225,224	$880	$27,947	$8,213	$1,540	$87,733	$575,796	$188,833	**$1,140,500**
Per-diems for supervision and monitoring	$65,240	$667,144	$0	$8,240	$29,700	$0	$7,613	$582,220	$355,307	**$1,715,464**
Shared personnel costs	$1,953,184	$4,666,101	$31,867	$528,592	$455,547	$64,453	$9,182,939	$30,760,349	$6,803,620	**$54,446,652**
Total	**$3,724,891**	**$9,679,339**	**$109,507**	**$2,517,491**	**$958,527**	**$136,585**	**$15,495,659**	**$42,389,610**	**$16,981,021**	**$91,992,630**

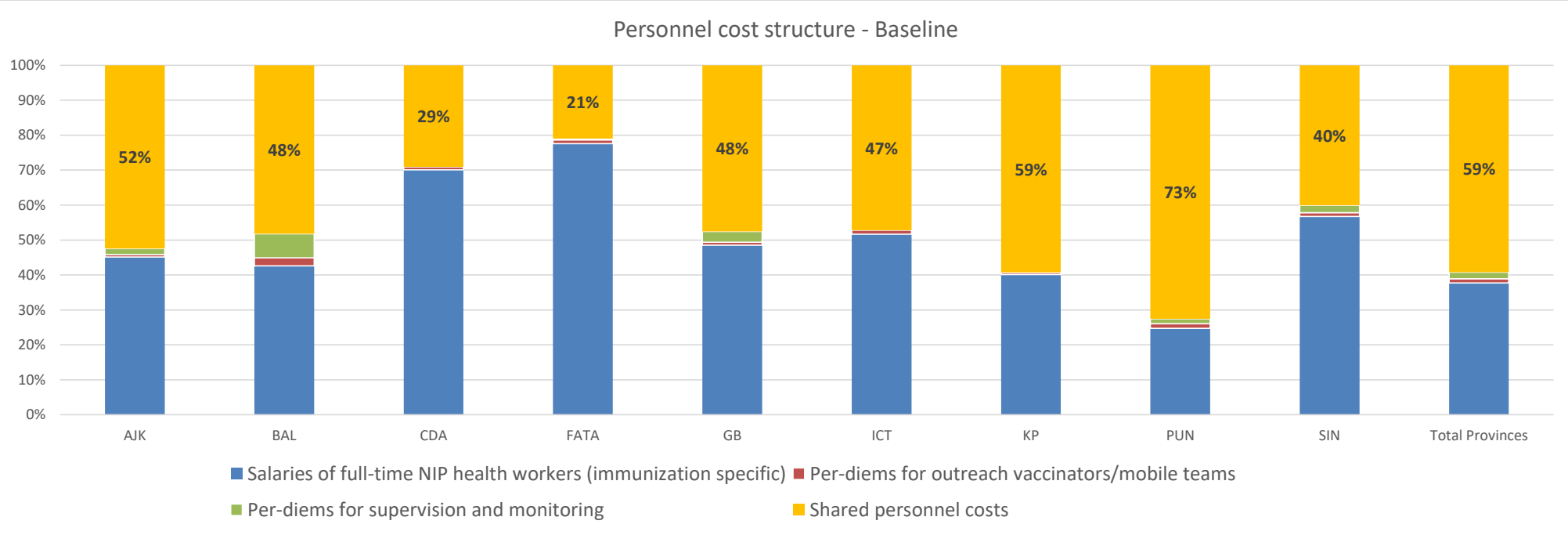


Figure 72: Baseline financial indicators by provinces

Baseline Indicators	AJK	BAL	FAT	GB	ICT	KP	PUN	SIN	CDA	National
Total Immunization Expenditures	**$4,766,837**	**$17,325,769**	**$6,103,306**	**$1,392,251**	**$394,530**	**$21,210,243**	**$89,329,178**	**$39,694,722**	**$576,339**	**$180,793,176**
Campaigns	$1,239,822	$7,984,126	$2,122,574	$194,434	$95,270	$4,979,795	$44,801,426	$13,726,007	$158,248	**$75,301,701**
Routine Immunization only	$3,527,015	$9,341,644	$3,980,732	$1,197,817	$299,261	$16,230,448	$44,527,752	$25,968,715	$418,092	**$105,491,475**
Population	4,156,319	8,295,628	4,301,732	1,286,039	472,454	25,929,799	91,943,208	39,231,406	908,754	**176,525,339**
Per Capita (Routine Only)	$0.85	$1.13	$0.93	$0.93	$0.63	$0.63	$0.48	$0.66	$0.46	**$0.60**
DTP3 Children	87,275	72,357	61,146	23,124	13,920	598,434	2,257,371	494,275	25,541	**3,633,442**
Per DTP3 child (Routine Only)	$40	$129	$65	$52	$21	$27	$20	$53	$16	**$29**
Vaccines and Supplies (Routine)	$1,318,737	$1,922,454	$1,312,518	$365,331	$204,255	$7,057,094	$25,236,302	$11,462,577	$210,940	**$49,090,208**
% Vaccines and supplies (Routine)	37%	21%	33%	30%	68%	43%	57%	44%	50%	**46.5%**
Government Funding	$2,381,471	$7,950,656	$2,229,263	$830,706	$122,176	$10,226,506	$21,780,229	$14,788,736	$281,787	**$60,591,529**
% Government funding	68%	85%	56%	69%	41%	63%	49%	57%	67%	**57%**
THE	$124,689,570	$248,868,840	$129,051,960	$38,581,170	$14,173,620	$777,893,970	$2,758,296,240	$1,176,942,180	$27,262,620	**$5,295,760,170**
% Total health expenditures	3%	4%	3%	3%	2%	2%	1.6%	2%	2%	**2.0%**
GHE	$12,468,957	$24,886,884	$12,905,196	$3,858,117	$1,417,362	$77,789,397	$275,829,624	$117,694,218	$2,726,262	**$529,576,017**
% Gov. health expenditures	28%	38%	31%	31%	21%	21%	16.1%	22%	15%	**19.9%**
% GDP	$5,220,336,664	$10,419,308,768	$5,402,975,392	$1,615,264,984	$593,402,224	$32,567,827,544	$115,480,669,248	$49,274,645,936	$1,141,395,024	**$221,715,825,784**
Total Shared Costs	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0.048%**
Shared health systems cost	**$1,953,184**	**$4,666,101**	**$528,592**	**$455,547**	**$64,707**	**$9,388,563**	**$30,760,349**	**$6,813,200**	**$31,867**	**$54,662,109**
% Shared health systems cost	$1,953,184	$4,666,101	$528,592	$455,547	$64,707	$9,388,563	$30,760,349	$6,813,200	$31,867	**$54,662,109**
TOTAL	29%	21%	8%	25%	14%	31%	26%	15%	5%	**23%**

Figure 73: Total resource requirements (2016-2020) by major system components and provinces

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	Total Provinces	FED	TOTAL
Routine - Reccurent	$41,975,421	$104,028,049	$9,029,512	$43,050,244	$21,161,881	$7,062,271	$263,968,592	$760,998,031	$342,781,570	$1,594,055,572	$117,076,583	$1,711,132,156
Routine - Capital	$4,748,116	$14,059,951	$812,096	$2,403,269	$1,832,884	$891,307	$15,195,051	$36,096,491	$10,587,890	$86,627,054	$1,211,718	$87,838,772
SIA	$18,930,464	$71,343,883	$5,158,080	$14,245,828	$5,086,746	$4,801,511	$151,454,524	$664,097,759	$200,285,036	$1,135,403,831	$0	$1,135,403,831
Shared system costs	$12,516,707	$29,565,755	$798,517	$130,039,962	$7,481,054	$520,450	$76,546,755	$194,895,390	$40,146,457	$492,511,048	$360,811	$492,871,859
Total	$78,170,709	$218,997,639	$15,798,205	$189,739,303	$35,562,565	$13,275,538	$507,164,923	$1,656,087,671	$593,800,954	$3,308,597,506	$118,649,112	$3,427,246,618

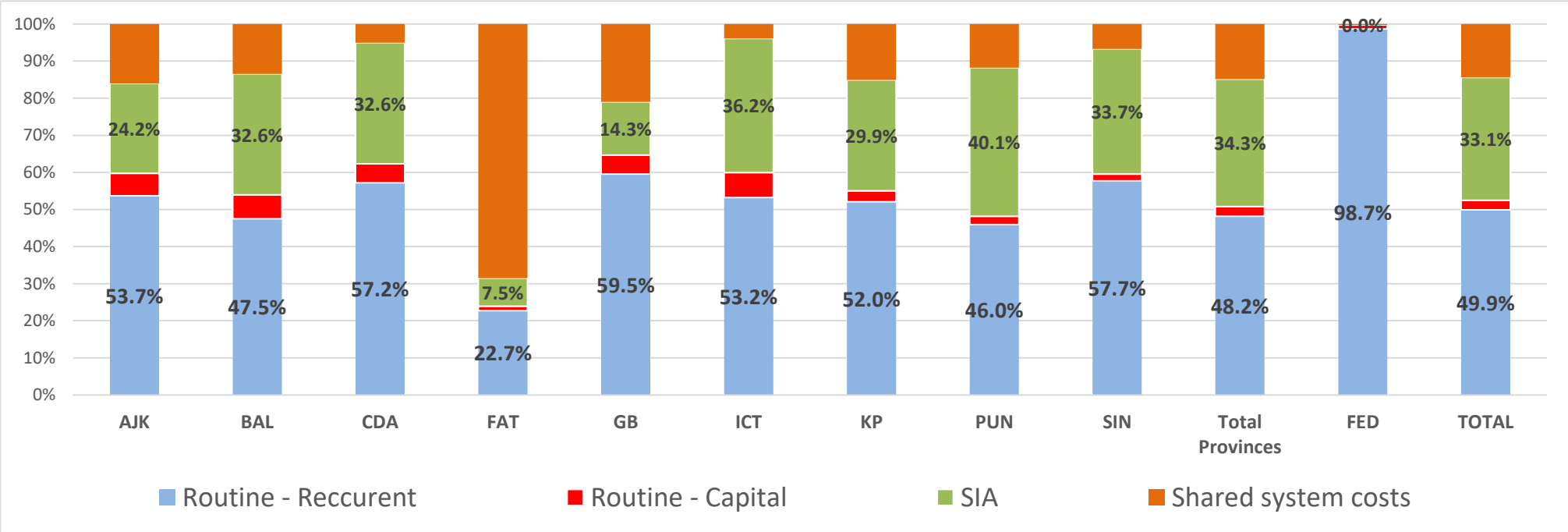


Figure 74: Total (2016-2020) resource requirements by cMYP components and provinces

Category	AJK	BAL	FAT	GB	ICT	KP	PUN	SIN	FED	CDA	TOTAL
Vaccine Supply and Logistics (routine only)	$30,325,435	$69,047,992	$25,723,434	$12,176,191	$6,028,498	$205,564,416	$659,679,785	$266,061,039	$1,429,601	$7,373,679	$1,283,410,069
Service Delivery	$14,954,918	$44,797,938	$14,635,433	$7,887,566	$1,184,384	$59,136,016	$110,766,485	$69,880,927	$6,263,425	$1,639,286	$331,146,377
Advocacy and Communication	$67,846	$638,100	$80,300	$68,008	$35,122	$1,614,304	$13,228,556	$1,539,448	$30,334,226	$35,604	$47,641,514
Monitoring and Disease Surveillance	$514,480	$1,955,485	$628,484	$1,181,626	$154,256	$1,571,939	$8,037,675	$3,461,148	$14,286,297	$118,081	$31,909,471
Programme Management	$860,858	$1,648,487	$4,385,862	$1,681,373	$551,318	$11,276,969	$5,382,021	$12,426,899	$65,974,753	$674,958	$104,863,496
SIA	$18,930,464	$71,343,883	$14,245,828	$5,086,746	$4,801,511	$151,454,524	$664,097,759	$200,285,036	$0	$5,158,080	$1,135,403,831
Shared Health Systems Costs	$12,516,707	$29,565,755	$130,039,962	$7,481,054	$520,450	$76,546,755	$194,895,390	$40,146,457	$360,811	$798,517	$492,871,859
GRAND TOTAL	$78,170,709	$218,997,639	$189,739,303	$35,562,565	$13,275,538	$507,164,923	$1,656,087,671	$593,800,954	$118,649,112	$15,798,205	$3,427,246,618
% of Total	2%	6%	6%	1%	0%	15%	48%	17%	3%	1%	100%

Figure 75: Total resource requirements by years (national)

Category	2016	2017	2018	2019	2020	TOTAL	
Vaccine Supply and Logistics (routine only)	$222,869,460	$217,174,602	$236,055,515	$323,776,241	$283,534,252	**$1,283,410,069**	37.4%
Service Delivery	$50,977,400	$51,761,587	$55,355,427	$80,973,304	$92,078,658	**$331,146,377**	9.7%
Advocacy and Communication	$3,867,820	$3,985,116	$4,116,436	$17,552,491	$18,119,653	**$47,641,514**	1.4%
Monitoring and Disease Surveillance	$4,995,467	$5,226,971	$5,394,024	$8,620,609	$7,672,401	**$31,909,471**	0.9%
Programme Management	$12,577,749	$10,604,392	$9,946,625	$22,545,483	$49,189,248	**$104,863,496**	3.1%
Supplemental Immunization Activities (SIA) (includes vaccine and operation costs)	$117,707,595	$127,105,343	$112,301,586	$232,703,884	$545,585,423	**$1,135,403,831**	33.1%
Shared Health Systems Costs	$60,586,088	$63,353,022	$67,873,950	$158,882,021	$142,176,777	**$492,871,859**	14.4%
GRAND TOTAL	**$473,581,578**	**$479,211,032**	**$491,043,562**	**$845,054,033**	**$1,138,356,411**	**$3,427,246,618**	**100%**

Figure 76: Total resource requirements (2016-2020) by major cost categories and provinces – routine immunization only

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	**Total Provinces**	FED	**TOTAL**
Vaccines - Traditional	$802,826	$1,855,956	$203,149	$762,917	$256,617	$164,793	$5,516,903	$24,437,781	$9,289,637	$43,290,578	$0	**$43,290,578**
Vacccines Underused	$4,104,327	$7,922,862	$1,033,412	$3,693,901	$1,339,900	$691,801	$30,377,930	$100,822,281	$40,423,742	$190,410,157	$0	**$190,410,157**
Vaccines New	$18,295,003	$37,926,816	$4,930,649	$17,630,155	$6,224,289	$3,875,250	$142,050,494	$462,960,954	$185,338,512	$879,232,123	$0	**$879,232,123**
Injection Supplies	$699,403	$1,441,506	$170,584	$640,988	$219,444	$134,621	$5,156,300	$18,293,654	$7,419,095	$34,175,596	$0	**$34,175,596**
Personnel	$13,635,054	$39,870,089	$1,335,962	$12,601,524	$6,946,541	$1,000,995	$52,196,932	$94,178,452	$59,579,379	$281,344,926	$4,557,696	**$285,902,623**
Transportation	$1,319,864	$4,927,849	$303,325	$2,033,908	$941,026	$183,389	$6,939,084	$16,588,033	$10,301,548	$43,538,026	$1,705,728	**$45,243,754**
Maintenance & overhead	$1,675,760	$6,424,006	$848,319	$4,276,464	$3,427,642	$772,123	$13,210,305	$19,761,163	$13,062,696	$63,458,478	$656,873	**$64,115,351**
Other Routine Recurrent costs	$1,443,184	$3,658,966	$204,112	$1,410,387	$1,806,423	$239,300	$8,520,643	$23,955,712	$17,366,962	$58,605,689	$110,156,285	**$168,761,974**
Total	**$41,975,421**	**$104,028,049**	**$9,029,512**	**$43,050,244**	**$21,161,881**	**$7,062,271**	**$263,968,592**	**$760,998,031**	**$342,781,570**	**$1,594,055,572**	**$117,076,583**	**$1,711,132,156**

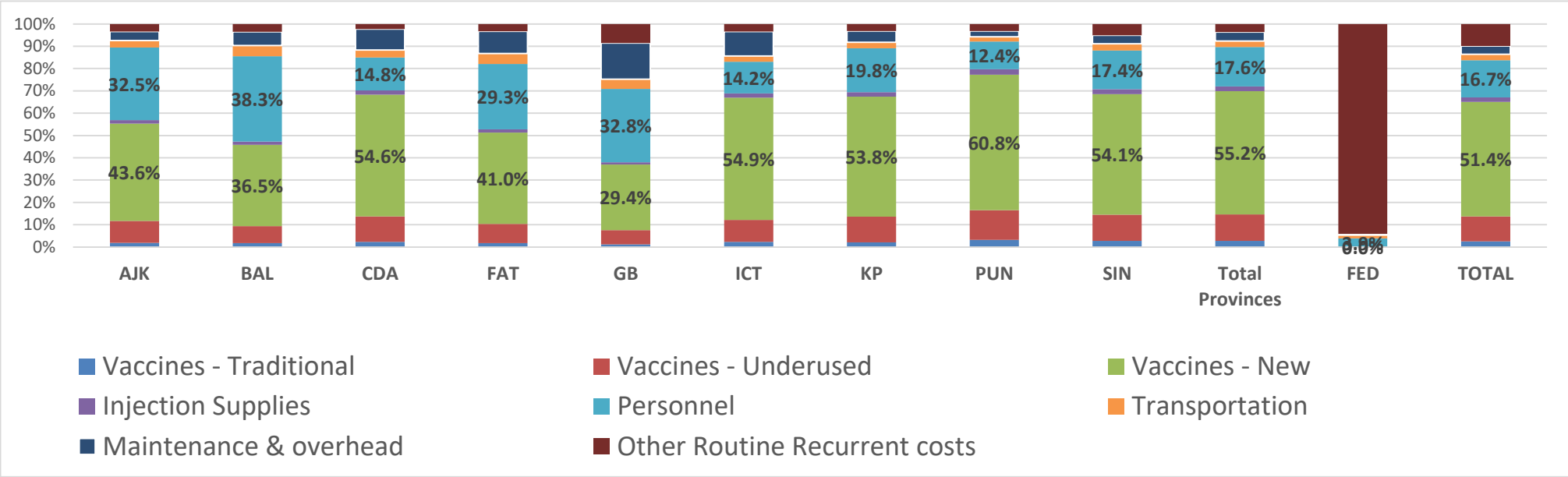


Figure 77: Total (2016-2020) resource requirements by cost category and provinces

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	FED	TOTAL
Routine Recurrent Costs											
Vaccines (routine vaccines only)	$23,202,156	$47,705,634	$6,167,210	$22,086,973	$7,820,806	$4,731,844	$177,945,328	$588,221,016	$235,051,892	$0	$1,112,932,858
Traditional	$802,826	$1,855,956	$203,149	$762,917	$256,617	$164,793	$5,516,903	$24,437,781	$9,289,637	$0	$43,290,578
Underused	$4,104,327	$7,922,862	$1,033,412	$3,693,901	$1,339,900	$691,801	$30,377,930	$100,822,281	$40,423,742	$0	$190,410,157
New	$18,295,003	$37,926,816	$4,930,649	$17,630,155	$6,224,289	$3,875,250	$142,050,494	$462,960,954	$185,338,512	$0	$879,232,123
Injection supplies	$699,403	$1,441,506	$170,584	$640,988	$219,444	$134,621	$5,156,300	$18,293,654	$7,419,095	$0	$34,175,596
Personnel	$13,635,054	$39,870,089	$1,335,962	$12,601,524	$6,946,541	$1,000,995	$52,196,932	$94,178,452	$59,579,379	$4,557,696	$285,902,623
Salaries of full-time NIP health workers (immunization specific)	$12,714,211	$33,481,662	$1,320,010	$12,372,248	$6,625,392	$977,050	$51,398,713	$85,663,166	$55,901,642	$3,977,969	$264,432,064
Per-diems for outreach vaccinators/mobile teams	$177,756	$1,834,098	$15,952	$177,068	$132,972	$23,945	$749,960	$4,826,381	$1,095,595	$0	$9,033,726
Per-diems for supervision and monitoring	$743,086	$4,554,329	$0	$52,208	$188,177	$0	$48,258	$3,688,905	$2,582,142	$579,727	$12,436,832
Transportation	$1,319,864	$4,927,849	$303,325	$2,033,908	$941,026	$183,389	$6,939,084	$16,588,033	$10,301,548	$1,705,728	$45,243,754
Fixed site strategy (incl. vaccine distribution)	$694,665	$1,589,629	$159,645	$1,070,478	$495,277	$96,521	$2,691,057	$7,058,737	$5,421,867	$1,128,472	$20,406,348
Outreach strategy	$555,732	$3,179,257	$127,716	$856,383	$396,221	$77,216	$3,844,368	$8,823,422	$4,337,494	$520,833	$22,718,642
Mobile strategy	$69,467	$158,963	$15,964	$107,048	$49,528	$9,652	$403,659	$705,874	$542,187	$56,424	$2,118,764
Maintenance and overhead	$1,675,760	$6,424,006	$848,319	$4,276,464	$3,427,642	$772,123	$13,210,305	$19,761,163	$13,062,696	$656,873	$64,115,351
Cold chain maintenance and overheads	$1,675,760	$5,790,065	$206,114	$544,818	$2,293,299	$258,331	$6,833,668	$12,124,757	$12,803,483	$144,392	$42,674,688
Maintenance of other capital equipment	$0	$50,837	$17,675	$47,387	$9,759	$12,395	$434,068	$4,943,865	$198,679	$73,491	$5,788,155
Building overheads (electricity, water…)	$0	$583,105	$624,530	$3,684,259	$1,124,584	$501,396	$5,942,569	$2,692,541	$60,533	$438,990	$15,652,507
Short-term training	$471,761	$750,820	$19,073	$122,411	$188,350	$20,792	$1,586,713	$2,125,688	$3,059,834	$6,514,358	$14,859,801
IEC/social mobilization	$67,846	$638,100	$35,604	$80,300	$68,008	$35,122	$1,614,304	$13,228,556	$1,539,448	$30,334,226	$47,641,514
Disease surveillance	$514,480	$1,955,485	$118,081	$628,484	$1,181,626	$154,256	$1,571,939	$8,037,675	$3,461,148	$14,286,297	$31,909,471
Programme management	$201,053	$314,562	$18,105	$380,534	$167,659	$15,880	$1,457,987	$563,792	$1,989,096	$28,493,840	$33,602,509
Other routine recurrent costs	$188,044	$0	$13,250	$198,656	$200,779	$13,250	$2,289,700	$0	$7,317,436	$30,527,564	$40,748,679
Subtotal	$41,975,421	$104,028,049	$9,029,512	$43,050,244	$21,161,881	$7,062,271	$263,968,592	$760,998,031	$342,781,570	$117,076,583	$1,711,132,156
Routine Capital Costs											
Vehicles	$1,191,184	$3,577,724	$237,693	$2,190,992	$622,424	$436,384	$4,227,554	$16,155,388	$2,381,461	$95,013	$31,115,817
Cold chain equipment	$3,556,932	$10,262,854	$454,982	$0	$1,168,967	$385,887	$9,349,618	$14,499,476	$7,879,885	$389,069	$47,947,671
Other capital equipment	$0	$219,373	$119,421	$212,277	$41,493	$69,035	$1,617,879	$5,441,627	$326,544	$727,635	$8,775,284
Subtotal	$4,748,116	$14,059,951	$812,096	$2,403,269	$1,832,884	$891,307	$15,195,051	$36,096,491	$10,587,890	$1,211,718	$87,838,772
Polio Eradication Initiative (PEI) (0-5 years)	$7,727,908	$41,466,756	$1,668,546	$3,678,912	$1,990,881	$1,479,308	$115,721,663	$257,320,096	$48,807,199	$0	$479,861,268
Vaccines and Injection Supplies	$3,194,464	$22,151,021	$709,422	$1,996,124	$1,017,727	$796,161	$102,548,072	$182,115,644	$20,810,700	$0	$335,339,335
Operational costs	$4,533,444	$19,315,735	$959,125	$1,682,788	$973,154	$683,147	$13,173,591	$75,204,452	$27,996,499	$0	$144,521,933
Measles 6 months-10 years	$0	$0	$0	$0	$0	$0	$0	$38,464,593	$0	$0	$38,464,593
Vaccines and Injection Supplies	$0	$0	$0	$0	$0	$0	$0	$23,870,220	$0	$0	$23,870,220
Operational costs	$0	$0	$0	$0	$0	$0	$0	$14,594,374	$0	$0	$14,594,374
Measles 9 months-5 years	$2,248,279	$680,959	$155,931	$714,897	$215,255	$81,068	$6,236,175	$23,444,712	$3,704,783	$0	$37,482,061
Vaccines and Injection Supplies	$630,424	$373,666	$44,520	$212,920	$63,998	$23,145	$1,684,501	$14,215,983	$1,767,127	$0	$19,016,283
Operational costs	$1,617,856	$307,293	$111,412	$501,977	$151,258	$57,922	$4,551,674	$9,228,729	$1,937,656	$0	$18,465,777
Operational costs	$0	$0	$0	$0	$0	$0	$0	$6,044,713	$0	$0	$6,044,713

Measles 9 months-3 years	$0	$0	$0	$0	$0	$0	$0	$6,044,713	$0	$0	$6,044,713
Vaccines and Injection Supplies	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operational costs	$0	$4,554,395	$1,002,735	$596,716	$89,743	$974,923	$22,668,469	$115,829,143	$3,383,079	$0	$149,099,202
Vaccines and Injection Supplies	$0	$2,221,214	$432,725	$294,709	$44,322	$420,722	$10,719,843	$56,000,598	$1,608,322	$0	$71,742,455
Operational costs	$0	$2,333,181	$570,011	$302,007	$45,420	$554,200	$11,948,625	$59,828,545	$1,774,757	$0	$77,356,747
Subtotal	$18,930,464	$71,343,883	$5,158,080	$14,245,828	$5,086,746	$4,801,511	$151,454,524	$664,097,759	$200,285,036	$0	$1,135,403,831
Shared Health Systems Costs											
Shared personnel costs	$12,516,707	$29,565,755	$322,455	$3,349,122	$2,886,311	$461,713	$56,710,804	$194,895,390	$39,474,010	$0	$340,182,269
Shared transportation costs	$0	$0	$0	$0	$0	$1,609	$1,302,818	$0	$59,815	$0	$1,364,241
Construction of new buildings	$0	$0	$476,062	$126,690,840	$4,594,743	$57,127	$18,533,133	$0	$612,632	$360,811	$151,325,348
Subtotal	$12,516,707	$29,565,755	$798,517	$130,039,962	$7,481,054	$520,450	$76,546,755	$194,895,390	$40,146,457	$360,811	$492,871,859
GRANDTOTAL	$78,170,709	$218,997,639	$15,798,205	$189,739,303	$35,562,565	$13,275,538	$507,164,923	$1,656,087,671	$593,800,954	$118,649,112	$3,427,246,618
Routine Immunization	$59,240,244	$147,653,755	$10,640,125	$175,493,475	$30,475,818	$8,474,027	$355,710,399	$991,989,912	$393,515,918	$118,649,112	$2,291,842,787
Supplemental Immunization Activities	$18,930,464	$71,343,883	$5,158,080	$14,245,828	$5,086,746	$4,801,511	$151,454,524	$664,097,759	$200,285,036	$0	$1,135,403,831

Figure 78: Total financing by type of financing, sources of financing and provinces (2016-2020)

Secured Financing

Funding Source	AJK	BAL	CDA	FAT	FED	GB	ICT	KP	PUN	SIN	Total
Provincial Government	$31,103,339	$134,770,025	$3,856,733	$23,046,009	$0	$10,836,987	$3,913,845	$204,327,853	$858,850,513	$366,452,859	**$1,637,158,163**
Gov. Co-Financing	$1,004,325	$4,118,902	$256,773	$1,239,494	$0	$421,904	$268,045	$9,405,467	$71,224,379	$11,880,939	**$99,820,228**
UNICEF	$0	$0	$0	$0	$4,901,024	$0	$0	$0	$0	$0	**$4,901,024**
WHO	$0	$0	$0	$575,031	$1,440,000	$131,615	$0	$288,533	$0	$0	**$2,435,179**
World Bank	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
PEI	$3,058,621	$4,729,203	$754,387	$0	$0	$828,067	$1,105,750	$45,156,263	$107,144,779	$0	**$162,777,070**
Gov't of China	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
USAID	$0	$0	$525	$0	$957,940	$0	$0	$0	$0	$0	**$958,465**
Federal Government	$12,053,491	$3,297,461	$2,287,486	$11,316,505	$20,066,864	$3,266,928	$3,545,579	$0	$42,731,435	$16,236,333	**$114,802,084**
GAVI (ISS , NVS, HSS)	$4,748,116	$0	$692,675	$1,533,694	$16,803,536	$3,151,727	$822,271	$36,333,033	$0	$0	**$64,085,052**
Others[39]	$0	$0	$0	$0	$0	$0	$0	$200,000	$0	$0	**$200,000**
Grand Total	**$51,967,891**	**$146,915,592**	**$7,848,579**	**$37,710,733**	**$44,169,364**	**$18,637,228**	**$9,655,491**	**$295,711,149**	**$1,079,951,107**	**$394,570,132**	**$2,087,137,265**

Probable Financing

Funding Source	AJK	BAL	CDA	FAT	FED	GB	ICT	KP	PUN	SIN	Total
Provincial Government	$0	$1,902,288	$15,952	$162,565	$0	$0	$23,945	$12,484,085	$11,934,766	$8,659	**$26,532,260**
Gov. Co-Financing	$320,737	$0	$78,666	$718,063	$0	$175,298	$96,309	$8,280,972	$0	$25,804,369	**$35,474,414**
UNICEF	$186,467	$9,321,744	$53,709	$901,532	$0	$325,410	$51,003	$11,111,335	$19,393,198	$861,868	**$42,206,266**
WHO	$679,492	$14,950,989	$131,813	$292,585	$0	$1,275,059	$152,396	$250,743	$5,742,853	$10,184,816	**$33,660,747**
World Bank	$100,337	$3,878,056	$8,220	$125,949	$9,328,824	$0	$8,220	$0	$0	$0	**$13,449,606**
PEI	$4,669,287	$0	$914,159	$3,678,912	$0	$1,162,814	$373,558	$70,565,399	$0	$0	**$81,364,129**
Gov't of China	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
USAID	$0	$0	$547	$0	$0	$0	$547	$850,000	$0	$0	**$851,094**
Federal Government	$0	$0	$0	$0	$12,978,436	$0	$0	$0	$0	$6,814,875	**$19,793,312**
GAVI (ISS , NVS, HSS)	$14,079,458	$26,842,307	$3,449,195	$13,100,270	$33,000,000	$2,973,301	$1,750,609	$65,957,024	$325,973,820	$96,698,040	**$583,824,024**
Others	$0	$4,780,425	$0	$0	$0	$0	$0	$0	$5,088,302	$6,517	**$9,875,244**
Grand Total	**$20,035,778**	**$61,675,809**	**$4,652,262**	**$18,979,877**	**$55,307,260**	**$5,911,881**	**$2,456,587**	**$169,499,559**	**$368,132,939**	**$140,379,145**	**$847,031,097**

[39] CDC, CIDA, JICA, DFID, Rotary Int., etc

Total Financing

Funding Source	AJK	BAL	CDA	FAT	FED	GB	ICT	KP	PUN	SIN	Total
Provincial Government	$31,103,339	$136,672,313	$3,872,685	$23,208,574	$0	$10,836,987	$3,937,789	$216,811,938	$870,785,280	$366,461,519	**$1,663,690,423**
Gov. Co-Financing	$1,325,062	$4,118,902	$335,439	$1,957,557	$0	$597,202	$364,354	$17,686,439	$71,224,379	$37,685,308	**$135,294,642**
UNICEF	$186,467	$9,321,744	$53,709	$901,532	$4,901,024	$325,410	$51,003	$11,111,335	$19,393,198	$861,868	**$47,107,290**
WHO	$679,492	$14,950,989	$131,813	$867,616	$1,440,000	$1,406,674	$152,396	$539,276	$5,742,853	$10,184,816	**$36,095,927**
World Bank	$100,337	$3,878,056	$8,220	$125,949	$9,328,824	$0	$8,220	$0	$0	$0	**$13,449,606**
PEI	$7,727,908	$4,729,203	$1,668,546	$3,678,912	$0	$1,990,881	$1,479,308	$115,721,662	$107,144,779	$0	**$244,141,200**
Gov't of China	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
USAID	$0	$0	$1,072	$0	$957,940	$0	$547	$850,000	$0	$0	**$1,809,559**
Federal Government	$12,053,491	$3,297,461	$2,287,486	$11,316,505	$33,045,301	$3,266,928	$3,545,579	$0	$42,731,435	$23,051,209	**$134,595,395**
GAVI (ISS , NVS, HSS)	$18,827,574	$26,842,307	$4,141,870	$14,633,965	$49,803,536	$6,125,027	$2,572,880	$102,290,057	$325,973,820	$96,698,040	**$647,909,076**
Others	$0	$4,780,425	$0	$0	$0	$0	$0	$200,000	$5,088,302	$6,517	**$10,075,244**
Grand Total	**$72,003,669**	**$208,591,401**	**$12,500,840**	**$56,690,610**	**$99,476,624**	**$24,549,109**	**$12,112,077**	**$465,210,708**	**$1,448,084,046**	**$534,949,276**	**$2,934,168,362**

Figure 79: Total financing by type of financing, sources and years

Secured Financing

Funding Source	2016	2017	2018	2019	2020	Total
Provincial Government	$124,274,614	$124,155,415	$120,056,463	$488,286,837	$780,384,833	**$1,637,158,163**
Gov. Co-Financing of GAVI Vaccine	$4,070,081	$6,736,167	$36,106,602	$29,221,878	$23,685,500	**$99,820,228**
UNICEF	$2,417,814	$2,283,210	$200,000	$0	$0	**$4,901,024**
WHO	$235,671	$1,440,343	$125,205	$167,251	$466,710	**$2,435,179**
World Bank	$0	$0	$0	$0	$0	**$0**
PEI	$0	$0	$0	$80,237,937	$82,539,133	**$162,777,070**
Gov't of China	$0	$0	$0	$0	$0	**$0**
USAID	$958,465	$0	$0	$0	$0	**$958,465**
Federal Government	$12,633,170	$13,379,928	$14,240,950	$27,723,189	$46,824,846	**$114,802,084**
GAVI (ISS , NVS, HSS)	$3,163,872	$33,032,389	$0	$13,384,245	$14,504,546	**$64,085,052**
Others (CDC, CIDA, JICA, DFID, Rotary Int.)	$200,000	$0	$0	$0	$0	**$200,000**
Total	**$147,953,688**	**$181,027,452**	**$170,729,219**	**$639,021,337**	**$948,405,568**	**$2,087,137,265**

Probable Financing

Funding Source	2016	2017	2018	2019	2020	Total
Provincial Government	$4,130,713	$4,899,161	$15,533,893	$804,765	$1,163,729	**$26,532,260**
Gov. Co-Financing of GAVI Vaccine	$9,317,572	$13,469,923	$12,686,919	$0	$0	**$35,474,414**
UNICEF	$15,619,589	$3,015,666	$2,968,372	$8,776,632	$11,826,007	**$42,206,266**
WHO	$12,761,011	$4,114,087	$4,407,525	$6,311,159	$6,066,966	**$33,660,747**
World Bank	$4,353,119	$4,488,746	$4,607,741	$0	$0	**$13,449,606**
PEI	$26,246,052	$27,141,639	$27,976,438	$0	$0	**$81,364,129**
Gov't of China	$0	$0	$0	$0	$0	**$0**
USAID	$850,000	$1,094	$0	$0	$0	**$851,094**
Federal Government	$6,814,875	$0	$0	$0	$12,978,436	**$19,793,312**
GAVI (ISS , NVS, HSS)	$176,496,917	$144,215,242	$161,069,007	$61,566,589	$40,476,268	**$583,824,024**
Others (CDC, CIDA, JICA, DFID, Rotary Int.)	$1,577,030	$1,216,102	$1,298,860	$4,300,821	$1,482,431	**$9,875,244**
Total	**$258,166,878**	**$202,561,660**	**$230,548,755**	**$81,759,966**	**$73,993,837**	**$847,031,097**

Total Financing

Funding Source	2016	2017	2018	2019	2020	Total
Provincial Government	$128,405,327	$129,054,576	$135,590,356	$489,091,602	$781,548,562	**$1,663,690,423**
Gov. Co-Financing of GAVI Vaccine	$13,387,653	$20,206,090	$48,793,521	$29,221,878	$23,685,500	**$135,294,642**
UNICEF	$18,037,403	$5,298,876	$3,168,372	$8,776,632	$11,826,007	**$47,107,290**
WHO	$12,996,682	$5,554,430	$4,532,729	$6,478,410	$6,533,675	**$36,095,927**
World Bank	$4,353,119	$4,488,746	$4,607,741	$0	$0	**$13,449,606**
PEI	$26,246,052	$27,141,639	$27,976,438	$80,237,937	$82,539,133	**$244,141,200**
Gov't of China	$0	$0	$0	$0	$0	**$0**
USAID	$1,808,465	$1,094	$0	$0	$0	**$1,809,559**
Federal Government	$19,448,046	$13,379,928	$14,240,950	$27,723,189	$59,803,282	**$134,595,395**
GAVI (ISS , NVS, HSS)	$179,660,789	$177,247,631	$161,069,007	$74,950,834	$54,980,814	**$647,909,076**
Others (CDC, CIDA, JICA, DFID, Rotary Int.)	$1,777,030	$1,216,102	$1,298,860	$4,300,821	$1,482,431	**$10,075,244**
Total	**$406,120,566**	**$383,589,113**	**$401,277,975**	**$720,781,303**	**$1,022,399,405**	**$2,934,168,362**

Figure 80: Composition of the Funding Gap with secured financing only by provinces (2016-2020) (shared costs are not included)

Funding gap components	AJK	BAL	FAT	GB	ICT	KP	PUN	SIN	CDA	FED	TOTAL
Vaccines and inj. equip.	$14,400,194	$20,407,634	$13,103,437	$3,148,599	$1,846,918	$69,686,322	$254,900,799	$121,233,379	$3,527,862	$0	$502,255,144
Personnel	$4,230,620	$0	$5,093,646	$4,318,953	$626,284	$357,566	$0	$2,490,070	$928,510	$0	$18,045,649
Transport	$873,487	$0	$1,155,943	$161,300	$139,996	$0	$0	$2,325,033	$209,568	$0	$4,865,327
Activities and other recurrent costs	$1,305,228	$5,740,089	$781,903	$3,233,931	$426,062	$13,525,915	$22,758,665	$10,836,915	$198,264	$74,479,748	$133,286,719
Logistics	$0	$6,374,453	$212,277	$0	$69,035	$11,894,407	$17,307,091	$5,837,731	$119,421	$0	$41,814,415
Campaigns	$5,393,288	$39,559,870	$4,990,525	$1,467,812	$454,626	$86,178,409	$281,170,008	$55,895,061	$2,489,940	$0	$477,599,540
Total	**$26,202,817**	**$72,082,046**	**$25,337,731**	**$12,330,595**	**$3,562,921**	**$181,642,619**	**$576,136,563**	**$198,618,189**	**$7,473,565**	**$74,479,748**	**$1,177,866,794**

Figure 81: Composition of the funding GAP with problable financing by provinces (2016-2020) (shared costs are not included)

Funding gap components	AJK	BAL	FAT	GB	ICT	KP	PUN	SIN	CDA	FED	TOTAL
Vaccines and inj. equip.	0	0	0	0	0	0	0	$472,399	0	0	**$472,399**
Personnel	$4,230,620	$0	$4,953,913	$4,318,953	$602,339	$0	$0	$2,490,070	$912,559	$0	**$17,508,454**
Transport	$873,487	$0	$1,155,943	$161,300	$139,996	$0	$0	$2,325,033	$209,568	$0	**$4,865,327**
Activities and other recurrent costs	$338,931	($0)	$35,720	$1,723,205	$213,896	$11,526,674	$0	$9,628,414	$3,975	$19,172,487	**$42,643,302**
Logistics	$0	$0	$212,277	$0	$69,035	$11,894,407	$0	$3,227,918	$119,421	$0	**$15,523,058**
Campaigns	$724,001	$10,406,237	$0	$215,255	$81,068	$1	$208,003,625	$40,095,211	$1,575,781	$0	**$261,101,179**
Total	**$6,167,039**	**$10,406,237**	**$6,357,853**	**$6,418,713**	**$1,106,334**	**$23,421,082**	**$208,003,625**	**$58,239,045**	**$2,821,303**	**$19,172,487**	**$342,113,718**

Figure 82: Structure of the funding gap for "Activities and other recurrent cots" by provinces (2016-2020)

	AJK	BAL	CDA	FAT	GB	ICT	KP	PUN	SIN	FED	National
Cold chain maintenance and overheads	$0	$0	$0	$0	$1,723,205	$205,079	$5,665,868	$0	$4,395,143	$0	$11,989,296
Maintenance of other capital equipment	$0	$0	$0	$0	$0	$0	$11,980	$0	$41,470	$0	$53,451
Building overheads (electricity, water…)	$0	$0	$0	$0	$0	$0	$787,188	$0	$8,352	$0	$795,539
Short-term training	$338,931	$0	$3,975	$0	$0	$8,817	$1,586,713	$0	$2,159,637	$137,642	$4,235,714
IEC/social mobilization	$0	$0	$0	$0	$0	$0	$1,545,792	$0	$555,086	$1,650,496	$3,751,375
Disease surveillance	$0	$0	$0	$0	$0	$0	$872,844	$0	$974,874	$775,749	$2,623,467
Program management	$0	$0	$0	$0	$0	$0	$366,571	$0	$758,322	$0	$1,124,893
Other routine recurrent costs	$0	$0	$0	$35,720	$0	$0	$689,718	$0	$735,529	$16,608,600	$18,069,568
Total	**$338,931**	**$0**	**$3,975**	**$35,720**	**$1,723,205**	**$213,896**	**$11,526,674**	**$0**	**$9,628,414**	**$19,172,487**	**$42,643,302**

Figure 83: Costs and resource requirements of SIA by provinces, cost categories and years

All SIA

Province	2012	2016	2017	2018	2019	2020	Total (2016-2020)
AJK	1,239,822	1,550,718	2,255,702	1,586,868	2,250,729	11,286,447	**18,930,464**
BAL	7,984,126	7,840,999	8,698,015	8,045,045	10,907,794	35,852,031	**71,343,883**
CDA	158,248	286,142	460,114	323,835	837,800	3,250,189	**5,158,080**
FAT	2,122,574	1,422,312	2,119,512	1,448,701	0	9,255,303	**14,245,828**
GB	194,434	416,642	626,443	424,727	407,293	3,211,641	**5,086,746**
ICT	95,270	121,335	203,862	129,428	994,661	3,352,225	**4,801,511**
KP	4,979,795	33,738,412	29,828,825	24,295,673	33,891,421	29,700,193	**151,454,524**
PUN	44,801,426	54,887,044	62,944,100	57,565,008	130,923,874	357,777,733	**664,097,759**
SIN	13,726,007	17,443,990	19,968,769	18,482,302	52,490,313	91,899,662	**200,285,036**
FED	0	0	0	0	0	0	**0**
Total	**75,301,701**	**117,707,595**	**127,105,343**	**112,301,586**	**232,703,884**	**545,585,423**	**1,135,403,831**

Polio Details

Province	Polio costs	2012	2016	2017	2018	2019	2020	Total (2016-2020)
AJK	Vaccines and Injection Supplies	421,024	655,917	640,482	655,917	612,859	629,288	3,194,464
AJK	Operational costs	818,798	894,801	891,219	930,951	887,234	929,240	4,533,444
BAL	Vaccines and Injection Supplies	3,524,685	3,821,825	3,929,954	3,999,906	5,113,506	5,285,831	22,151,021
BAL	Operational costs	3,062,460	3,190,215	3,346,084	3,473,757	4,529,690	4,775,988	19,315,735
CDA	Vaccines and Injection Supplies	10,247	134,460	137,122	139,837	145,431	152,572	709,422
CDA	Operational costs	148,001	151,682	167,060	183,998	213,961	242,424	959,125
FAT	Vaccines and Injection Supplies	74,950	670,162	655,800	670,162	0	0	1,996,124
FAT	Operational costs	2,047,624	553,814	552,785	576,189	0	0	1,682,788
GB	Vaccines and Injection Supplies	23,312	201,648	197,114	201,648	206,286	211,031	1,017,727
GB	Operational costs	171,122	185,155	184,612	192,636	201,007	209,743	973,154
ICT	Vaccines and Injection Supplies	4,497	72,700	71,289	72,700	282,793	296,679	796,161
ICT	Operational costs	90,773	48,635	51,506	56,728	246,728	279,550	683,147
KP	Vaccines and Injection Supplies	2,774,795	20,185,090	20,953,999	21,530,234	19,702,939	20,175,810	102,548,072
KP	Operational costs	2,205,000	2,491,986	2,638,652	2,765,439	2,581,348	2,696,166	13,173,591
PUN	Vaccines and Injection Supplies	31,629,546	35,014,281	35,637,535	36,271,882	37,195,076	37,996,870	182,115,644
PUN	Operational costs	13,171,880	13,880,833	14,410,470	14,960,315	15,647,908	16,304,926	75,204,452
SIN	Vaccines and Injection Supplies	5,491,554	6,814,875	6,936,180	7,059,644	0	0	20,810,700
SIN	Operational costs	8,234,453	8,984,975	9,327,806	9,683,718	0	0	27,996,499
FED	Vaccines and Injection Supplies	0	0	0	0	0	0	0
FED	Operational costs	0	0	0	0	0	0	0
	Total	73,904,720	97,953,057	100,729,669	103,425,661	87,566,766	90,186,115	479,861,268

Polio Summary

Provinces	2012	2016	2017	2018	2019	2020	Total (2016-2020)
AJK	1,239,822	1,550,718	1,531,700	1,586,868	1,500,093	1,558,528	**7,727,908**
BAL	6,587,145	7,012,040	7,276,038	7,473,663	9,643,196	10,061,818	**41,466,756**
CDA	158,248	286,142	304,183	323,835	359,391	394,995	**1,668,546**
FAT	2,122,574	1,223,977	1,208,585	1,246,351	0	0	**3,678,912**
GB	194,434	386,803	381,727	394,284	407,293	420,774	**1,990,881**
ICT	95,270	121,335	122,795	129,428	529,522	576,228	**1,479,308**
KP	4,979,795	22,677,077	23,592,650	24,295,673	22,284,287	22,871,976	**115,721,663**
PUN	44,801,426	48,895,114	50,048,005	51,232,198	52,842,984	54,301,795	**257,320,096**
SIN	13,726,007	15,799,851	16,263,986	16,743,362	0	0	**48,807,199**
FED	0	0	0	0	0	0	**0**
Total Polio	**73,904,720**	**97,953,057**	**100,729,669**	**103,425,661**	**87,566,766**	**90,186,115**	**479,861,268**
Vaccines and Injection Supplies	43,954,610	67,570,959	69,159,475	70,601,932	63,258,890	64,748,080	**335,339,335**
Operational costs	29,950,110	30,382,098	31,570,194	32,823,730	24,307,876	25,438,036	**144,521,933**

Other SIA

Provinces	2012	2016	2017	2018	2019	2020	Total (2016-2020)
AJK	0	0	724,001	0	750,637	9,727,919	**11,202,557**
BAL	1,396,981	828,959	1,421,977	571,381	1,264,598	25,790,212	**29,877,127**
CDA	0	0	155,931	0	478,408	2,855,194	**3,489,534**
FAT	0	198,335	910,927	202,351	0	9,255,303	**10,566,916**
GB	0	29,839	244,716	30,443	0	2,790,868	**3,095,866**
ICT	0	0	81,068	0	465,139	2,775,996	**3,322,203**
KP	0	11,061,335	6,236,175	0	11,607,133	6,828,217	**35,732,861**
PUN	0	5,991,930	12,896,095	6,332,810	78,080,890	303,475,937	**406,777,663**
SIN	0	1,644,140	3,704,783	1,738,940	52,490,313	91,899,662	**151,477,837**
FED	0	0	0	0	0	0	**0**
Total	**1,396,981**	**19,754,538**	**26,375,674**	**8,875,925**	**145,137,119**	**455,399,307**	**655,542,563**
Other SIA as % of Total SIA	*17%*	*21%*	*8%*	*62%*	*83%*	*58%*	
Polio SIA as % of Total SIA	*83%*	*79%*	*92%*	*38%*	*17%*	*42%*	

Annex 9: Costing and Financing (Federal)

0. Demographics

Population estimate for 2012 and projections for population growth, birth rate, infant mortality rate and CBAW share are based on NISP figures and are used for the calculation of vaccine buffers at the national level in section 1. Vaccine and Injection supplies.

1. Vaccines & Injection Supplies

No costs were entered for vaccines and injection supplies in 2012 in order to avoid double-counting of vaccine costs – vaccines and injection supplies were consumed in provinces, therefore the corresponding expenditures are reflected in provincial cMYPs and Federal Government is indicated as source of financing whenever vaccines were purchased by the Federal Government and then distributed to provinces.

50% coverage rate is projected for all existing vaccines in 2015 – it corresponds to the 6 month buffer stock that has to be created at the national level according to the National Immunization Policy draft. It is assumed that buffer stocks for all vaccines are depleted at the national level, so the Federal Government has to finance the purchase of all vaccines to establish the buffer stock in addition to vaccine needs forecasted by provinces. As to Rotavirus, it will be introduced in 2016 and 25% buffer stock is already considered by provinces that is equivalent to 3 month buffer as defined in the National Immunization Policy draft. Therefore, the Federal Government has to purchase 6 month buffer stock amount (equivalent to the annual consumption with 50% coverage).

Financing of the establishment of the buffer stock at the national level is considered "probable".

2. Personnel Costs

Personnel costs are calculated based on salary rates of public servants.

3. Vehicles & Transport Costs

Past expenditures and future resource requirements were calculated based on the following assumptions (see Figure 84 below):

Figure 84: Federal EPI Cell vehicle fleet characteristics

Type of Vehicle	Average Price for a New Vehicle of this Type (in Rs)	Fuel consumption (Liters per 100 km)	Distance (Avg. Kilometers per year)	#Total as of 2012	#New in 2013
Double Cabin / 4 WD	3,500,000	14	4000*12	2	4
Single Cabin	2,500,000	12	4000*12	2	2
Toyota Corolla	1,800,000	12	------	0	0
Motorcycles	90,000	2	1200*12	0	0
Bicycle	N-A	-N-A		0	0
Truck	-N-A	-N-A	3,000*12	0	2
Refrigerated Truck Large	-N-A	-N-A	2,000*12	2	2
Refrigerated Truck Medium	-N-A	-N-A	N-A	0	6
Refrigerated Van Toyota Hilux	221,00,000	12	3,000*12	2	4

Although the Federal Cell purchased new vehicles in 2013, they were entered in the costing tool as "New in 2012" in order to estimate corresponding running and maintenance costs in 2016-2020.

Federal EPI Cells outsourced transportation services for the delivery of vaccines (2012 expenditure amounted to 31 million PKR); it was assumed that transportation service outsourcing remains at the same level in the future.

4. Cold Chain Equipment, Maintenance & Overheads

Only existing 27 walk-in cold rooms (with average price for new – 2.5 million PKR) were counted with no expansion plans.

5. Operational Cost of Campaigns

No costs were inquired at the Federal level for running campaigns in provinces 2012. However, a portion of operational costs of polio campaigns that is not reflected in provincial cMYPs was projected for 2014 (17.9 million US$) and 2015 (13.1 million US$).

5. Program Activities, Other Recurrent Costs and Surveillance

Social Mobilization

UNICEF intends to support "demand generation and creating awareness for routine EPI activities through CSOs and community development) providing 60,000 US$ financing in 2014.

The Federal EPI Cell allocated 785,349 US$ to health education activities and producing printing materials that will be financed from GAVI ISS in 2014, but no funding has been mobilized for subsequent years.

Trainings

Middle Level management (MLM) initial and bi-annual training costs were estimated at 2 million US$ per year and are supposed to be financed by the WB project (although trainings will be conducted in provinces, the project is considered as national).

Program management

It was estimated that expansion of CCEM nationwide (it covers now only PEI targeted areas) will cost 710 thousand US$ in 2014 and 473 thousand US$ in 2015; no financing was available to cover this cost.

Figure 85: Federal EPI Expenditure for FY 2011-12 (in PKR)

Expenditure Heads	Amount	Classification
Recruitment/Establishment	23,212,946	Recurrent
Civil Works	100,000,000	Capital
POL, Repairs & Maintenance	6,829,892	Recurrent
Stationary	1,155,710	Recurrent
Utilities	10,401,392	Recurrent
Transport	31,868,358	Recurrent
Miscellaneous	7,967,090	Recurrent
HEA & Printing	31,151,712	Recurrent
Total	**212,587,100**	

Source: WB Pakistan data, unpublished

EPI and PEI integration costs were estimated at 1.63 million US$ (in 2014-2015) and are expected to be financed from PEI funds.

WHO plans to provide technical assistance to federal and provincial health authorities to strengthen their capacity, improve planning practices and strengthen routine immunization. The cost of planned activities was estimated at 1 million US$ in 2014 and 360 thousand US$ in 2015. In addition, WHO will support strengthening the decision making process of NITAG and NICC (estimated at 20,000 US$ in 2014).

Other Activities

vLMIS development, nationwide wide deployment and maintenance was estimated at 20.96 million US$ (without accounting for inflation) excluding construction of warehouses. USAID financing of 1.68 million US$ was assessed as "secured", and the remaining 5.75 million US$ financing is required to cover investment costs. Operation and HR support costs (3.72 and 9.8 million US$ respectively) is unfunded.

Improvement of the routine immunization coverage and logistics includes a set of interventions financed and/or implemented by partners:

- WHO plans to direct its support to the improvement of routine coverage for both 1st and 2nd dose of measles vaccination, supply and logistics for strengthening routine immunization and introduction of Hep B birth dose (estimated at 120,000 US$ in 2014).
- UNICEF plans to provide technical support to introduce and support methodologies to identify main drivers of inequities shifting the focus beyond national level planning for RED and REUC. UNICEF allocated 248,000 in 2014 (from GAVI funds under 2.2.1 of GAVI Business Plan). In addition to that, UNICEF intends to spend US$ 410,0000n the introduction of HepB birth dose for improved neonatal care in 2015 (from GAVI HSS funding) in addition to US$ 2.5 million for the construction of the warehouses across all the provinces and areas. A total of US$ 20 million has been awarded to UNICEF during the last quarter of 2013 for the implementation of the multi sectoral approach on WASH, Nutrition, MNCH and EPI under CIDA Polio Plus over a period of three years (2014-20 16). Out of this EPI is approximately US$ 3million (from CIDA Polio Plus grant).

Surveillance

It is planned to conduct nationwide immunization coverage surveys every year to be financed by the WB project (1 million US$ per survey).

Surveillance also includes costs associated with VPD, Measles case based, bacterial meningitis and rota virus surveillance activities. This cost (250 thousand US$) will be financed from GAVI ISS in 2014, but no funding is available for afterwards. GAVI ISS is expected to finance surveillance related supportive activities (802 thousand US$) but no financing is available later.

WHO plans to support the country in establishing CRS sentinel surveillance in 2014-2015 (with total financing of 20,000 US$). In addition, WHO's support to the use of surveillance and immunization data for monitoring and evaluation of the immunization program is estimated at 700,000 US$ in 2015 and the post introduction evaluation at 10,000 US$ in 2015.

6. Other Equipment Needs and Capital Costs

No costs for other equipment or capital costs were projected.

7. Building & Building Overheads

Building and overhead costs include main building (50% of space used for EPI offices), and 4 other constructions belonging to the Federal EPI Cell. This cost reflected in the shared healthcare system costs.

Resource requirements

Immunization program needs at the federal level are estimated at 38 million US$, out of which 30.5 million US$ is required for other routine recurrent cost as shown in Figure 86 below.

Figure 86: Immunization program resource requirements at the federal level by cost categories

Cost Category	2016	2017	2018	2019	2020	Total
Traditional Vaccines	$0	$0	$0	$0	$0	**$0**
Underused Vaccines	$0	$0	$0	$0	$0	**$0**
New Vaccines	$0	$0	$0	$0	$0	**$0**
Injection supplies	$0	$0	$0	$0	$0	**$0**
Personnel	$824,828	$866,070	$909,373	$954,842	$1,002,584	**$4,557,696**
Transportation	$466,524	$486,813	$508,056	$120,958	$123,377	**$1,705,728**
Other routine recurrent costs	$5,629,300	$4,252,395	$3,077,200	$8,695,538	$8,873,130	**$30,527,564**
Vehicles	$0	$0	$0	$95,013	$0	**$95,013**
Cold chain equipment	$0	$0	$0	$334,111	$54,959	**$389,069**
Other capital equipment	$0	$0	$0	$727,635	$0	**$727,635**
Campaigns	$0	$0	$0	$0	$0	**$0**
Total	**$6,920,652**	**$5,605,278**	**$4,494,629**	**$10,928,097**	**$10,054,050**	**$38,002,705**

Figure 87: Immunization program resource requirements at the federal level by cMYP components and years (thousand US$)

cMYP Component	2016	2017	2018	2019	2020	Total
Vaccine Supply and Logistics (routine only)	$38,250	$39,015	$39,795	$1,206,671	$105,869	**$1,429,601**
Service Delivery	$1,291,352	$1,352,883	$1,417,429	$1,075,799	$1,125,961	**$6,263,425**
Advocacy and Communication	$801,056	$817,077	$833,419	$13,790,186	$14,092,487	**$30,334,226**
Monitoring and Disease Surveillance	$2,037,157	$2,077,900	$2,119,458	$4,825,843	$3,225,940	**$14,286,297**
Program Management	$7,753,656	$6,419,238	$5,287,380	$10,433,962	$36,080,517	**$65,974,753**
SIA	$0	$0	$0	$0	$0	**$0**
Shared Health Systems Costs	$0	$0	$0	$360,811	$0	**$360,811**
Total	**$11,921,471**	**$10,706,113**	**$9,697,482**	**$31,693,272**	**$54,630,774**	**$118,649,112**

Future financing

GAVI is the main source of financing with 50% of expected financing and federal government share is 33% that constitutes in total 83% of financing (as Figure 88 below).

Figure 88: Immunization program financing (secured + probable) and funding gap at the federal level (thousand US$) by years and financing sources

Secure + Probable Funding	2016	2017	2018	2019	2020	Total
Provincial Government	$0	$0	$0	$0	$0	**$0**
Gov. Co-Financing of GAVI Vaccine	$0	$0	$0	$0	$0	**$0**
UNICEF	$2,417,814	$2,283,210	$200,000	$0	$0	**$4,901,024**
WHO	$120,000	$1,320,000	$0	$0	$0	**$1,440,000**
World Bank	$3,024,000	$3,121,200	$3,183,624	$0	$0	**$9,328,824**
PEI	$0	$0	$0	$0	$0	**$0**
Gov't of China	$0	$0	$0	$0	$0	**$0**
USAID	$957,940	$0	$0	$0	$0	**$957,940**
Federal Government	$1,404,635	$1,477,941	$1,544,988	$9,497,734	$19,120,002	**$33,045,301**
GAVI (ISS , NVS, HSS)	$1,803,536	$0	$0	$21,500,000	$26,500,000	**$49,803,536**
Others (CDC, CIDA, JICA, DFID, Rotary Int.)	$0	$0	$0	$0	$0	**$0**
Total	**$9,727,925**	**$8,202,350**	**$4,928,612**	**$30,997,734**	**$45,620,002**	**$99,476,624**
Total Cost / Resource Needs	**$11,921,471**	**$10,706,113**	**$9,697,482**	**$31,693,272**	**$54,630,774**	**$118,649,112**
Funding Gap	**$2,193,546**	**$2,503,763**	**$4,768,870**	**$695,538**	**$9,010,772**	**$19,172,488**

The funding gap constitutes 11.4% of the resource requirements in 2016 and 47% of the resource requirement in 2020.