Islamic Republic of Pakistan

DATA COLLECTION SURVEY ON HEALTH FACILITES AND EQUIPMENT IN THE ISLAMIC REPUBLIC OF PAKISTAN

FINAL REPORT

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Abbreviations

ADB	Asian Development Bank
ADP	Annual Development Plan
ANC	Antenatal Care
ART	Antiretroviral Therapy
BSN	Bachelor of Science in Nursing
BHU	Basic Health Unit
CMW	Community Midwife
DHQ	District Headquarter
DFID	Department for International Development
EmONC	Emergency Obstetric and Newborn Care
FATA	Federally Administered Tribal Areas
GDP	Gross Domestic Product
GNI	Gross National Income
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
ICT	Islamabad Capital Territory
ICU	Intensive Care Unit
IMR	Infant Mortality Rate
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
LHV	Lady Health Visitor
LHW	Lady Health Worker
МСН	Maternal and Child Health
MNHSRC	Ministry of National Health Services, Regulations and Coordination
NICU	Neonatal Intensive Care Unit
NIPS	National Institute of Population Studies
NCDs	Non-communicable Diseases
ODA	Official Development Assistance
OECD	Organization of Economic Co-operation and Development

PBS	Pakistan Bureau of Statistics
PDHS	Pakistan Demographic and Health Survey
РНС	Primary Health Care
PICU	Paediatric Intensive Care Unit
PIMS	Pakistan Institute of Medical Sciences
РМТСТ	Prevention of Mother to Child Transmission
PNC	Postnatal Care
PPP	Public Private Partnership
PSDP	Public Sector Development Programme
PSLM	Pakistan Social and Living Standards Measurement Survey
RHC	Rural Health Centre
SDGs	Sustainable Development Goals
TB	Tuberculosis
THQ	Tehsil Headquarter
TFR	Total Fertility Rate
U5MR	Under Five Mortality Rate
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Map of Pakistan



Executive Summary

The Islamic Republic of Pakistan is sixth-most populous country. The Gross National Income per capita of Pakistan was USD 1,500 as of 2016. Currently, the country's economy is growing annually at a rate of five percent. The amount of government health expenditure was 0.7% of Gross Domestic Products in 2015, and the ratio was lower than the average of lower-middle-income countries and that of south Asian countries.

In Pakistan, the rates of maternal and child mortalities decreased during 1990 to 2015. The neonatal mortality rate, however, improved relatively slower. Postnatal haemorrhage, eclampsia and sepsis are the main causes of maternal mortality in Pakistan, while complications of preterm birth, pneumonia, intrapartum-related complications and neonatal sepsis are the main causes of child deaths in the country. These causes suggest current problems related to delivery care. In Pakistan, the rate of institutional delivery is still low, especially in rural areas. Routine immunization for children seems to cover some 70 to 80%, but the situation likely differs by province. It was reported that 45% of children under five were stunted, 11% were wasted, and 30% were underweight by a survey 2012-13. A higher prevalence of those problems is observed in rural areas. Micronutrient deficiencies among young mothers and pregnant women are another important problem. The population policy of the country shows the vision to achieve population stabilization by 2020, the goal yet to be reached as of 2017. The prevalence of Human Immunodeficiency Virus among general population is low, while it is increasing among the risk groups. The coverage of antiretroviral therapy remains low. The country is a high burden country both for Tuberculosis and Malaria. In addition to those infectious diseases, viral hepatitis is important in Pakistan due to very high use of therapeutic injections and weak infection control practices in health facilities.

The government of Pakistan has developed a long-term development vision, Pakistan 2025: One Nation - One Vision, aiming to make Pakistan an upper-middle-income country by 2025 and one of the global top ten economies by 2047. In health sector, National Health Vision 2016-2025 has been developed following the Pakistan 2025 and global priority issues. Another document entitled "the National Vision 2016-2025 for Coordinated Priority Actions to Address Challenges of Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition" has been developed.

The health administration was largely devolved to the provincial governments by the 18th amendment of constitution. The federal subjects in health have been consolidated under the federal Ministry of National Health Services, Regulations and Coordination, while health services and relevant programmes are implemented by the provincial governments with policies and action plans at the provincial level. The provincial annual development plans of Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan allocates 9.7%, 6.4%, 9.5% and 6.1% to the provincial health departments, respectively in 2017-18. The share of health expenditure in the private sector is much larger than governmental health expenditure. After the devolution of health administration, the amount of expenditure by the provincial governments are increasing. Health services are provided at public hospitals and basic health facilities. The public facilities include tertial hospitals, district headquarter hospitals, tehsil headquarter hospitals, rural health centres. The

categories of health staff are doctors, dentists, nurses, midwives, pharmacists and other common jobs as well as female health staff at the community level, which are characteristic of Pakistan.

The province of Punjab has the area which is 26% of the total territory and the population, 53% of the total population. The population of the province increased during 1998 to 2017 at an average rate of 2.13% annually. The rate of neonatal mortality shows a trend of slight increase. Although the rate of institutional delivery in the province was reported relatively high, a survey 2012-13 reported every fifth women did not have any visits for antenatal care in the province. The province has allocated 9.7% of annual development budget to the health sector 4.8% for primary and secondary healthcare, 4.9% for specialized healthcare and medical education. The provincial government thinks investment in health leads to economic growth and attaches importance to the health sector, prioritizing preventive health. The Minimum Service Delivery Standards for Primary and Secondary Health Care in Punjab has been developed by the provincial government. During the field survey, 10 health facilities were visited in the province.

The population of Sindh province shares 23% of the total population. The provincial population increased during 1998 to 2017 at an average rate of 2.41% annually. An imbalanced distribution of population in the province hinders the health service delivery both in rural and urban areas. The neonatal mortality rate during 2008 to 2012 has become worse than that of 2002 to 2006. The number of institutional deliveries is relatively high, while the rates of antenatal and delivery cares by female staff are lower than the other provinces. The province has allocated 6.4% of annual development budget to the health department. The provincial government has developed a health sector strategy by 2020. The Service Delivery Standards for Clinics and Primary Health Facilities and the Service Delivery standards of Hospitals are developed. During the field survey, five health facilities were visited in the province.

In the province of Khyber Pakhtunkhwa, the population increased during 1998 to 2017 at an average rate of 2.89% annually. A difference from other provinces is the trend of improvement of the neonatal mortality rate. The rate of institutional delivery is lower than other provinces. The province has allocated 9.5% of annual development budget to the health department. The provincial government has developed the Health Sector Strategy to cover 2010 to 2017. The Minimum Health Services Delivery Package for Secondary Care Hospitals has been developed. During the field survey, 12 health facilities were visited in the province.

In the province of Balochistan, the population increased during 1998 to 2017 at an average rate of 3.37% annually. The rates of child mortality are higher than the other provinces. Not only the neonatal mortality, but also under-five mortality has an increasing tendency. The rate of institutional delivery and the coverage of antenatal care are lower than other provinces. The province has allocated 6.1% of annual development budget to the health department.

The population of Islamabad Capital Territory is 0.97% of the total population, and increased during 1998 to 2017 at an average rate of 4.91% annually. The Division of Capital Administration and Development is in charge of health and other social sectors. The division allocates 36.8% of its public sector development plan 2017-2018. During the field survey, two health facilities, which received Japanese assistances for long, were visited.

The total amount of official development assistance received by Pakistan was USD 4,186.6 million in 2016. Within the total, 55% was allocated to the social sectors, 20% to the education sector, 11% to the health sector and 24% to the other sectors. Most development partners put focus on reproductive, maternal, newborn and child health, immunization and nutrition as their priority areas. They also provide direct and indirect supports to the health sector in connection with areas of gender, child and adolescent, human development, poverty reduction, disaster preparedness and water and sanitation. Main development partners, other than the Japan International Cooperation Agency, include the World Health Organization, the United Nations Children's Fund, the Department for International Development of UK, the United States Agency for International Development, the Asian Development Bank, and the German Development Bank.

The Japanese ODA in Pakistan commenced in 1954. As of 2015, the cumulative amount of Japanese ODA loan was 9.9 million yen, and that of grant aid was 2.6 million yen. Currently, Japan has set the three priorities namely, 1) Improvement of economic infrastructure, 2) Ensuring human security and improvement of social infrastructure, and 3) Balanced and stable regional development including the border region.

The most important challenges in maternal and child health are problems related to delivery care in Pakistan. With this regard, it is thought effective to extend assistances to provide quality care of obstetrics and newborn at the health facilities people can access easier through improvement of building and equipment with Japan's grant aid or loan. A project of Japan's grant to improve medical equipment in secondary hospitals in a selected division is thought to be possible (1). Another project of Japan's ODA grant to improve the buildings and equipment of departments for maternal and child health of selected tertiary hospital is thought to be possible (2). A project of Japan's ODA loan to improve regional medical services with a combination of (1) and (2) is also thought to be possible in the future. Primary levels can be included as well. It is preferable to extend possible technical assistance on the development of managing capacity in addition to grant aid or loan to improve buildings and equipment.

Data Collection Survey on Health Facilities and Equipment in the Islamic Republic of Pakistan

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Chapter 1 County Overview

The Islamic Republic of Pakistan is located in South Asia, and is the sixth-most populous country with a population exceeding 207 million people according to the population and housing census of 2017.

The Gross National Income (GNI) per capita of Pakistan was USD 1,500 as of 2016, and the country was classified as a lower-middle-income economy¹ defined by the World Bank. Currently, the economy of Pakistan is growing annually at a rate of five percent, while the country's rank of Human Development Index (HDI) is 150 out of 189 countries and areas in the world.

The amount of the government's health expenditure was 0.7% of the Gross Domestic Product (GDP) in 2015, and the ratio was lower than the average of lower-middle-income countries (1.3%) and that of South Asian countries² (0.9%).

Total population	193,203,476	2016
Annual change of population (%)	2.0	2016
Annual change of GDP (%)	5.5	2016
GNI per capita (current USD)	1,500	2016
Crude death rate (per 1000 people)	7.3	2016
Crude birth rate (per 1000 people)	28.2	2016
Life expectancy at birth (years)	66.5	2016
Life expectancy at birth, female (years)	67.5	2016
Life expectancy at birth, male (years)	65.5	2016
Adult literacy rate (% of people ages 15 and above)	57.0	2014
Adult literacy rate, female (% of female ages 15 and above)	44.3	2014
Adult literacy rate, male (% of male ages 15 and above)	69.1	2014
Domestic general government health expenditure (% of GDP)	0.7	2015
HDI rank	150	2018

Table 1-1: Selected indicators of Pakistan

Source: World Bank, World Development Indicators/UNDP, 2018 Human Development Report

Pakistan is a federation consisting of four provinces, the Federally Administered Tribal Areas (FATA) and the Islamabad Capital Territory (ICT). Punjab is the most populous province with 110.001 million people, followed by Sindh with 47.89 million, Khyber Pakhtunkhwa with 30.52 million and Balochistan with 12.344 million people. The ratio of urban population is higher in Sindh and ICT, while the ratio of rural population is higher in the other provinces.

¹ Countries with a GNI per capita calculated using the World Bank Atlas method between \$996 to \$3,895

² South Asian countries according to the World Bank's classification: Afghanistan, India, Pakistan,

Bangladesh, Maldives, Sri Lanka, Bhutan and Nepal.

	Divisions	Districts/Agencies	All	Urban	Rural
Punjab	9	36	110,012,442	40,387,298	69,625,144
				36.7%	63.3%
Sindh	6	29	47,886,051	24,910,458	22,975,593
				52.0%	48.0%
Khyber Pakhtunkhwa	7	25	30,523,371	5,729,634	24,793,737
				18.8%	81.2%
Balochistan	5	32	12,344,408	3,400,876	8,943,532
				27.5%	72.5%
FATA		13	5,001,676	141,898	4,859,778
				2.8%	97.2%
ICT			2,006,572	1,014,825	991,747
				50.6%	49.4%
Pakistan			207,774,520	75,584,989	132,189,531
				36.4%	63.6%

Table 1-2: Population by province

Source: Pakistan Bureau of Statistics, Provisional Summary Results of 6th Population and Housing Census - 2017

The speed of population growth reached its peak in the 1980s and slowed down after that, although the rate of annual growth currently remains two percent or more. According to an estimation by the United Nations, Pakistan will be the fifth-most populous country by 2030 and fourth by 2060 after China, India and the United States.

The growth of GNI once slowed down in 2008 and accelerated again. The economy keeps growing at a rate of five percent annually. GNI per capita shows a similar tendency.

	1990	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016
GNI	5.11	3.85	1.91	3.49	2.76	3.42	4.09	4.41	5.16	5.16	5.56
GNI per capita	2.09	1.51	-0.15	1.38	0.64	1.27	1.91	2.23	2.99	3.03	3.47

Source: World Bank, World Development Indicators



Figure 1-1: Annual change of GNI per capita Left: amount (USD) and right: growth rate (%) Source: World Bank, World Development Indicators

		much	worse	worse	e 🔳 sa	ame	better	mud	h better	∎do	n't know
	All 7.2	24	29.59				44.08			16.48	2.39
Pakistan	Urban 6.5	8	30.98				44.20			15.05	2.81
	Rural 7.0	52	28.77				44.02			17.32	2.15
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Punjab	Urban 6.8	36	34.09	Э			39.93			16.51	2.43
	Rural 6.4	3	29.48			4	43.89			18.15	2.00
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Sindh	Urban 5.1	9	28.65				50.70			12.13	L 2.62
	Rural 6.9	92	30.29				47.88			13.5	9 1.09
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Khyber	Urban	13.05	24.	78		35	5.03		19.6	4	7.44
Pakntunknwa	Rural 1	1.37	25.9	1		3	8.73		1	9.44	4.29
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Balochistan	Urban 6.9	96 2	20.82			50.5	9			19.00	2.49
	Rural	13.18	23.1	4			47.11			14.99	1.43
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Islamabad	Urban 2. <mark>0</mark> 3	14.27			54.4	19			23.76	5	5.46
	Rural <mark>5.8</mark>	6	34.93	5			40.70			18.28	0.23
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Figure 1-2: Household perception of their economic situation compared to the year before Source: PBS, PSLM 2014-15

The household perception of their economic situation compared to the previous year is reported in the tenth Pakistan Social and Living Standards Measurement Survey (PSLM) by the Pakistan Bureau of Statistics (PBS) of the government of Pakistan. According to the survey, 18.87% of all households in the country answered their economic situation was 'much better' (2.39%) and 'better' (16.48%) than the previous year, while 36.83% answered 'worse' (29.59%) and 'much worse' (7.24%). The ratio differs from province to province. The ratio of answering '(much) better' was more than 20% in both rural and urban areas of Khyber Pakhtunkhwa, but less than 15% in Sindh. In Khyber Pakhtunkhwa, the ratio of '(much) worse' was higher in urban areas, but in Sindh and Balochistan, it was higher in rural areas.

Chapter 2 Health Situation of Pakistan

2-1 Health situation

2-1-1 Maternal, child and reproductive health

(1) Maternal and child mortalities

Safety during pregnancy and delivery is the most important issue in the field of maternal and child health in Pakistan.

The maternal mortality rate decreased from 431 per 100,000 live births in 1990 to 178 in 2015. In the same period, the under-five mortality rate (U5MR), the infant mortality rate (IMR) and the neonatal mortality rate also decreased from 138.8 to 81.0 per 1,000 live births, from 106.2 to 65.7 and from 64.2 to 46.6, respectively. The neonatal mortality rate, however, improved relatively slower, and its change as of 2015 was 73 compared to the value in 1990 as 100, although U5MR and IMR reached 58 and 62.

Table 2-1: Change of maternal and child mortalities from 1990 to 2015

	1990	1995	2000	2005	2010	2015
Maternal mortality/100,000 live births	431 (100)	363	306	249	211	178 (41)
Child mortalities/1,000 live births						
Under-five	138.8 (100)	126	112.8	101.6	92.1	81.0 (58)
Infant	106.2 (100)	97.3	88.1	80.3	73.6	65.7 <i>(62)</i>
Neonate	64.2 (100)	65.7	60.2	53.7	51.1	46.6 <i>(73)</i>

Source: World Bank, World Development Indicators

The trend of child mortalities for three successive five-year periods; 1986 to 1990, 2002 to 2006 and 2008 to 2012, were analysed in the Pakistan Demographic and Health Survey (PDHS) conducted in 2012 by the National Institute of Population Studies (NIPS). PDHS 2012-13 pointed out that a declining trend was confirmed in all mortalities of children by age group except neonatal mortality. As shown in Figure 2-1, U5MR declined from 117 during 1986 to 1990 and 94 during 2002-2006 to 89 during 2008 to 2012. In the same period, IMR also declined from 91 and 78 to 74. The neonatal mortality rate of successive five-year periods, however, indicated little change and only a slight increase could be observed.



It is believed by the World Health Organization (WHO) that postnatal haemorrhage, eclampsia and sepsis are the main causes of maternal mortality in Pakistan, and the main challenges are the safety and cleanliness of delivery care and adequate actions of seeking care.

According to the statistics provided by the United Nations Children's Fund (UNICEF), complications of preterm birth (22.4%), pneumonia (14.8%), intrapartum-related complications including birth asphyxia (14.0%) and neonatal sepsis (10.9%) are the main causes of child deaths in Pakistan. The ratios of neonates or children under one month and post-neonates or children one to 59 months explain the importance of preterm and intrapartum complications, as well as sepsis and tetanus during the neonatal period. These causes of child deaths also suggest current problems related to delivery care in Pakistan.

		()		
		< 1 month	1-59 months	Total
Preterm birth complication	22.4	21.2		21.2
Intrapartum-related complications	14.0	12.9		12.9
Neonatal sepsis	10.9	10.9		10.9
Neonatal tetanus	1.5	1.5		1.5
Congenital anomaly	5.4	3.6		3.6
Pneumonia	14.8	3.7	11.1	14.8
Diarrhoea	8.7	0.7	8.0	8.7
Malaria	0.1		0.1	0.1
AIDS	0.1		0.1	0.1
Measles	0.5		0.5	0.5
Injury	6.5		5.0	5.0
Meningitis	1.1		1.1	1.1
Other	13.9	4.1	15.5	19.6
Total	100.0	58.6	41.4	100.0

Table 2-2: Estimated causes of child deaths in Pakistan (2016)

Source: UNICEF Data: Monitoring the Situation of Children and Women, Child Mortality, Cause of Death

It is thought that the current situation of maternal and child health in Pakistan is complicated by multiple factors in the sectors of health, education, gender, transportation and communication and socio-economy.

(2) Antenatal and delivery care

The rate of institutional delivery is still low in Pakistan. The situation of antenatal care is also capable of both quantitative and qualitative improvements.

PSLM 2014-15 reported the places and attendants of deliveries in 2014 as shown in Figure 2-2. In total, 17% of all births took place in governmental facilities and 38% in private facilities. The proportion of institutional delivery was higher in urban areas (25% in governmental and 51% in private facilities) than rural areas (13% in governmental and 32% in private facilities).

Private facilities had bigger shares in the urban areas of Sindh and Punjab. The proportion of institutional delivery was the smallest in Balochistan.





Figure 2-2: Location and attendant of child delivery Source: PBS, PSLM 2014-15

Among all the deliveries in 2014, 47% were attended by doctors. On the other hand, the ratio of deliveries attended by nurses, midwives or Lady Health Visitors (LHV) was only 12%, reflecting the peculiar situation of the extremely small number of female health staff in Pakistan. Some deliveries in rural areas were attended by traditional birth attendants and Dai.

The trend of antenatal care (ANC) was examined in PDHS 2012-13 interviewing 7,446 women aged 15 to 49 who had a live birth in the five years preceding the survey. Three-fourths or 75.6% of respondents had made ANC visits. The percentage of women making four or more ANC visits increased from 14% in 1990 to 36.6% in 2012. The rate in rural areas, however, was 25.8% and much lower than the 61.6% in urban areas and 82.0% in Islamabad. The timing of the first ANC visit showed the same trend. The overall median length of pregnancy at the first visit was 3.7 months, while 2.9 months in urban areas and 4.3 months in rural areas.

		Urban	Rural	Total
Respondents	Total	2,244	5,202	7,446
Women age 15-49 who had a live birth in the five years preceding the interview in PDHS 2012-13	Those who made visits	2,008 (89.5%)	3,623 (69.6%)	5,631 (75.6%)
Number of ANC visits	None	10.6%	30.3%	24.4%
	1	7.0%	16.1%	13.3%
	2-3	20.6%	27.7%	25.6%
	4	61.6%	25.8%	36.6%
	Don't know/missing	0.3%	0.1%	0.1%
	Total	100.0%	100.0%	100.0%
Number of months pregnant at time of first visit	No ANC visit	10.6%	30.3%	24.4%
	< 4	64.9%	32.7%	42.4%
	4-5	13.3%	15.0%	14.5%
	6-7	7.6%	14.4%	12.4%
	> 8	3.5%	7.5%	6.3%
	Don't know/missing	0.2%	0.1%	0.1%
	Total	100.0%	100.0%	100.0%
Median months pregnant at first visit		2.9	4.3	3.7

Table 2-3: Number of ANC visits and timing of first visit

Source: NIPS, PDHS 2012-13

PDHS 2012-13 reported the components of ANC visits based on the answers from the interviewed women. The frequency of blood pressure measurement was 86%, while those for urine sample taken (61%), blood sample taken (56%) and weighed (53%) were relatively low. Ultrasound examination (89%) was likely most common in the ANC. On the other hand, less than half of the respondents answered that they were informed of signs of pregnancy complications.

(3) Immunization

In Pakistan, routine immunization for children includes BCG, Polio, the pentavalent vaccine (Diphtheria, Pertussis, Tetanus, Haemophilus Influenza B and Hepatitis B) and measles. According to estimates by WHO and UNICEF, the coverages of immunization in 2016 were 86% for BCG, 75% for Polio-3, 75% for the pentavalent vaccine, and 76% for measles.

Routine immunization for children in Pakistan seems to cover some 70 to 80%, but the situation likely differs by province.

The coverage of BCG at birth was over 90% in Islamabad and in Punjab as of the report by PDHS 2012-13, and it was less than 80% in the other provinces. In Balochistan in particular, the coverages were 48.9% for BCG and 37.7% for the first dose of mixed vaccine.



Figure 2-3: Schedule and coverage of routine immunization Source: PBS, PSLM 2014-15/WHO and UNICEF estimates of national routine immunization coverage, 2016 revision (completed July 2017)/UNICEF, Maternal and Newborn Health Disparities Pakistan

(4) Nutrition

It was reported that 45% of children under five were stunted, 11% were wasted, and 30% were underweight. PDHS 2012-13 pointed out background factors of those problems of nutrition of children. As shown in Table 2-4, a higher prevalence of those problems is observed in rural areas. Those problems seem to be related to mothers' nutritional and educational status. Children born with low weight and shorter birth interval appear to be vulnerable to those nutritional problems.

		Stunting	Wasting	Underweight
All		44.8	10.8	30.0
Residence	Urban	37.1	9.9	24.1
	Rural	48.2	11.2	32.5
Mother's BMI	Thin <18.5	55.4	16.6	44.2
	Normal 18.5-24.9	47.2	11.8	33.2
	Overweight/obese >=25	35.3	6.4	18.5
Mother's education	No education	55.3	13.5	38.7
	Primary	45.8	8.5	27.5
	Middle	30.8	8.0	17.8
	Secondary	20.9	7.3	14.2
	Higher	20.7	5.6	9.9
Weight at birth	<1500 g	51.5	17.2	37.6

		Stunting	Wasting	Underweight
Birth space	1500 - 2500 g	55.5	12.8	40.0
	>2500g	42.5	10.1	27.4
	First birth	41.6	10.0	27.8
	< 24 months	47.3	10.8	30.1
	24-47 months	44.1	10.9	30.3
	>48 months	43.0	11.2	28.4

Source: NIPS, PDHS 2012-13

Micronutrient deficiencies of young mothers and pregnant women are another important problem. Iron tablets are provided to pregnant women to mitigate the risk of delivery complications caused by severe anaemia, although the proportion of pregnant women taking iron tablets is not high partially because of low utilization of ANC. According to PDHS 2012-13, 22% of women responded that they took iron tablets daily for 90 days or more during their pregnancy, 8% of them took iron supplements for 60 to 89 days, and 14% took supplements for fewer than 60 days. More than half or 55% of them answered that they did not take iron supplements at all. The rate of iron intake for 90 days was 22 to 24% in Punjab, Sindh and Khyber Pakhtunkhwa, while 5% in Balochistan.

(5) Family Planning

The beginning of a family planning service in Pakistan was initiated by an NGO, the Family Planning Association of Pakistan founded in the 1950s. In those days, the family planning service was provided by the NGO establishing clinics in selected cities. The government supported it financially as part of the first five-year plan. By the 1980s, the family planning programme was stagnant with low commitment of the government and other political circumstances. The national population increased from 33 million at the time of independence in 1947 to 84 million in 1980. In the early 1980s, the crude birth rate was 42.1 per 1,000 population, the crude death rate was 12.2 per 1,000 population and the total fertility rate (TFR) was 6.9 per woman, showing a typical population profile of higher fertility and mortality.

The government's commitment increased in 1990. Pakistan became a signatory to the plan of action of the International Conference on Population and Development, and a package of reproductive health was introduced. The training of lady health workers (LHW) was commenced by a prime minister's programme on primary health care in those days.

The Population Policy of Pakistan was launched in the early 2000s with the vision to achieve population stabilization by 2020. At the same time, an ordinance declaring all population program employees as civil servants of the respective provincial governments was promulgated.

Currently, the family planning service is provided as part of services of population and welfare which is managed by the population welfare department of the respective provincial governments and district offices of population and welfare.

As of 2017, population stabilization yet to be achieved in Pakistan and the TFR is 3.4 and annual growth is 2.1% according to the statistics of the United Nations Population Fund. It is also reported that contraceptive prevalence is 40% and unmet needs is 20%, namely, the coverage of the family planning service has room for improvement.

2-1-2 Infectious diseases

(1) HIV/AIDS

The prevalence of Human Immunodeficiency Virus (HIV) among the general population is low (0.1%) in Pakistan, while it is increasing among the risk groups. According to an estimation by the Joint United Nations Programme on HIV and AIDS (UNAIDS), the number of people living with HIV is about 150,000, of which some 20,000 cases are newly infected, and the number of deaths from AIDS is about 6,200. Although there are more than 30 centres for antiretroviral therapy (ART) and ART is available at 11 centres for the prevention of mother-to-child transmission (PMTCT), the coverage of ART is 8%. UNAIDS estimates that there are 3,100 pregnant women needing ART for PMTCT, although the coverage is only 6%.

The National AIDS Programme develops guidelines, carries out surveillance and arranges international assistance. The provincial AIDS Programmes implement activities in the respective provinces.

(2) Tuberculosis

Pakistan is one of 30 high-burden countries for Tuberculosis (TB). As of 2016, the incidence was estimated at 518,000 cases or 268 cases per 100,000 population, which included 6,900 cases or 3.5 per 100,000 population of co-infections with HIV. The number of notified cases in the year was 366,061 and the TB treatment coverage was estimated at 69%. The mortality from TB was estimated at 44,000 cases or 23 cases per 100,000 population. In addition to this, 2,100 deaths of co-infection cases with HIV were reported. The incidence of TB resistant cases was 27,000 or 14 per 100,000 population.

(3) Malaria

Pakistan is also included in high-burden countries for Malaria. According to the World Malaria Report 2017 by WHO, the estimated number of malaria cases and deaths in Pakistan were 1,300,000 and 1,100, respectively, in 2016. The number of reported cases was 2,100,000, of which 318,449 cases were confirmed mainly by microscopy.

Table 2-5: Malaria cases

	2010	2011	2012	2013	2014	2015	2016
Estimated cases	1,645,000	2,101,000	1,857,000	1,588,000	1,547,000	1,161,000	1,307,000
Estimated deaths	1,900	2,000	1,900	1,200	1,100	900	1,100
Reported cases	4,281,356	4,065,802	4,285,449	3,472,727	3,666,257	3,776,244	2,115,941
of which Confirmed	240,591	334,589	290,781	281,755	275,149	202,013	318,449
Death	-	4	260	244	56	34	33

Source: WHO, World Malaria Report 2017

The burden of malaria shared by the highly endemic districts were mostly located in Balochistan (17 out of 32), FATA (7 out of 13 agencies), Khyber Pakhtunkhwa (12 out of 25) and Sindh (12 out of 29). The targets of the national strategy for malaria control are to reduce the burden in high and moderate districts/agencies, and to eliminate malaria in low endemic districts/agencies.

Table 2-6: Malaria endemic districts and agencies

	No. districts/agencies		Prevalence	API*	
	Total	Endemic	(2009)	(2012)	(2013)
Punjab	36			0.19	0.10
Sindh	29	12		2.92	1.64
Khyber Pakhtunkhwa	25	12	3.8%	2.76	4.21
Balochistan	32	17	6.2%	7.68	7.14
FATA	13	7	13.9%	6.83	8.82
Total			1.59%		1.59

* Annual Parasite Incidence: Positive slides÷population×1.000 (confirmed positive cases per 1,000 population) Source: Government of Pakistan, Ministry of Finance, Pakistan Economic Survey 2016-17

Directorate of Malaria Control Pakistan, Strategic Plan, Malaria Control Program Pakistan 2015-2020

	Percentage of ho at least one m	useholds with osquito net	Average number of	Number of	
	Insecticide-treated mosquito net	Any mosquito net	per household	surveyed	
Total	1.0	13.4	0.3	12,943	
Urban	1.2	10.5	0.2	4,383	
Rural	0.9	14.9	0.3	8,560	
Punjab	0.6	10.2	0.2	7,614	
Sindh	1.3	21.7	0.5	3,004	
Khyber Pakhtunkhwa	1.5	13.4	0.3	1,711	
Balochistan	2.5	16.4	0.4	450	
ICT	0.7	6.5	0.1	72	

Table 2-7: Household possession of mosquito nets

Source: NIPS, DHS 2012-13

The malaria control programme includes the promotion of early detection and treatment, the provision of insecticide-treated mosquito nets, strengthening the capacity of health staff, advocacy and surveillance involving the private sector. In the period of PDHS 2012-13, household possession of an insecticide-treated mosquito net was found in one percent of 12,913 surveyed households.

(4) Viral hepatitis

In Pakistan, viral hepatitis is important in addition to other infectious diseases. According to WHO, the most common reasons for the spread of hepatitis in the general population are re-use of syringes, very high use of therapeutic injections, weak infection control practices in health facilities and a weak blood transfusions system, leading to transmission from infected to healthy persons. The government estimated that the prevalence of hepatitis B and C were 2.5% and 4.9% as of 2007. A national programme was launched in 2005 with the objective to halve the infection. Vaccination for hepatitis B targeting risk groups, strengthening screening and treatment at hospitals, the enhancement of safe blood transfusion and the prevention of hepatitis A and B have been implemented under the programme.

2-1-3 Non-communicable diseases

Signs of epidemiological transition have been observed in Pakistan, and the burden of noncommunicable diseases (NCDs) was responsible for more than half of all deaths: cardiovascular diseases account for 19%, cancers 8%, respiratory diseases 6% and diabetes mellitus 3% in 2012. The rate of Cardiovascular diseases has increased 10 points from 2012 to 2016.



Figure 2-4: Proportional mortality and top 10 causes of deaths (2012 and 2016) Source: WHO NCD Country Profile 2014, 2018, Pakistan/WHO Country Health Profile, Pakistan

According to an analysis by WHO based on the statistics reported by the government, the proportion of NCDs increased and communicable and maternal conditions decreased in the causes of death during 2000 to 2012 as shown with [\uparrow] and [\downarrow] in the Figure.

An NCDs unit has been established at the federal health ministry, and preparatory work to develop strategies and action plans for NCDs control has been started.

2-2 Development policies

2-2-1 National development policy

(1) Long-term vision

The government of Pakistan has developed a long-term development vision, Pakistan 2025: One Nation - One Vision (Vision 2025), aiming to make Pakistan an upper-middle-income country by 2025 and one of the global top ten economies by 2047.

The government stated that Vision 2025 built upon the preceding measures to address short-term challenges and those results, including the deceleration of inflation, shrinkage of the fiscal deficit, reassurance of trading through increased foreign exchange reserves, and the revival of the stock market gained the confidence of the international capital market, and that Vision 2025 also built upon a national consensus on democratic governance, the strengthening of parliament, as well as the judiciary, and the emergence of a vibrant civil society. Accordingly, the government explained that Vision 2025 would function as a compilation of the national and international consensus on the future direction of the country, a concrete road map for balanced human, social and economic development, a platform for sustainable and inclusive growth, and an indigenous conception for meeting globally agreed targets. The government also argues the necessity of a well-defined coordination mechanism and the promotion of inter-provincial and federal-provincial communication and coordination so that national and provincial priorities are aligned, and the federal and provincial governments work together to reach the goals.

The framework of Vision 2025 is composed of five key enablers and seven pillars. The first pillar is the development of human and social capital with the priority to provide every citizen with the ability to improve his/her choices and quality of life. It involves a rapid scaling-up of investment in education, health and social development.

Vision	To make Pakistan the next Asian Tiger			
Overall goal	To become one of top 10 economies in the world and a high-income country by 2047			
]	To become one of top 25 economies in the world and an upper-middle-income			
C	country by 2025			
Enablers S	Shared vision, Political stability and continuity of policies, Peace and Security, rule of Law,			
S	Social Justice			
Pillars and goals				
Putting People First -	1. Primary school enrolment and completion rate: 100%, literacy rate to 90%			
Developing Human and	2. Higher education coverage: 12%, number of PhDs: 15,000			
Social Capital	3. Primary and secondary Gender Parity Index: 1, female workforce participation rate: 45%			
	4. Population with access to improved sanitation: 90%			
	5. Infant mortality rate: less than 40/1000, maternal mortality rate: less than 140/100,000			
	6. Incidence/prevalence of hepatitis, diarrhoea, diabetes and heart disease: halved			
	7. Pakistani World Champions: 2 sports, medals in the Asian games: >25			
Achieving Sustained, Ind	igenous 8. Become an upper-middle-income country			
and Inclusive Growth	9. Poverty level: halved			

Table 2-8: Outline and 25 goals of Vision 2025

	10. Foreign direct investment: over USD 15 billion
	11. Tax to GDP ratio: 18%
Democratic Governance, Institutional Reform & Modernization of the Public	12. Top 50th percentile for political stability, no violence/terrorism, and control of corruption as measured by the World Bank's Worldwide Governance Indicators
Sector	
Energy, Water & Food Security	13.Double power generation to over 45,000 MW, electricity access: over 90% of the population
	 14. Average energy cost per unit: reduced over 25%, indigenous sources of power generation: over 50%, usage of energy efficient appliances/products: 80% 15. Water storage capacity: 90 days, efficiency of usage in agriculture: 20%
	increased, access to clean drinking water: all Pakistanis
	16.Food insecure population: 30%
Private Sector and	17. Rank in the top 50 countries on the World Bank's ease of doing business
Entrepreneurship Led Growth	rankings
	18. Diaspora investment (via remittances) in private sector: USD 40 billion
	19. Create 5 global brands, make 'Made in Pakistan' a symbol of quality
Developing a Competitive	20. Rank in the top 75 countries as measured by the World Economic Forum's
Knowledge Economy	Global Competitiveness Report
through Value Addition	21. Triple labour and capital productivity
	22. Score on the World Bank Institute's Knowledge Economy Index: 4.0, internet
	penetration: over 50%
	23. Number of tourist arrivals: 2 million
Modernizing Transportation	24. Road density: 64 km/ 100 km ² , share of rail in transport: 20%
Infrastructure & Greater	25. Annual exports: YSD 150 billon
Regional Connectivity	

Source: Ministry of Planning, Development and Reform, Pakistan Vision 2025

(2) Five-year plan

Five-year plans have been developed in Pakistan since 1947. The 11the plan to cover 2013 to 2018 is currently being implemented. It shows the challenges and strategic direction in the fields of population, education, health, labour, poverty alleviation, social welfare, gender, adolescence, religion and culture in line with the first pillar of Vision 2025. Table 2-9 shows the objectives and priorities of the health sector in the 11th plan.

Table 2-9: Ob	jectives in 1	the health	sector under	the 11th	five-year	plan
					~ ~	

Objectives	To introduce a comprehensive National Health Service Package through the participation
	of the private sector and the community
Specific	· Save an additional 700,000 lives of infants and children under five years
Objectives	· Save an additional 24,000 lives of pregnant mothers before, during and after delivery
	• Eradicate polio – 27,179,400 doses of OPV for a target of 6,039,867 children under five years
	• Eliminate measles – 2.1 million children are infected annually resulting in 21,000 deaths
	due to complications – a target of 6,039,867 children to be vaccinated through 18,155,840
	doses, while for tetanus, 14,018,372 doses are targeted for 7,009,186 children.
	· Prevent an additional five million children from becoming malnourished
	· Provide skilled birth attendance to more than 4.3 million pregnant women

- · Ensure the provision of family planning services to an additional five million couples
- · Avert 13 million new TB cases
- · Immunize more than 22 million children against Hepatitis B and other vaccine preventable diseases, and
- Reach 40 million of the poorest people to ensure the provision of an essential package of service delivery

Source: Ministry of Planning, Development and Reform, 11th Five Year Plan 2013-18

Table 2-10. Obais in the health sector under the Trui inve-year pla	Table	2-10:	Goals in	the hea	lth sector	under th	e 11th	five-year	plai
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	Indicators	Baseline 2013-14	Targets 2017-18
1	Infant mortality rate, per 1000 live births	74	40
2	Under 5 mortality rate, per 1000 live births	89	52
3	Coverage of routine immunization, % of children 12-23 months	54	>90
	Coverage of measles, %	81	>90
4	Polio eradication, No.	280	0
5	National programme for family planning and primary healthcare		
	Lady Health Workers, No.	98,000	130,000
	Coverage of population, %	83	100
6	Control of HIV/AIDS		
	HIV prevalence among pregnant women, %	0.041	halved
	HIV prevalence among vulnerable groups	0.2	halved
7	TB and Malaria control programme		
	Population in malaria risk areas using effective treatment & bed nets, $\%$	40	75
	Incidence of TB, per 100,000 population	230	45
	Proportion of TB case detection under DOTS, %	69	76
	Proportion of cured cases under DOTS, %	90	95
8	Maternal mortality rate, per 100,000 live births	260	140
9	Proportion of births attended by trained health staff, %	52	>90
10	Proportion of pregnant women having at least 3 antenatal consultation	62	100

Source: Ministry of Planning, Development and Reform, 11th Five Year Plan 2013-18

(3) Annual plan

An annual plan is developed in the framework of the five-year plan. The Annual Plan 2018-19 has been developed with a recognition of the macroeconomic situation with the 5.8% annual growth of country's economy in 2017-18 which was the highest during last 13 years and targeted 6.2% as annual growth in 2018-19.

The overall size of the national development outlay for 2018-19 is Rs 2,043 billion with foreign assistance of Rs 339 billion. The size of the federal Public Sector Development Programme (PSDP) is Rs 1,030 billion, while that of the provincial Annual Development Plan (ADP) is Rs 1,013 billion. Substantial funds of Rs 135 billion or 15% of the total amount are earmarked for social sectors, of which Rs 37 billion is allocated to the health sector.

Several programmes of health development are funded by the federal government. Those programmes include family planning and primary health care, an expanded programme for immunization, a malaria control programme, tuberculosis control programme, HIV/AIDS control programme, maternal neonatal and child health programme, a programme for the prevention and control of hepatitis, a programme for the prevention and control of blindness, a programme for the programme.

Table 2-11: Sector-wise allocations in the federal PSDP (2018-19)

Sector	Amount in Rs billion and share (percent)			percent)
Infrastructure	575	(62%)		
· Power			80	(9%)
Transport and communication			400	(43%)
· Water			65	(7%)
Physical planning and housing			30	(3%)
Social Sector	135	(15%)		
· Education			57	(6%)
Health and population welfare			37	(4%)
Pak. SDGs community development			5	(1%)
· Other			36	(4%)
Science and information technology	12	(1%)		
Governance	18	(2%)		
Special areas	72	(8%)		
Production	5	(1%)		
ERRA	8	(1%)		
TDPs and security enhancement etc.	105	(11%)		
Total	930	(100%)		
Block allocation for new project by next government	100			
Grand total	1030			

Source: Ministry of Planning, Development and Reform, Annual Plan 2018-19

Table 2-12: PSDP 2018-19 allocation to health sector projects

Ministry/Organization	No of projects	Allocation
Ministry/Organization	No. of projects	(Rs million)
Ministry of National Health Services, Regulations and Coordination	54	25,060.164
Capital Administration and Development Division	20	2,454.459
Pakistan Atomic Energy Commission	6	3,616.947
Ministry of Interior	6	1,244.077
Finance Division	3	600.000
Defence Division	1	570.000
Other	3	1,171.000
Total	93	34,716.647

Source: Ministry of Planning, Development and Reform, Annual Plan 2018-19

2-2-2 Health policy

(1) National health vision

The National Health Vision 2016-2025 has been developed following Vision 2025 and global priority issues. It indicates the direction of health development with five objectives and eight pillars and provides the basis for policies and strategic plans to be developed at the provincial level.

Table 2-13: Objectives	and thematic p	oillars of National	Health Vision	2016-2025
5	1			

Objectives	• Provide a unified vision to improve Health while ensuring provincial autonomy and diversity						
	• Build coherence with Federal & Provincial efforts in consolidating the progress, learning from experiences and moving toward universal health coverage						
	• Facilitate synchronization for commonality across international reporting and international treaties						
	• Facilitate coordination for regulation, information collection, surveillance, and research for improved health systems						
	• Provide a foundational basis for charting and implementing SDGs, in partnership with other sectors						
Thematic	1. Health Financing	5. Governance					
Pillars	2. Health Service Delivery 6. Essential Medicines & Technology						
	3. Human Resources for Health 7. Cross-sectoral linkages						
	4. Health Information Systems	8. Global Health Responsibilities					

Source: MNHSRC, National Health Vision 2016-2025

(2) Priority actions

The Ministry of National Health Services, Regulations and Coordination (MNHSRC) has developed another document titled "the National Vision 2016-2025 for Coordinated Priority Actions to Address Challenges of Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition."

 Table 2-14: Priorities shown in national vision regarding reproductive, maternal, newborn, child and adolescent health and nutrition

- 1. Improving the access and quality of primary care for mothers, newborns and children in rural areas with community-based services ensuring a continuum of care including newborn care in rural districts and urban slums
- 2. Improved quality of care in district facilities including rural health centres and district hospitals
- 3. Overcoming financial barriers to care seeking and uptake of interventions
- 4. Increased Funding and allocation for maternal, newborn and child health in rural areas
- 5. Reproductive health and Family planning
- 6. Investing in nutrition of adolescent girls, mothers and children
- 7. Investing in addressing social determinants of health
- 8. Measurement and Action at district level
- 9. National Accountability and Oversight
- 10. Generation of the political will to support maternal, newborn and child health in rural areas as a key priority within the SDGs

Source: MNHSRC, National Vision 2016-2025 for coordinated priority actions to address challenges of reproductive, maternal, newborn, child and adolescent health and nutrition

2-3 Health system

2-3-1 Health administration

In Pakistan, the health administration was largely devolved to the provincial governments by the 18th amendment of the constitution, and MNHSRC was newly established in 2013. The federal subjects in health have been consolidated under MNHSRC, while health services and relevant programmes are implemented by the provincial governments with policies and action plans at the provincial level.

	Federation	Province
Policy	Developing national visions and	Developing provincial health policies
development	strategies in the health sector	and strategic plans
Laws and regulations	National legislation and supervision	Implementation in a province
National programme	Planning, funding and coordination	Implementation in a province
Human resources	Developing national vision, authorization of health personnel	Developing human resources under provincial policies
Health services	Regulation and coordination	Service delivery
Other	Coordination of international	
	development partners	

Table 2-15: Comparison of federal and provincial health administrations

2-3-2 Health budget

The provincial ADPs of Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan allocated 9.7%, 6.4%, 9.5% and 6.1% to the provincial health departments, respectively, in 2017-18. The proportion of health budget in the provinces is higher than that of the federal PSDP.

	Total amount of ADP	Number of	Allocatio health departn	n to nent(s) * ¹
	(Rs million)	programmes	(Rs million)	Share
Punjab	520,083	250	50,308	9.7%
Sindh	286,742	208	15,500	6.4%
Khyber Pakhtunkhwa	207,999	106	12,000	9.5%
Balochistan	80,000	147	4,878	6.1%
Islamabad		14	1,750	

Table 2-16: Proportion of health budget in provincial ADPs 2017-18

^{*1} The department of specialized healthcare and medical education; the department of primary and secondary healthcare in Punjab, and the health department in other provinces

Source: ADP 2017-18 of each province, homepages of provincial governments and ICT

2-3-3 Expenditure

The total health expenditure was Rs 757.2 million in 2013-14, which was four times that of Rs 185,070 million in 2005-06. As of 2013-14, the share of health expenditure in the private sector (Rs 500,342 million or 66%) was much larger than governmental health expenditure (Rs 250,853 million or 33%). The private expenditure is mainly patients' out-of-pocket payments. After the



devolution of health administration, the amount of expenditure by the provincial governments are increasing.

Figure 2-5: Health expenditure Source: PBS, National Health Accounts 2005-06, 2007-08, 2009-2010, 2011-12, 2013-14

2-3-4 Health service delivery

(1) Health facilities

Health services are provided at public hospitals and basic health facilities. In addition, there are hospitals owned by other ministries. The public facilities include tertiary hospitals, district headquarter (DHQ) hospitals, tehsil headquarter (THQ) hospitals, rural health centres (RHC), basic health units (BHU), dispensaries, mother and child health centres and sub-health centres.

	tuble 2 17. Trainder of neurin lucinities by province							
	Tertiary	DHQ	THQ	DUC	DUIT	Disponsory	MCH	Sub-h.
	hosp.	hosp.	hosp.	кпс	впо	Dispensary	centre	centre
Punjab	23	34	88	293	2,461	499	289	443
Sindh	7	11	56	130	774	643	90	15
Khyber Pakhtunkhwa	9	21	77	90	822	307	49	30
Balochistan	4	27	10	82	549	575	90	24
ICT	2	8*		3	5	-	-	-
FATA	0	4	14	9	174	11	22	211
Other	0	11	39	36	223	277	235	484
Total	46	108	280	638	5,002	2,318	775	1,207

Table 2-17: Number of health facilities by province

* Total number of hospitals at the levels of DHQ and THQ/ MCH: Maternal and Child Health

Source: Punjab Health Department Web/Technical Resource Facility (2012) Health Facility Assessment-Pakistan National Report/Questionnaire

Immunization, ANC and family services are provided by health facilities at all levels in Pakistan. At the primary level, the treatment of common diseases, ANC and basic delivery care should be available at RHC and BHU. Specialized medical care, basic abdominal operations including caesarean section, and comprehensive emergency obstetric care should be provided by DHQ and THQ hospitals at the secondary level, and highly specialized medical care should be provided by tertiary hospitals. Some facilities, however, are not able to perform necessary services due to problems such as a lack of physicians for example. Surveys targeting services of maternal and child health by primary and secondary health facilities reported a lack of health staff and equipment is common among those facilities.

(2) Human resources for health

The categories of health staff in Pakistan are doctors, dentists, nurses, midwives, pharmacists and other common jobs, as well as female health staff at the community level, which are characteristic of Pakistan.

There were 107 medical colleges (41 public and 66 private) in Pakistan as of 2017, and they educate about 15,000 medical and dental students annually. After five years of medical or dental education at a college, a graduate obtains a Bachelor of Medicine and Surgery or Bachelor of Dental Surgery. A course for specialization is available after a certain amount of clinical experience as a physician or dentist.

Nursing education is given at nursing colleges and schools, which numbered 215 (145 public, 70 private) as of 2017, educating 10,000 nursing students annually. A Bachelor of Science in Nursing (BSN) is granted after four-year nursing education at a college, and a diploma is granted in two to three years at a nursing school. A BSN can also be obtained when a diploma nurse takes a one-year bachelor course after clinical experience of three years or more. In addition, some universities have master courses for specialized nursing such as Intensive Care Unit (ICU), paediatrics and cardiology.

Doctors and nurses have to pass examinations by a federal or provincial public service commission to work at public facilities in the country. Provincial health staff are employed and allocated by the respective provincial governments.

LHV and community midwives (CMW), as well as LHW, are female health staff at the community level, which is a characteristic of Pakistan. They play an important role in the current situation in Pakistan, which is lacking female doctors and nurses. The training of LHW was commenced in a prime minister's programme of the 1990s. An LHW takes charge of some 1,000 residents around her residence and provides services of community-level primary healthcare such as the prevention and basic medication of common diseases, the provision of contraception, health education, the promotion of immunization, etc. The training of CMW started in the maternal and child health programme in 2006. A CMW, being in charge of 5,000 residents, provides care for pregnant women and newborns in the community. Both LHW and CMW are recruited from the local population. LHV are diploma holders who have completed a two-year course at a health institute, usually attached to a health facility at the primary level. LHV provide services of basic nursing, as well as maternal and child health care. LHV also supervise LHW and CMW.

The challenges of human resources for health in Pakistan are shortages of personnel, insufficient levels of technique, imbalanced distributions between urban and rural areas, outmigration, etc. The lack of female staff is the most serious problem. The number of nurses, midwives and LHVs in total is 1.45 per 1,000 population. The education of health personnel has yet to be standardized. A terrible lack of personnel often results in an excessive workload of health staff and prevents them from taking post graduate education.

The development of human resources for health is one of the eight pillars of the National Health Vision. The government envisages increasing the number of doctors, nurses and midwives up to 4.45 per 1,000 population to realize universal health coverage in the country, achieving Sustainable Development Goals (SDGs). In this context, the government recently developed the Human Resources for Health Vision 2018-30. The provincial governments are required to develop their strategies on human resources for health by the end of 2018.

1000 2-10.	outline of Human Resources for Health Vision 2010-50
Purpose	Accelerate progress toward universal health coverage, sustainable development goals and
	economic growth by ensuring equitable access to a quality health workforce within a
	resilient, responsive and strengthened health system
Goal	To ensure a flexible, responsive and sustainable health workforce that is of sufficient size
	quality, capability and distribution to deliver on Pakistan's sustainable development goals,
	provide universal health coverage, and equitable access to health services for all
Objectives	1. To establish a national and provincial health workforce planning and development
	capability that provides the necessary tools (strategies, governance mechanism,
	legislation) and resources to deliver a health workforce of sufficient size, composition,
	capability and distribution to meet the health needs of the population
	2. To align investment in human resources for the health labour market with the current and
	future needs of the people and health system to address shortages and improve the
	distribution of a quality health workforce, so as to enable maximum improvements in health
	outcomes and poverty reduction
	3. To build the capacity of institutions at the district, area/province and national levels for
	effective and quality pre-service & in-service training and leadership of actions on human
	resources for health
	4. To strengthen data collection, processing and dissemination of information related to

Table 2-18: Outline of Human Resources for Health Vision 2018-30

human resources for health for monitoring and ensuring accountability at different levels Source: MNHSRC, Pakistan Human Resources for Health Vision 2018-30

Table 2-17. Required number of physicians, nurses, industres and expected goals							
	Physician a	nd Specialist	Nurse/Midwife/LHV				
	2017 2030		2017	2030			
	(0.96 per 1,000)	(1.11 per 1,000)	(0.49 per 1,000)	(3.34 per 1,000)			
Punjab and ICT	93,287	159,866	65,990	505,298			
Sindh	74,166	70,310	21,644	210,930			
Khyber Pakhtunkhwa	26,963	54,958	13,672	164,873			
Balochistan	6,157	20,470	2,740	61,410			
Other	4,579	8,566					
Total	205,152	314,170	104,046	942,511			

Table 2-19: Required number of physicians, nurses, midwives and expected goals

Sources: MNHSRC, Pakistan Human Resources for Health Vision 2018-30

Chapter 3 Situation of Provinces

3-1 Punjab

3-1-1 Overview

The province of Punjab is located in the eastern part of Pakistan with an area of 205,345km² or 26% of the total territory and population of 110,012,442 or 53% of the total population. There are nine divisions and 36 districts in the province. Agriculture is the main industry in the province contributing about 68% to the annual food grain production in the country. Cotton and rice are important cash crops. In addition, Punjab has other industries such as textiles, processing agricultural raw materials, etc. The population of the province increased during 1998 to 2017 at an average rate of 2.13% annually.

Table 3-1: Population of Punjab

	All	Urban	Rural
Population 2017	110,012,442	40,387,298	69,625,144
(Proportions of urban and rural)	100	37	63
Population 1998	73,621,290	24,130,896	49,490.394
Average annual growth, 1998-2017	2.13%	2.74%	1.81%
	177 1 0	0.01 -	

Source: PBS, Provisional Summary Results of 6th Population and Housing Census-2017

According to WHO, while communicable diseases account for the predominant share of morbidity and mortality in Punjab, the prevalence of NCDs is rapidly rising showing the province is at the early stage of an epidemiological transition, like the country as a whole.

The trend of the slight increase of the neonatal mortality rate is a characteristic of the maternal and child health of Pakistan as mentioned in the preceding chapter. The rates of child mortality for three successive five-year periods illustrates the same trend in the province. The neonatal mortality rate in Punjab was 58 per 1,000 live births in the five-year periods of 1986 to 1990 and 2002 to 2006, and it increased by five points in 2008-2012.

Table 3-2: Change	e of child m	nortality of suce	cessive five-vea	r periods in Puniab
raone e at entange				

	1986-1990	2002-2006	2008-2012
Under 5 mortality rate, 1,000 live births	133	97	105
Infant mortality rate, 1,000 live births	104	81	81
Neonatal mortality rate, 1,000 live births	58	58	63

Source: NIPS, Pakistan Demographic and Health Survey 2012-13

In Punjab, the rate of institutional delivery is relatively high as shown in Figure 2-2 in the preceding chapter. In the province, doctors accounted for 69.8% of ANC providers, while female staff (nurses, midwives and LHVs) shared 8.3%. Every fifth women did not have any ANC visits at all in the province. In rural areas, the proportion of doctors to ANC providers was less and that of female staff was more than urban areas, while fewer women had ANC visits.

Table 3-3: Providers of ANC in Punjab

	All	Urban	Rural
Physician	69.8%	81.7%	34.7%
Nurse/Midwife/LHV	8.3%	5.9%	9.4%
Other	2.3%	2.3%	2.3%
No visit	19.5%	10.1%	23.5%
No. of respondents	4,180	1,254	2,927
of which having ANC visit	3,358	1,121	2,238

Source: NIPS, PDHS2012-13

3-1-2 Provincial health administration

The provincial government of Punjab has 38 departments including the primary and secondary healthcare department and the specialized healthcare and medical education department. The total amount of ADP 2017-18 is Rs 520 billion, of which 9.7% is allocated to the health sector (4.8% for primary and secondary healthcare, 4.9% for specialized healthcare and medical education).

Department	Number of Projects	Allocation (Rs million)	(percent)
Roads	2,651	90,700	(17.4%)
Special Programmes /Initiatives	13	88,350	(17.0%)
Water Supply & Sanitation	2,908	57,477	(11.1%)
School Education	1,229	53,336	(10.3%)
Specialized Healthcare & Medical Education	89	25,260	(4.9%)
Primary & Secondary Healthcare	161	25,048	(4.8%)
Irrigation	173	25,031	(4.8%)
Agriculture	59	18,244	(3.5%)
Higher Education	235	18,034	(3.5%)
Urban Development	181	16,433	(3.2%)
Industries, Commerce & Investment	24	15,050	(2.9%)
Public Buildings	511	14,841	(2.9%)
Planning & Development	88	13,313	(2.6%)
Livestock	54	9,542	(1.8%)
Sports & Youth Affairs	249	8,507	(1.6%)
Energy	23	8,456	(1.6%)
Local Government & Community Development	454	7,960	(1.5%)
Other (21 Departments)	348	226,887	(43.6%)
Total	9,450	520.083	(100.0%)

Table 3-4: Allocation of ADP 2017-18 in Punjab

Source: Government of the Punjab, Development Programme 2017-2018

3-1-3 Provincial health policy

The government of Punjab has developed a provincial growth strategy with a focus on sustainable economic development. Under the strategy, a provincial strategy for the health sector has also been developed.

Table 3-5: Punjab Growth Strategy 2018

Vision	The Provincial Government envisions Punjab as a secure, economically-vibrant,
	industrialized and knowledge-based province, which is prosperous and where every
	citizen can expect to lead a fulfilling life.
Objectives	1. Achieving 8% economic growth in Punjab by 2018
	2. Increasing annual private sector investment in Punjab to USD17.5 billion by 2018
	3. Creating 1 million quality jobs every year in Punjab
	4. Training 2 million skilled graduates in Punjab by 2018
	5. Increasing Punjab's exports by 15% every year until 2018
	6. Achieving all Millennium Development Goals and targeted Sustainable Development
	Goals in Punjab by 2018
	7. Narrowing security gap with regional neighbors such as India and Bangladesh by
	reducing crime and improving law and order in Punjab

Source: Government of Punjab, Punjab Growth Strategy 2018

The provincial government thinks investment in health leads to economic growth and attaches importance to the health sector, prioritizing preventive health. The government also emphasizes the supply of essential medicines at all public health facilities, the diagnosis of major infectious diseases at primary health facilities, basic drug information targeting vendors/pharmacists, the management of the health system and outsourcing some parts to the private sector, social protection to poor households against large expenditures on health, a disease surveillance system with modern technology, and improving water, sanitation and hygiene services, especially in rural areas.

Strategy	Ensuring health and productive lives for the people
Vision	
Principles	- Equitable and universal healthcare services
	- Improving institutional capacities
	- Ensuring good governance at all levels
	- Optimal utilization of resources
	- Promotion of a results-based culture and institutionalization of innovation
Strategic	1. Enhance access to achieve universal coverage
Direction	2. Focus on primary healthcare
	3. Improve quality of care
	4. Private sector mainstreaming
	5. Redefining role of government
	6. Strengthening of institutional collaboration
Goals	1. Reduction in IMR and U5MR to achieve target of 30 and 40 deaths per 1,000 live
	births, respectively
	2. Reduction in MMR to achieve target of 120 per 100,000 live births
	3. Reduction the prevalence of TB to 0.1%, Hepatitis B and C to 0.4%, and HIV/AIDS
	to 0.01% among vulnerable groups
	4. Control and reverse the prevalence of NCDs by 40%
	5. Reduction in prevalence of underweight from 30.1% to 10%, stunting from 17.6% to
	6%, and wasting from 14% to 5% among children
	6. Reduction in prevalence of iron deficiency anaemia among women from 27% to 10%

Table 3-6: Punjab Health Sector Strategy 2012-2020

Source: Government of Punjab, Draft Punjab Health Sector Strategy 2012-2020
3-1-4 Health facilities in the province

(1) Standards of health facilities

There are general and specialized hospitals at the tertiary level of healthcare in the province, DHQ and THQ hospitals at the secondary level and RHC, BHU, etc., at the primary level. In addition, outreach services of immunization, family planning and other basic health services are provided in the community. There are a certain number of private hospitals mainly in urban areas.

	F	
Tertiary level	General Hospitals/Specialized Hospitals	42
Secondary level	DHQ Hospitals	26
	THQ Hospitals/Civil Hospitals	124
Primary level	RHCs	310
	BHUs	2495
	MCH centres	210
	Dispensaries	146

Table 3-7: Number of public facilities in Punjab

Source: Government of Punjab, DHIS Annual Report 2017

The Minimum Service Delivery Standards for Primary and Secondary Healthcare in Punjab has been developed by the provincial government.

At the primary level of healthcare, a BHU, covering some 25,000 people, provides the services of health promotion, the treatment of common diseases and maternal and child care including outreach services. A BHU supervises LHWs in its catchment area and accepts referrals by LHWs.

An RHC, covering 100,000 people, has 10 to 20 beds and provides healthcare including diagnosis, basic surgery, dental care and emergency services. An RHC supervises BHUs, LHWs, Maternal and Child Health (MCH) centres and dispensaries in its catchment area.

A THQ hospital, covering 500,000 to 1,000,000 people, has 40 to 60 beds and provides services including specialized healthcare and comprehensive emergency obstetric care. A THQ hospital accepts patients referred from the primary level. A DHQ hospital, covering 1,000,000 to 3,000,000 people, provides higher services than THQs and accepts patients referred from THQs and primary facilities in its catchment area.

The plan to allocate one DHQ hospital per 1,000,000 to 3,000,000 people and one THQ hospital per 500,000 to 1,000,000 people can be interpreted that a province with 110 million people shall have 30 to 100 DHQ hospitals and 100 to 200 THQ hospitals. Currently the number of DHQ and THQ hospitals already satisfies those standards.

	Services	DHQ	THQ	RHC	BHU
		Hospital	Hospital		
Preventive	Immunization	х	х	х	х
Services	Antenatal Care	х	х	х	X
	Natal Care - Normal delivery	х	х	х	х
	- Complicated delivery	Х	х		
	Postnatal Care	х	х	х	х
	Inter-natal Care	Х	х	х	х
	Prevention and management of STIs & RTIs	Х	х	х	х
	Family Planning Services ^{*1}	х	х	х	Х
	Major Micronutrient Deficiencies	х	Х	х	X
	Mental Health	х	х	х	X
	Screening	Х	х	х	х
	Outreach Services	х	х	х	X
	ECCD*2	Home, Day	care centres,	ECCD cent	res, schools
Promotive	Health Education	х	х	х	х
Services					
Curative	Basic EmONC ^{*3} Services	х	х	х	
Services	Comprehensive EmONC Services	Х	х		
	Sick Child up to 5 years of age	х	х	х	х
	Dental care - Basic	х	х	х	х
	- Specialized	х	х	х	
	Medical services - Basic	х	х	х	х
	- Specialized	Х	х		
	Surgical services - Basic	х	х	х	х
	- Specialized	х	х		
	Mortality review	х	х		
	Emergency Services-Medical/Surgical	х	х	х	
	-Trauma	х	х		
	-Burns	Х			
	Blood Transfusion Services	Х	Х		
	Diagnostic Services-Basic	Х	х	х	х
	-Routine	Х	х	х	
	-Advanced	Х	Х		
Rehabilitative	Physiotherapy, Psychiatric, Psychological,	х	х	х	х
Services	Nutritional, terminal care				
	Post-surgery rehabilitation	х	х		

Table 3-8: Services of Minimum Services Package Standards by facility

^{*1}Surgical family planning series will be available at RHC and above ^{*2}Early Childhood Care and Development ^{*3}Emergency Obstetric and Newborn Care

Source: Government of Punjab, Minimum Service Delivery Standards for Primary and Secondary Healthcare in Punjab

	DHQ Hospital	THQ Hospital	RHC	BHU
Coverage	1,000,000-	500,000-		
	3,000,000	1,000,000	100,000 people	25,000 people
	people	people		
Beds	>250 *	40-150	10-20	
Land standard	200 Kanals	100 Kanals	24 Kanals	10 Kanals
Doctor's OPD room	Х	Х	х	Х
Specialist's OPD rooms	Х	х		
LHV's room	Х	Х	Х	Х
Health education room	Х	Х	Х	Х
Waiting area,	Х	х	х	х
Dispensary	Х	х	х	Х
Labour room	Х	х	х	Х
Operating theatre	Х	х	х	
Wards	Х	х	х	
Dental room	Х	х	х	
Emergency room	Х	х		
Blood bank	Х			
Laboratory	Х	х	х	Х
X-ray room	Х	х	х	
Vaccine storage room	Х	х	х	Х
Stock room	Х	х	х	Х
Generator room	X	х	x	X
Residences for staff	X	x	x	X
Administration block				
Nursing school & nursing hostel	х			

Table 3-9: Physical standards for secondary and primary health facilities

*1 Number of beds are less than 250 in the case of a DHQ hospital located in an area with a population of 1,500,000

		DHQ	THQ	RHC	BHU
Specialist	Physician	2-3	1-2		
	Surgeon	3	1-2		
	Gynaecologist	3	2-3		
	Paediatrician	3	2-3		
	Anaesthetist	4-5	3-4		
	Ophthalmologist	2	1-2		
	ENT Specialist	2	1-2		
	Pathologist	2	1-2		
	Radiologist	2	1-2		
	Orthopaedic Surgeon	1	1		
	Clinical Psychologist	1	0-1		
	Emergency Specialist	2	1		
	Trauma Surgeon	2	1		
	Forensic Expert	3	2		
	Urologist	2	1		
	Cardiologist	1	0-1		
	Neurosurgeon	1	0-1		
	Psychiatrist	1	0-1		
	T.B. & Chest Specialist	1	0-1		
	Dermatologist	1	0-1		
	Paediatrics Surgeon	1	0-1		
	Neurologist	1	0-1		
	Epidemiologist		1 for the	district	
Medical	Medical Officer (MO)	1 per 12 b	oeds/shift*1	3	1
Officer	Principal Medical Officer	1% of t	total MO		
	Additional Principal Medical Officer	15% of	total MO		
	Senior Medical Officer	34% of	total MO	1	
	Emergency Medical Officer	4	2		
	WMOs for Labour room	4	2		
	MOs (Intensive care)	1 per 4 be	eds for ICU		
Dental Surg	geon	3-4	2-3	1	
Nurse	Charge nurse	1 per 8 l	beds/shift	10	
		1 per 2 be	eds for ICU		
	Head Nurse	1 per 10 char	ge nurses/shift		
	Nursing superintendent	1	0-1		
	Deputy nursing superintendent	1	1		
	Nursing instructor/tutor	2	1		

Table 3-10: Human resource standards for secondary and primary health facilities

*1 Women Medical Officers should be 40% of Medical Officer total

Source: Government of Punjab, Minimum Service Delivery Standards for Primary and Secondary Healthcare in Punjab

(2) Improvement of facilities by the government

The government has addressed the new establishment and upgrading of existing primary facilities, the strengthening of clinical services of secondary hospitals, envisaging a quality healthcare service in the province. The Government has explained they have invested enough in health facilities in urban areas and the less-developed southern Punjab has greater needs to be assisted. In addition, the Government desired Japanese technical assistance with a sophisticated health information system and hospital management.

(3) Practices of public-private partnership

The provincial department of primary and secondary healthcare partially outsources the management of RHCs, BHUs, MCH centres and other health facilities to the Punjab Health Facility Management Company. The department of specialized healthcare and medical education plans to establish a new 500-bed hospital through a public-private partnership (PPP) with the Punjab Health Initiative Management Company. Many hospitals outsource some part of services such as laboratory, radiology, security, etc. According to the Government, the reasons for this outsourcing are an insufficient management capacity and a lack of human resources in the public sector.

3-1-5 Facilities visited in the field survey

The following facilities were visited in the field survey with a focus on paediatrics, obstetrics, and related services.

Health Facilities		Year of Establishment	Number of Beds	Location
1. Service Hospital	General Hospital	1958	1,450	Lahore
2. Mayo Hospital	General Hospital	1871	2,399	As above
3. Lady Aitchison Hospital	Obstetrics and Gynaecology Hospital	1887	200	As above
4. Lady Willingdon Hospital	Obstetrics and Gynaecology Hospital	1930	235	As above
5. Allied Hospital	General Hospital	1987	1,500	Faisalabad
6. DHQ Hospital, Faisalabad	DHQ Hospital*	1956	850	As above
7. Benazir Bhutto Hospital	General Hospital	1957	750	Rawalpindi
8. DHQ Hospital Rawalpindi	DHQ Hospital*	1958	453	As above
9. Holy Family Hospital	General Hospital	1948	1,062	As above
10. RHC Khayaban-e-Sir Syed	RHC	1989	20	As above

Table 3-11: Visited health facilities in Punjab

* Classified as a hospital at the tertiary level because of the hospital's function equal to a tertiary hospital

Among the visited hospitals, the Service Hospital and the Mayo Hospital are the largest hospitals in the country and their patients include those from other provinces. All doctors other than anaesthetists and all nurses of the Lady Aitchison Hospital, a special hospital of obstetrics and gynaecology, are women. Accordingly, women all over the country visit this hospital.

Available medical services differ from hospital to hospital at the tertiary level in the province. A hospital sometimes refers a patient to another hospital.

The Benazir Bhutto Hospital, the Holy Family Hospital and the DHQ Hospital Rawalpindi are teaching hospitals of the Rawalpindi Medical University, and the DHQ Hospital Rawalpindi is classified as a tertiary hospital, as are the other two hospitals. The DHQ Hospital Rawalpindi, however, does not have a paediatric department and the capacity of the Neonatal Intensive Care Unit (NICU) attached to the obstetric department is small. Accordingly, the hospital recommends delivery at another hospital to pregnant women when a low birth weight is prognosed. The RHC Khayaban-e-Sir Syed has deliveries of women who have visited the Benazir Bhutto Hospital and recommended delivery at the RHC because she has no health problems or complications and because the hospital has too many deliveries.

Buildings and facilities are very old and deteriorated at most of the visited hospitals. The walls and ceilings are peeling and moldy in the wards and operating theatres and immediate repairs are necessary in some hospitals. Periodic maintenance is recommended to maintain the level of sanitation and security as a health facility. Most hospitals have continued unplanned expansions and renovations. As a result, they have little space in their premises. They are located in crowded areas, and the impracticality of moving residents and the difficulty of purchasing land are other hindrances for new construction.

These hospitals were very crowded with many patients. The medical equipment was insufficient and very old in all the departments, especially obstetrics and gynaecology. For instance, damaged the steps of rusty and dirty delivery beds and broken lamps of shadow-less lights would likely hinder health staff from adequate delivery care. In addition, most anaesthesia apparatuses in operating theatres and the autoclaves of sterilization departments were so old that they should be replaced. The sterilization of forceps was critically influenced by breakdowns of autoclaves. Compared to the poor conditions of the obstetrics and gynaecology departments, neonatal and paediatric departments were relatively improved through the rehabilitation of buildings and the provision of equipment.

All the visited hospitals other than RHC had NICU equipped with ventilators, patient monitors and suction units. Their capacities, however, were insufficient for both space and workforce. The number of admitted patients exceeded the capacities. Some NICU had 70 neonates even though they only had 27 baby cots.

The visited hospitals are summarized on the following pages.

- · · · · · · · · · · · · · · · · · · ·
Medicine, Surgery. Obstetrics & Gynaecology. Peadiatrics, Cardiology, Gastroenterology,
Pulmonology, Neurosurgery, Orthopaedics, Endocrinology, Dermatology, ENT, Oncology, etc.
Out-patients 786,357/year, In-patients 25,080/year, Deliveries 12,381/year (2017)
Doctors 460, Nurses 802
Site area 105,405 m ² , Gross floor space 136,023 m ²
RC, 8 stories above ground: 1 story below ground

(1) Service Hospital (Established year: 1958, 1,450 beds, Lahore)

The Service hospital was opened as an out-patient department of the Mayo Hospital in 1958 and an in-patient ward with 55 beds was added in 1960. An operating theatre, a laboratory and a radiology department were established. The hospital has 1,450 beds now. The hospital accepts the general population. Patients referred from secondary hospitals in the city and other patients from all over the province visit the Hospital. Difficult cases of cancers and cardiovascular diseases are referred to the specialized hospitals in the city. A CT scanner, a general X-ray apparatus and an ambulance vehicle were provided by the Japanese government in 2012.

- Facility and Building

The hospital is comprised of about 30 various buildings. The obstetrics and gynaecology department is located in a four-story building of RC construction. It is an old building with peeling of the paint. Two labour rooms and four delivery rooms are always crowded. The paediatric department, next to the old building of obstetrics and gynaecology, is in an eight-story building of RC construction. The condition of the building is fine. The hospital plans to connect these two buildings with an air corridor.

- Medical Equipment

The apparatuses of the paediatric department have been improved during the recent renovation of the building. On the other hand, those of the obstetrics and gynaecology department are very old except for an ultrasound scanner. The old delivery tables are rusty and some foot stands are broken. It may cause an unsafe delivery. In the obstetric operating theatre, three of five anaesthesia machines are out of order, and other equipment such as an electrosurgical knife, a suction and the operating lights are terribly deteriorated. The medical equipment for endoscopic surgery is relatively new.

- Investment plan

The hospital has eight plans in line with their master plan including the renovation of the obstetrics and gynaecology department.

Departments	Medicine, Surgery, Peadiatrics, Cardiology, Gastroenterology, Pulmonology, Endocrinology,
	Oncology, Dermatology, Neurosurgery, Orthopaedics, ENT, etc.
Number of patients	Out-patients 1,004,227/year, In-patients 107,086/year (2017)
Number of staff	Doctors 565, Nurses 1,149
Hospital area	Site area 232,800m ² , Gross floor space 11,000m ² (Peadiatrics and MCH ward)
Building structure	RC, 4 stories (Paediatrics), RC, 6 stories (MCH)

(2) Mayo Hospital (Established year 1871, 2,399 beds, Lahore)

The Mayo Hospital is the oldest and largest hospital in Pakistan. The paediatric department was established in 1948 as a pioneer of paediatric medicine in Punjab province. The hospital accepts patients from all over the Punjab. There is no an obstetrics and gynaecology department in the hospital, so patients of obstetrics and gynaecology visit the Lady Aitchison Hospital and the Lady Willingdon Hospital which are affiliated with the Mayo Hospital.

The leading causes of morbidity in children are upper respiratory infections, tuberculosis, asthma and diarrhoea. Brain hypoxia, neonatal sepsis and pneumonia are the main causes of mortality. The hospital accepts patients who need intensive respiratory care and refers those with cardiac diseases to other specialized hospitals when thorough examination is necessary.

- Facility and Building

The hospital is located in the centre of old Lahore city. There is no air conditioner system for infection control in the isolation room in the MCH building. The ICU has 20 beds, although 70 patients are treated there every day. The hospital has a plan to expand the ICU.

- Medical Equipment

Each of the six beds in the Paediatric Intensive Care Unit (PICU) is equipped with the necessary apparatuses such as a patient monitor, ventilator, etc., although this is insufficient because there are two or three patients in one bed. The NICU is also full, so there are two or three babies in one bed. In addition, there are many broken or damaged pieces of medical equipment in the PICU. For instance, a broken infant warmer was being used as a baby cot and it was heated by a blanket and heater.

Departments	Obstetrics & Gynaecology, etc.
Number of patients	Out-patients 100,853/year, In-patients 29,994/year, Deliveries14,500/year (2017)
Number of staff	Doctors 79, Nurses 55
Hospital area	Site area 12,140m ² , Gross floor space 6,326m ²
Building structure	RC and Brick, 3 stories above ground

(3) Lady Aitchison Hospital (Established year 1887, 200 beds, Lahore)

The hospital was opened as the department of obstetrics and gynaecology of the Mayo Hospital in 1887. The hospital has female medical staff, including doctors, nurses, etc. Accordingly, women who cannot be seen by male staff due to religious reasons visit the hospital from all over the country. The hospital refers patients who need intensive care to the Mayo Hospital.

- Facility and Building

The building is of partial RC construction and partially built with brick. The main building is about 30 years old and moldy due to water leakage. It is thought the building has not been properly maintained. The interior at least should be improved immediately.

- Medical Equipment

Adequate post-operative care is difficult because there is only one patient monitor in the recovery room. There are many broken apparatuses in the operating theatre and sterilization room. Since one of two autoclaves is out of order, sterilization is not keeping up with the number of operations. A mammography, a general X-ray apparatus and an ultrasound scanner are installed in the breast cancer screening centre in another building.

- Investment Plan

The hospital has a plan to expand the delivery room, general ward and private ward.

Departments	Obstetrics & Gynaecology, NICU, etc.
Number of patients	Out-patients 77,083/year, In-patients 39,185/year, Deliveries 14,500/year (2017)
Number of staff	Doctors 193, Nurses 182
Hospital area	Site area 149,454m ² , Gross floor space 53,634m ²
Building structure	RC, 2 stories above ground: 1 story below ground

(4) Lady Willingdon Hospital (Established year 1930, 235 beds, Lahore)

The Lady Willingdon Hospital opened as an outpatient clinic for obstetrics and gynaecology in 1930, and the in-patient ward was established in 1933. Currently, the hospital is acting as the obstetrics and gynaecology department of the Mayo Hospital. The hospital accepts patients from not only Lahore, but also other districts in Punjab. The consultation fee is free of cost, but the patient has to pay for diagnosis such as laboratory, ultrasound and X-ray examination.

- Facility and Building

The hospital is comprised of the main building, three sub-buildings and a 50-bed ward. There are 10 buildings such as nursing hostels located on the east side of the hospital. The walls and ceilings in all rooms have deteriorated remarkably, and the improvement of the interior is necessary in order to maintain a sanitary environment.

- Medical Equipment

Some ultrasound scanners and patient monitors are relatively new but others are very old and damaged, especially the delivery table and operation light in the delivery room. The delivery table had rust and it is more likely to be removed due to malfunction. In the NICU, there are new 10 incubators but more than two babies in one incubator. The NICU has an overflow of patients and a shortage of medical equipment

- Investment Plan

The hospital has a plan to reconstruct the building with 4 stories above ground and 2 stories below ground and for the improvement of medical equipment. The new building will be constructed on the south side enclave.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, Oncology, Traumatology,
	Burns, etc.
Number of patients	Out-patients 124,071/year*, In-patients 54,503/year*, Deliveries 6,240/year (2017)
Number of staff	Doctors 568, Nurses 759
Hospital area	Site area 110,400m ² , Gross floor space 639,403m ²
Building structure	RC, 4 stories above ground: 1 story below ground

(5) Allied Hospital (Established year 1987, 1,500 beds, Faisalabad)

*Total number of obstetrics & gynaecology and peadiatrics

The hospital has the second largest number of beds in Punjab. The hospital covers the Faisalabad district and the centre of Punjab with 20 million people.

The Japanese government supported the procurement of medical equipment in the late 1980s and early 1990s. Faisalabad, an industrial city, has a high population growth rate and is designated as a high priority area by the provincial government. Therefore, the Emergency centre, ICU department and burn centre have been improved in recent years

- Facility and Building

The walls of the private wards are deteriorating with the peeling of paint and the interior requires repairs. The floor, walls, ceiling and water supply-drainage system have deteriorated in the laundry.

- Medical Equipment

The equipment which was installed by Japan's grant aid is old but still working, including the operating lights, infant warmers and incubators. On the other hand, the apparatuses of the operating theatre, sterilization room and laundry have deteriorated. The ventilators and patient monitors in the paediatric department are relatively new. The NICU has 60 incubators, but two or three babies shared one incubator. Furthermore, seven or eight babies were lying on a long table and being treated while being kept warm by a heater. Three of the six autoclaves are out of order in the central sterile supply department.

- Investment Plan

The hospital has plans to establish a traumatology and emergency, improve the operating theatre, obstetrics and gynaecology department, as well as for the installation of an incinerator and laundry.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, etc.
Number of patients	Out-patients 914,035/year, In-patients 35,308/year, Deliveries 8,125/year (2017)
Number of staff	Doctors 520, Nurses 262
Hospital area	Site area 80,947m ² , Gross floor space 36,965m ²
Building structure	RC, 4 stories above ground: 1 story below ground

(6) DHQ Hospital Faisalabad (Established year 1956, 850 beds, Faisalabad)

DHQ Hospital Faisalabad is the oldest hospital in Faisalabad. Allied hospital and DHQ hospital Faisalabad are teaching hospitals of Punjab Medical College so some doctors work in both hospitals.

The hospital accepts patients from THQ hospital, RHC and BHU in the district. The causes of referral are antepartum haemorrhage and fatal distress, and insufficient facilities at hospitals and specialists. Patients who need dialysis, bronchoscopy and cardiac operations are referred to children's hospitals in Lahore or Faisalabad.

- Facility and Building

The building is RC, 4 stories above ground and the condition of the interior is relatively good.

- Medical Equipment

Although the apparatuses of the paediatric department are relatively new, those of the obstetrics and gynaecology department are old and insufficient.

- Investment Plan

The plans for the renovation of orthopaedics, paediatric emergency, ICU, gynaecology and medicine are now underway.

- Other

A new children's hospital opened within the city in 2018. That hospital provides high-level diagnosis and medical treatment. It is now a 250-bed hospital and it will be expanded to 1,250 beds gradually.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, etc.
Number of patients	Out-patients 709,709/year, In-patients 52,447/year, Deliveries 10,670/year (2017)
Number of staff	Doctors 668, Nurses 268
Hospital area	Site area 148,048m ² , Gross floor space 96,541m ²
Building structure	RC, 2 stories above ground: 1 story below ground

(7) Benazir Bhutto Hospital (Established year 1957, 750 beds, Lahore)

The Benazir Bhutto Hospital was established in 1957. It was the first tertiary hospital covering Rawalpindi and Islamabad.

This hospital accepts a lot of patients from not only Rawalpindi, but also FATA and Khyber Pakhtunkhwa because Rawalpindi is an important point of transportation. The hospital refers patients who need paediatric surgery to the Holy Family Hospital within the city.

- Facility and Building

There is an out-patient department, in-patient department and other buildings on a large area. The large patient rooms were 12-bed rooms and 15-bed rooms. The private rooms were very small, especially the single rooms. The water supply source is well water.

- Medical Equipment

There are old ultrasound scanners and fetal monitors in the obstetrics and gynaecology department. One of the three delivery tables is broken, but it is used in the case of emergency. Furthermore, all the delivery tables are dirty with blood. In the sterilization unit, only one autoclave of the two is operating. It is assumed that sterilization is not keeping up with the large number of deliveries, which is more than 800 cases per month. There is a risk of fire due to the autoclave using gas. On the other hand, the apparatuses of the paediatric department are relatively new and some of them are very high-performance, such as the ventilator. However, the shortage of beds and medical equipment is a challenge in both the general ward and NICU. For instance, there were 70 babies in 17 incubators and 10 baby cots.

- Investment Plan

The hospital has some investment plans including the expansion of the Nursery ward.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, NICU, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, etc.
Number of patients	Out-patients 921,760/year, In-patients 45 ,653/year, Deliveries 7,322/year (2017)
Number of staff	Doctors 269, Nurses 196
Hospital area	Site area 41,200m ² , Gross floor space 31,346m ²
Building structure	RC, 2 stories above ground: 1 story below ground

(8) DHQ Hospital Rawalpindi (Established year 1958, 452 beds, Rawalpindi)

The DHQ Hospital Rawalpindi is a tertiary care hospital, and is located in the centre of Rawalpindi city. This hospital became a teaching hospital when the Rawalpindi Medical College opened in 1974. The paediatric department will be opened in July 2018, with 32 beds and an outpatient department. The hospital only has a small 7-bed NICU, so many patients who need specialized care are referred to Benazir Bhutto Hospital, Holy Family Hospital and other tertiary care hospitals.

- Facility and Building

There are five beds in each room in the obstetrics and gynaecology department. There are six-bed rooms and four 24-bed rooms in the general ward. The deteriorated building, nursing school and their dormitory is located on the west side of the main building. According to the hospital, these buildings will be dismantled and removed, and a new medical tower will be constructed.

- Medical Equipment

The hospital has been using second-hand medical equipment from Benazir Bhutto Hospital and Holy Family Hospital since the budget for the procurement of medical equipment was approved by the provincial government a few years ago. Currently, the hospital includes the procurement of equipment in the hospital budget, but the amount of medical equipment is still insufficient. The apparatuses of the obstetrics and gynaecology and operating theatre are old and have been repaired many times. Only the operating theatre for neurosurgery has new equipment. The apparatuses of the new paediatric department have already been delivered to the new room.

- Investment Plan

The hospital has a plan to construct a new medical tower.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, Traumatology, etc.
Number of patients*	Out-patients 234,125/year, In-patients 106,869/year (2017)
Number of staff*	Doctors 200, Nurses 80
Hospital area	Site area 90,000m ² , Gross floor space 90,000m ²
Building structure	RC, 4 stories above ground

(9) Holy Family Hospital (Established year 1948, 1,062 beds, Rawalpindi)

*The numbers are only obstetrics & gynaecology and peadiatrics

Holy Family Hospital was established in 1948 as a mission hospital by an American church. The hospital is affiliated with Rawalpindi Medical College and the main campus of the college is in the hospital area. The new buildings were constructed around 2000. However, obstetrics and gynaecology, paediatric department and administration remain in an old building known as the MCH block. The waiting area outside of the building was overflowing with patients.

- Facility and Building

Obstetrics and gynaecology has two departments and its own emergency department. The first obstetrics and gynaecology department has been renovated, but the second obstetrics and gynaecology department is waiting for improvement. The deterioration of the interior and floor tiles in the rooms are challenges and require improvement. There is a mechanical area with an electrical facility, generator and air conditioning system.

- Medical Equipment

There are old fetal monitors and ultrasound scanners in the emergency department of obstetrics and gynaecology. Although the apparatuses of the first obstetrics and gynaecology department are relatively new, they are very old and insufficient in the second obstetrics and gynaecology department. The apparatuses of the PICU and NICU are insufficient for the number of patients. For instance, 60 patients are in 18 beds and 45 patients are in 10 beds, respectively, in the PICU and NICU. Therefore, it is a concern that the necessary care is not provided to patients

- Investment Plan

The hospital has some plans including the renovation of the obstetrics and gynaecology department and paediatric department.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics
Number of Patient	Out-patients 104,882/year, In-patients 2,036/year, Deliveries 1,049/year (2017)
Number of staff	Doctors 8, Nurses3, LHV 3, Midwives 4, etc.
Hospital area	Site area 20,000m ² , Gross floor space 900m ²
Building structure	RC, one story above ground

(10) RHC Khayaban-e-Sir Syed (Established year 1989, 20 beds, Rawalpindi)

The RHC Khayaban-e-Sir Syed is a primary level hospital and is located next to the District Health Office, Rawalpindi. The hospital provides only normal delivery care and refers caesarean sections or complicated cases to a tertiary hospital within the city. Sometimes, the hospital accepts patients for normal deliveries from tertiary hospitals such as the Holy Family Hospital in order to alleviate patient concentration in tertiary hospitals. Children who need hospitalization are referred to secondary or tertiary care hospitals.

- Facility and Building

The Out-patient ward and in-patient ward are located in parallel and are connected by a central corridor. There are 10-bed rooms in both the male and female wards.

- Medical Equipment

A new ultrasound scanner is in the examination room. The minimum necessary equipment is being installed, such as delivery tables, lights, suction, blood pressure monitors, etc.

3-2 Sindh

3-2-1 Overview

The province of Sindh is located in the south-eastern part of Pakistan with a population of 47,886,051 or 23% of the total population. There are six divisions and 25 districts in the province.

Cotton, rice and wheat are the main agricultural products in the Indus basin, while manufacturing, commerce and financial businesses are growing in Karachi. The ratio of the urban population of Sindh (48%) is higher than the national average, and most of the provincial population is concentrated in and around Karachi. The provincial population has increased during 1998 to 2017 at an average rate of 2.41% annually.

	All	Urban	Rural
Population 2017	47,886,051	24,910,458	22,975,593
(Proportions of urban and rural)	100	48	52
Population 1998	30,439,893	15,695,457	14,744,436
Average annual growth, 1998-2017	2.41%	2.46	2.36

Source: PBS, Provisional Summary Results of 6th Population and Housing Census-2017

According to WHO, imbalanced distribution of population in the province hinders health service delivery both in rural and urban areas. The rates of child mortality for three successive five-year periods illustrate continuous improvement of the mortality of children after the neonatal period or aged one month or more. On the other hand, the neonatal mortality rate during 2008 to 2012 has become worse than that of 2002 to 2006.

Table 3-13:	Change of	child mo	rtality of	successive	five-vear	periods	in	Sind	łh
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		-	
	1986-1990	2002-2006	2008-2012
Under 5 mortality rate, 1,000 live births	106	101	93
Infant mortality rate, 1,000 live births	81	81	74
Neonatal mortality rate, 1,000 live births	44	53	54

Source: NIPS, Pakistan Demographic and Health Survey 2012-13

In Sindh, the number of institutional deliveries is relatively high as shown in Figure 2-2, while the rates of ANCs and deliveries by female staff are lower than the other provinces.

	All	Urban	Rural
Physician	76.2%	90.9%	65.5%
Nurse/Midwife/LHV	2.0%	1.3%	2.5%
Other	0.8%	0.8%	0.9%
No visit	20.9%	6.9%	31.1%
No. of respondents	1,714	719	995
of which having ANC visit	1,355	669	685
of which having ANC visit	1,355	669	685

Table 3-14: Providers of ANC in Sindh

Source: NIPS, PDHS2012-13

3-2-2 Provincial health administration

The provincial government of Sindh has 48 department including the health department. The total amount of ADP 2017-18 is Rs 229 billion, of which 6/4% is allocated to the health department.

Department	Number of Projects	Allocation (Rs million)	(percent)
Local Government & HTP	411	28,780	(11.8%)
Works & Services	496	26,000	(10.7%)
Irrigation	356	22,000	(9.0%)
Education	461	21,128	(8.7%)
CDP for SDGs	1	20,000	(8.2%)
Health	208	15,500	(6.4%)
Lining of Main canals	1	15,000	(6.1%)
Tar Coal Infrastructure Development	28	13,750	(5.6%)
MEGA Project for Karachi City	29	12,000	(4.9%)
Public Health Engineering & Rural Development	287	9,000	(3.7%)
Matching Allocation	5	7,200	(3.0%)
Agriculture, Supply & Price	49	6,984	(2.9%)
New Development Initiative	1	5,000	(2.0%)
Planning & Development	20	3,650	(1.5%)
Transport & Mass Transit	17	3,195	(1.3%)
Energy	6	3,005	(1.2%)
Culture, Tours & Antiques	63	2,875	(1.2%)
Industries & Commerce	13	2,745	(1.1%)
Special Initiatives	14	2,500	(1.0%)
Home	86	2,445	(1.0%)
Other (28 departments)	442	21,243	(8.7%)
Total	2,974	2,440.0	(100.0%)

Table 3-15: Allocation of ADP 2017-18

Source: Government of Sindh Finance Department, Budget 2017-2018

3-2-3 Provincial health policy

The government of Sindh has developed a provincial health sector strategy as shown below.

Vision	Maximizing efforts to improve the health status of the people in Sindh in congruence with
	international and national commitments and in response to Sindh's contextual needs.
Guiding	- Provincial-demand driven and addressing provincial context
Principles	- Building on appropriate existing provincial processes and experience
	- Improve equity by maximizing benefits to disadvantaged population
	- Sectoral vision encompassing both public and private sector
	- Inter-sectoral action to enhance healthy public policy
	- Strong element of monitoring and accountability

Table 3-16: Sindh Health Sector Strategy 2012-2020

Strategic	1. Strengthen district health systems
Direction	2. Implement an urban PHC system built on public private partnerships and addressing the
	contextual needs of low-income urban population
	3. Streamline human resource production, retention and capacity to support priority health
	needs
	4. Special areas of focus (Polio, nutrition, Maternal Child Health, Family Planning, NCDs,
	Communicable disease, Disaster)
	5. Enhance sector-wide access to essential drugs through improvement in quality
	assurance, affordability, supply management and rational prescriptions
	6. Regulate the health sector, in particular the extensive private sector, toward licensed
	practice standardization of care, minimal reporting requirements and addressing
	medical negligence
	7. To respond to the stewardship and governance needs of the health sector in post 18th
	amendment devolution and transparency of existing functions
	8. Increase investment in the health sector and shift to reduce OOP expenditure on the poor

Source: Government of Sindh, Sindh Health Sector Strategy 2012-2020

3-2-4 Health facilities

(1) Standards of facilities

There are general and specialized hospitals at the tertiary level of healthcare in the province, DHQ and THQ hospitals at the second level and RHC, BHU, etc., at the primary level.

Tertiary level	General Hospitals /Specialized Hospitals	8
Secondary level	DHQ Hospitals	14
	THQ Hospitals /Civil Hospitals	49
	Other Hospitals	27
Primary level	RHCs	125
	BHUs	757
	Dispensaries	792
	MCH centres	67

Table 3-17: Number of public facilities in Sindh

The Service Delivery Standards for Clinics and Primary Health Facilities and the Service Delivery standards of Hospitals have been developed by the provincial government. It is indicated that health service delivery, hospital management, follow the standard envelopment for hospitals. For instance, in Maternity services, in order to provide safe, timely and efficient care, the following are the main points of operation.

- The maternity department is managed by a suitably qualified, registered and experienced.
- The hospital must have a signed agreement and close linkage with referral hospitals with specialists.
- The maternity department offers 24/7 service from qualified medical doctors and an anaesthetist.

- Consultant obstetricians provide assistance and advice through a signed agreement.
- Collected and analysed clinical data are used for quality improvement activities.

Certain private hospitals exist at the tertiary level in addition to 8 public hospitals. Most of those private hospitals are located in Karachi.

The government plans to establish a DHQ hospital per 750,000 to 1,000,000 people and a THQ hospital per 500,000 to 750,000 people. Theoretically, a province with 48 million people needs 50 to 65 DHQ hospitals and 100 to 200 THQ hospitals. Currently the number of DHQ and THQ hospitals is about half of the required numbers. Especially in rural areas, the number of hospitals is insufficient. The gap in people's access to healthcare is not small in the province.

The Service Delivery Standards for Clinics and Primary Healthcare Facilities and the Service Delivery Standards for Hospitals have been developed by the social government.

(2) Improvements of health facilities by the provincial government

The government upgrades the primary facilities and strengthens the secondary facilities in rural areas. The tertiary facilities in Karachi are also strengthened. Strengthening the hospitals in core cities such as Hyderabad, Sukkur and Larkana, which are teaching hospitals of medical universities located in the respective divisions, is planned.

The government have a plan for the construction of children's hospitals or mother's and children's hospitals in each division. There are already hospitals in five divisions of the seven. The other two divisions are Sukkur and Hyderabad. A children's hospital in Sukkur is under construction with Korean assistance. In Hyderabad, the Provincial government is considering building a mother and children hospital at Liaquat University and is seeking donors.

(3) Practices of public-private partnership

Many public hospitals are outsourcing the whole or partial management to private organizations. According to the provincial department of health, more than 1,200 facilities practice such publicprivate partnership in the province. As an example of PPP, a private body provides hospital management, human resources, and the procurement of medical equipment, and the public health facility provides land and some of the human resources. Among the facilities visited in the field survey, the Children's Hospital is a public hospital but is managed by an NGO. The emergency department of Civil Hospital is shared by the hospital and an NGO. The public-private partnership is practiced as shown below.

Private sector	Health facilities in Public sector				
People Primary Healthcare Initiative (PPHI)	Managing the 1047 health facilities in rural areas of				
	22 districts of Sindh province				
Indus Hospital	Badin DHQ Hospital and Regional Blood				
	Transfusion Centre, Jamshoro				
Integrated Health Services (IHS)	67 RHC in Larkana division and Shaheed division				
Aman Foundation	Sindh Ambulance Service in Thatta district and				
	Sujawal district				
Medical Emergency Relief Foundation (MERF)	nergency Relief Foundation (MERF) DHQ Hospital, THQ Hospital and RHC in That				
	district and Sujawal district				
Poverty Eradication Initiative (PEI)	Children hospital, Karachi				
HANDS	35 PHC facilities in Karachi				
Sukkar Blood Bank	Regional Blood Transfusion Centre, Sukkar				

Table 3-18: Public Private Partnership in Sindh

Source: Answer from government of Sindh

3-2-5 Facilities visited in the field survey

The following four facilities were visited in the field survey with a focus on the paediatrics, obstetrics and related services.

Health facilities		Year of	Number	Location
		Establishinent	of beus	
1. National Institute of Child Health	Children hospital	1962	500	Karachi
2. Civil Hospital	General hospital	1898	1,840	As above
3. Children Hospital	Children hospital	2003	213	As above
4. Liaquat University Hospital, Hyderabad	General hospital	1881	806	Hyderabad
5. Liaquat University Hospital, Jamshoro	General hospital	1956	700	Jamshoro

Table 3-19: Visited health facilities in Sindh

The hospitals in Karachi and Hyderabad have many patients including those who come from Balochistan and the southern part of Punjab. Some of the hospital buildings are very old masonry buildings of two stories, etc., and are high RC buildings. Most hospitals have both old and new buildings of various sizes.

All the visited tertiary hospitals were very crowded with many patients. Accordingly, the number of patients who come to tertiary hospitals are more self-referral patients than referrals from lower level health facilities, and many of them could be treated at secondary and primary health facilities.

The Liaquat University hospitals are tertiary hospitals located in Hyderabad division. However, patients who need intensive care or operations are referred to tertiary hospitals in Karachi due to there being no NICU in the hospitals. Therefore, tertiary hospitals in Karachi have become more crowded with patients. Conversely, some patients who live near Karachi visit hospitals in

Hyderabad because of the language barrier.

The deterioration of existing facilities has occurred at almost all the visited hospitals, and some of them are in need of improvement immediately. In particular, many hospitals need to improve the operating theatre and sterilization unit. Civil hospital was built more than 100 years ago, and its building had significant deterioration. The hospital needs to follow instructions about demolition and re-construction from the department of antiquities. Although each hospital has a plan for expansion and renovation, the land for new buildings is too small except for Liaquat University Hospital, Jamshoro.

In the field survey, the departments of obstetrics and gynaecology, paediatrics and other relevant were focused on. Those departments are equipped with relatively new apparatuses, although not satisfying quantitively. The number of beds is terribly insufficient and even a stretcher is used for infant care at some hospitals.

The visited hospitals are summarized on the following pages.

Departments	Paediatric medicine, Paediatric surgery, Paediatric neurosurgery, Paediatric pulmonology,		
	Paediatric Emergency, etc.		
Number of patients	Out-patients 330,074/year, In-patients 215,441/year (2017)		
Number of staff	Doctors 82, Nurses 184		
Hospital area	Site area 11,600m ² , Gross floor space 42,600m ²		
Building structure	RC, 7 stories above ground and 1 story below ground		

(1) National Institute of Child Health (Established year 1962, 500 beds, Karachi)

The National Institute of Child Health was opened in 1962 as the first paediatric hospital in Karachi and 6 buildings were constructed by 1973. The hospital has departments of surgery, medicine, emergency, nephrology and oncology, and receives patients from not only Sindh, but also the south area of Punjab and Balochistan. Because of the hospital's policy of receiving all patients presenting to the hospital, the hospital is always very crowded. Not a few patients in cardiac or respiratory arrest are referred to the emergency department. One of the reasons for the construction of the Karachi Children's Hospital (Japan's grant aid project, 2014) was to ease crowding in the hospital.

- Facility and Building

The hospital is in the central part of the city and the interiors of the 45-years-old building have deteriorated. The ICU and wards were renovated by the support of individuals and companies, and the building environment and hygiene condition of those areas were improved. On the other hand, the operating theatre has not been renovated. The air conditioning unit in the operating theatre does not work well and the ceiling materials have severely deteriorated. The central supply room is not kept clean.

- Medical Equipment

Medical equipment was installed when the medical and surgery wards were renovated. Ventilators and patient monitors are installed at each bed in the ICU. The apparatuses in the operating theatre are old but kept clean. Because an autoclave in the operating theatre has broken down, the old one has been used. The apparatuses of the emergency department were provided by a charity organization, but are insufficient.

- Investment Plan

The hospital has a plan to construct a building for paediatric surgery, rehabilitation, oncology, bone transplant and a biomedical engineering division, and is looking for a building site. Potential locations for the new building are the patient waiting space on the hospital property and land of the Pakistan army behind the hospital.

Departments	Medicine, Surgery, Paediatrics, Cardiology, Gastroenterology, Pulmonology, Neurosurgery,
	Orthopaedics, Dermatology, ENT, Traumatology, etc.
Number of patients	Out-patients 1,605,905/year, In-patients 81,796/year (2017)
Number of staff	Doctors 645, Nurses 410
Hospital area	Site area 60,000m ² , Gross floor space 37,331m ²
Building structure	RC, 11 stories above ground and 1 story below ground

(2) Civil Hospital (Established year 1898, 1,840 beds, Karachi)

The Civil Hospital has continued expanding after its establishment in 1989, and now has the largest number of beds in Sindh. Moreover, a trauma centre with 500 beds was opened on the same site in recent years. Since the hospital is a teaching hospital for Dow University of Health Sciences, many interns are trained in the hospital. Many buildings including the operating theatres, obstetric emergency department and laboratory were constructed by donations from alumni of the university.

There are three paediatric departments and departments for paediatric emergency and children under five years of age. The paediatric emergency department is jointly managed by the hospital and the Child Life Foundation which is a private NGO. While the hospital provides the facility, drugs and human resources, the NGO provides the hospital management, medical equipment and human resources. The department for children under five years of age was established by UNICEF to reduce under-five mortality, and provides services including body measurement, nutrition assessment, education and immunization.

- Facility and Building

Although there is a new 11-story building, the two-story building constructed in 1898 is still used. The interiors of the old building were renovated, but it is difficult to maintain the historical building which is more than 100 years old. On the other hand, the water tower, well and electric and mechanical equipment are in good condition.

- Medical Equipment

Relatively new equipment is installed in each facility, but the amount of equipment is insufficient for the increasing number of patients. The hospital has a 'da Vinci Surgical system' and is considering the purchase of an additional CT scanner.

- Investment Plan

The hospital has a plan to construct a new building including the third paediatric ward which is presently closed.

Departments	Paediatric surgery, Paediatric medicine, Paediatric neurosurgery, Paediatric pulmonology,
	Paediatric Emergency, etc.
Number of patients	Out-patients 365,735/year, In-patients 6,060/year (2017)
Number of staff	Doctors 115, Nurses 135
Hospital area	Site area 70,500m ² , Gross floor space 12,000m ²
Building structure	RC, 2 stories above ground

(3) Children Hospital (Established year 2003, 213 beds, Karachi)

The Children Hospital was established in 2003 as an out-patient hospital with 50 beds. After that, the hospital was expanded and provided medical equipment by Japan's grant aid and became a secondary hospital with 200 beds. The hospital is a provincial hospital but is managed by the Poverty Eradication Initiative which is a private organization. The present medical superintendent of the hospital is a doctor dispatched from the Aga Khan foundation. To obtain ISO9001 certification, the hospital has implemented efforts to improve medical services and patient satisfaction. Moreover, the hospital refers patients to other hospitals when the beds are fully occupied in accordance with the hospital's policy of providing a bed for a patient.

- Facility and Building

The new building was expanded in 2016 by Japan's grant aid is in good condition. There is an electric substation facility, an outside power-generating facility and a water receiving tank. Air conditioning units are installed in each room and the exterior equipment are installed on the roof.

- Medical Equipment

The amount of medical equipment is sufficient, and its condition is very good. An electroencephalograph and an electromyograph remain unused because nobody can use them.

Departments	Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, ENT, Traumatology, etc.
Number of patients	Out-patients 1,048,167/year, In-patients 204,573/year (2017)
Number of staff	Doctors 806, Nurses 309 (including Hyderabad and Jamshoro)
Hospital area	Site area 45,000m ² , Gross floor space 54,000m ²
Building structure	RC, 4 stories above ground

(4) Liaquat University Hospital, Hyderabad (Established year 1881, 800 beds, Hyderabad)

Hyderabad, and is located 150km west-northwest from Karachi, is the second largest city in Sindh province with 2.2 million people. The Liaquat University Hospital has two general hospitals in Hyderabad division and Jamshoro division, and they are located 16km apart from each other. The Liaquat University is in Jamshoro division. The hospitals receive patients from not only Hyderabad, but also the eastern and northern areas of Sindh province. Many severe patients come especially from the desert of the eastern area.

- Facility and Building

The hospital is comprised of 30 buildings. The Paediatric wards are on the 2-4 floors of the 4story building which was originally used as the urology department. The renovation of the buildings is being sequentially carried out, but every room doesn't have enough area for many patients. The 2-story building for the obstetrics and gynaecology ward is built of red bricks and is assumed to be 140 years old. The central supply room is not kept clean. The renovation work area is not fenced off and the safety of patients is not secured. The hygienic environment is not maintained due to dust.

- Medical Equipment

There is no medical equipment in the PICU. The number of apparatuses is insufficient, and severe patients who need intensive care are referred to a private hospital in the city or tertiary hospitals in Karachi. The apparatuses of the obstetrics and gynaecology department, especially in the operating theatre, have deteriorated. Since the number of beds is insufficient, some patients are examined on a stretcher.

- Investment Plan

The hospital has a plan to expand the three buildings with a total of 400 beds including the MCH ward and is considering the building site. In addition, there is a plan to increase the number of beds to 1,050 beds in the Hyderabad Hospital and 750 beds in the Jamshoro Hospital in the future.

Departments	Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, Traumatology, etc.
Number of patients	Out-patients 228,838/year, In-patients 11,644/year (2017)
Number of staff	Doctors 806, Nurses 309 (including Hyderabad and Jamshoro)
Hospital area	Site area 160,000m ² , Gross floor space 50,000m ²
Building structure	RC, 4 stories above ground

(5) Liaquat University Hospital, Jamshoro (Established year 1956, 700 beds, Hyderabad)

The Liaquat University Hospital, Jamshoro is a general hospital with 700 beds located in Jamshoro division. The campus of Liaquat University and a nursing school are on the same site. Patients are generally not referred between the Jamshoro Hospital and the Hyderabad Hospital except when the operating theatres and ICU are occupied.

- Facility and Building

The 4-story main building with sandstone external walls has a total length of 240m. Wards are connected via long connecting corridors. The building and external walls have deteriorated and should be evaluated for safety. The interiors of the building were partially renovated. Each ward has an outer peripheral passage to avoid direct sunlight.

3-3 Khyber Pakhtunkhwa

3-3-1 Overview

The province of Khyber Pakhtunkhwa is located in the northern part of Pakistan with a population of 30,523,371. There are seven divisions and 25 districts in the province. The main industry is agriculture producing wheat, maize and sugar cane. The provincial population has increased during 1998 to 2017 at an average rate of 2.89% annually.

Table 3-20: Population of Khyber Pakhtunkhwa

	All	Urban	Rural
Population 2017	30,523,371	5,729,634	24,793,737
(Proportions of urban and rural)	100	19	81
Population 1998	17,743,645	24,130,896	49,490.394
Average annual growth, 1998-2017	2.89%	2.96%	2.87%

Source: PBS, Provisional Summary Results of 6th Population and Housing Census-2017

A difference from other provinces is the trend of improvement of the neonatal mortality rate. In fact, the rates of child mortality in successive five-year periods from 2008 to 2012 in Khyber Pakhtunkhwa were lower than the other provinces for under five, infant and neonates.

	1986-1990	2002-2006	2008-2012
Under 5 mortality rate, 1,000 live births	98	75	70
Infant mortality rate, 1,000 live births	80	63	58
Neonatal mortality rate, 1,000 live births	48	41	41

Source: NIPS, Pakistan Demographic and Health Survey 2012-13

Table 3-22: Child mortalit	v of five-vear	period 2008-2012 in K	hyber Pakhtunkhwa and other	provinces
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	Khyber	Punjab	Sindh	Balochistan	Pakistan
	Pakhtunkhwa				
Under 5 mortality rate, 1,000 live births	70	105	93	111	89
Infant mortality rate, 1,000 live births	58	88	74	97	74
Neonatal mortality rate, 1,000 live births	41	63	54	63	55

Source: NIPS, Pakistan Demographic and Health Survey 2012-13

The rate of institutional delivery was 40.5%, as reported by PDHS 2012-13, and lower than Punjab and Sindh, especially in rural areas. The number of pregnant women having ANC visit was also less in rural areas (58%) than urban areas (86%).

Table	3-23:	Providers	of ANC ir	1 Khvber	Pakhtunkhwa

	All	Urban	Rural
Physician	53.8%	81.1%	48.7%
Nurse/Midwife/LHV	6.9%	4.3%	7.4%
Other	1.8%	0.9%	2.0%
No visit	37.5%	13.7%	42.1%
No. of respondents	1,117	177	941
of which having ANC visit	697	152	545

Source: NIPS, PDHS2012-13

3-3-2 Provincial health administration

The government of Khyber Pakhtunkhwa has 34 departments. The total amount of ADP 2017-18 is Rs 126 billion, of which 9.5% is allocated to the health department.

Department	Number of Projects	Allocation (Rs million)	(percent)
District ADP	3	28,000	(22.2%)
Elementary & Secondary Education	83	14,000	(11.1%)
Roads	358	13,730	(10.9%)
Health	106	12,000	(9.5%)
Water	212	7,050	(5.6%)
Higher Education	66	6,320	(5.0%)
Urban Development	30	6,163	(4.9%)
Drinking Water & Sanitation	91	5,160	(4.1%)
Local Government	35	4,508	(3.6%)
Agriculture	39	3,991	(3.2%)
Multi Sectoral Development	44	3,312	(2.6%)
Sports, Tourism	54	3,144	(2.5%)
Home	61	2,420	(1.9%)
Relief and Rehabilitation	30	2,215	(1.8%)
Forestry	41	2,007	(1.6%)
Industries & Commerce	27	1,641	(1.3%)
Finance	9	1,591	(1.3%)
Building	52	1,439	(1.1%)
Law & Justice	33	1,365	(1.1%)
Other (15 Departments)	216	28,000	(4.7%)
Total	1,519	125,999	(100.0%)

Table 3-24: Allocation of ADP 2017-18 in Khyber Pakhtunkhwa

Source: Government of Khyber Pakhtunkhwa, Annual Development Programme (2017-2018)

3-3-3 Provincial health policy

Khyber Pakhtunkhwa was influenced by conflicts and disasters for a long time, and the social infrastructure and living standard were damaged. The provincial government has developed the Integrated Development Strategy 2014-2018 consolidating previous strategies and needs assessments. The strategy is a sector-wise roadmap of development in Khyber Pakhtunkhwa with priorities on:

- Addressing challenges to growth by improving productivity and value addition,
- Delivery of social services, education, health, water supply and sanitation which is a basic right of citizens,
- Trust between citizens and the state and peace-building with transparent and accountable governance, and
- Citizen's participation for the effective delivery of services.

The provincial government has developed the Health Sector Strategy to cover 2010 to 2017.

Goal To improve the health status of the population in the province through ensuring accesses to a high quality, responsive healthcare delivery system which provides acceptable and affordable services in an equitable manner 1. Enhancing coverage and access to essential health services, especially for the poor and vulnerable Outcomes segments 2. A measurable reduction in morbidity and mortality due to common diseases, especially among vulnerable segments of the population 3. Improved human resources management 4. Improved governance and accountability 5. Improved regulations and quality assurance 1-1. At least 70% of the population will have access to the Minimum Health Service Package (MHSP) Key Objectives for primary and secondary healthcare services by 2017 1-2. Increase the contraceptive prevalence rate to 55% 1-3. Each division of Khyber Pakhtunkhwa will have a functional category A hospital (tertiary care hospital) 1-4. 60% of the population will have access to accident and emergency services, meeting optimum standards, within 45 minutes of their residence. 1-5. 40% of the population living below the poverty line will have a form of social protection against catastrophic health expenditure 1-6. 40% of people with NCDs will receive quality care and have access to preventive education 2-1. Reduce the maternal mortality rate to 140 per 100,000 live births 2-2. Reduce the infant mortality rate to 40 per 1,000 live births with an emphasis on reducing newborn deaths 2-3. 10% reduction in the prevalence of underweight children under 5 through the use of nutrition intervention program 2-4. Increase exclusive breastfeeding to 65% 2-5. 90% of children under five to receive vaccinations according to EPI schedule 2-6. Reach zero transmission of the polio virus by 2011 2-7. 90% of children under five to receive appropriately-timed vitamin A supplementation 2-8. Reduce the prevalence rate of hepatitis B and C in the general population to less than 5% 2-9. Increase the detection of TB cases to over 70% of sputum positive cases 2-10. 85% of registered TB cases cured using DOTS 2-11. 25% reduction in the number of malaria cases by implementing the Roll Back Malaria Strategy 2-12. Maintain the prevalence rate of HIV/AIDS to less than 1% among vulnerable groups 3-1. 90% of budgeted positions in the Department of Health are filled through a transparent competitive selection process 3-2. 70% of all staff meet the skill requirements of their position 3-3. All medical colleges should fulfil minimum criteria for recognition by the Pakistan Medical and Dental Council and meet the quality standards 3-4. All nursing and paramedic institutes would be registered with their relevant registering bodies and meet the quality standards 4-1. To be accountable to the government and citizens of Khyber Pakhtunkhwa for providing health services which meet the established services standards and serve the target population 4-2. 80% of the reports of the District Health Information System (DHIS) would be received on time according to protocols 4-3. Policy, resource allocation and the flow of funds demonstrably match the needs of target populations ascertained by the DHIS and other Programme Management Information Systems 5-1. 70% of private healthcare institutions are registered with the Health Regulatory Authority 5-2. 70% of all public healthcare facilities meet the quality standards established by the DoH 5-3. 30% of the registered private sector healthcare facilities meet the quality standards established by the DoH 5-4. 95% of collected drug samples meet the drug quality standards

Table 3-25: Outline of Khyber Pakhtunkhwa Health Sector Strategy 2010-2017

5-5. 30% reduction in incidence of food borne illnesses Source: Government of Khyber Pakhtunkhwa, Khyber Pakhtunkhwa Health Sector Strategy 2010-2017

3-3-4 Health facilities

(1) Standards of facilities

In Khyber Pakhtunkhwa, tertiary and secondary hospitals are categorized A to D. The bed size of hospitals and the distribution of specialists are planned by category. Among category-A hospitals, eight hospitals affiliated with the medical university are tertiary hospitals in the province, and others are secondary hospitals. RHC, BHU, dispensaries and maternal and child health centres are the primary facilities.

		3	
Tertiary level	8	Category-A university hospitals, 350 beds	8
Secondary level	125	Category-A hospitals, 350 beds	6
		Category-B hospitals, 210 beds	12
		Category-C hospitals, 110 beds	28
		Category-D hospitals, 42 beds	63
		Other hospitals	16
Primary level		RHC	111
		BHU	769
		Dispensaries	436
		MCH centres	33

Table 3-26: Number of public facilities in Khyber Pakhtunkhwa

Source: Khyber Pakhtunkhwa Government, Khyber Pakhtunkhwa, DHIS Annual Report 2017

*There are 22 DHQ hospitals and 18 THQ hospitals in the province. DHQ hospitals are categorized A to D. Most THQ hospitals are categorized C and D, while some THQ hospitals are classified as RHC.

Khyber Pakhtunkhwa with 30.52 million people has 111 RHCs and 769 BHUs. These numbers are almost the same as the 125 RHCs and 757 BHUs of Sindh with 47.88 million people and both provinces have eight tertiary hospitals, respectively. The difference is the number of secondary hospitals, that is, the secondary hospitals of Khyber Pakhtunkhwa (125 hospitals) are more than those of Sindh (90 hospitals in total of DHQ hospitals, THQ hospitals and other hospitals). The infrastructure of hospital services at the secondary level in Khyber Pakhtunkhwa is likely advanced compared to Sindh. In addition, doctors including female doctors are assigned to each RHC and hospital, and the standards for category-D and above include the assignment of obstetricians and the 10 beds of the obstetric and paediatric wards. It is thought that the characteristics of provincial health policy are partially responsible for the improving trend of child mortality mentioned above.

The Minimum Health Services Delivery Package for Secondary Care Hospitals developed by the provincial government shows the healthcare services, health staff, equipment, buildings and facilities as the standards of hospitals by category. Beds, doctors and physical conditions of the standards are summarized in the following tables.

Departments	Category A	Category B	Category C	Category D
Surgery	40 beds	30 beds	20 beds	8 beds
Medicine	40 beds	30 beds	20 beds	8 beds
Gynaecology/Obstetrics	40 beds	20 beds	15 beds	10 beds
Paediatrics	40 beds	20 beds	10 beds	10 beds
Eye	30 beds	20 beds	10 beds	
ENT	30 beds	20 beds	10 beds	
Orthopaedics	20 beds	10 beds	10 beds	
Cardiology	15 beds	10 beds		
Psychiatry	15 beds	10 beds		
Chest/TB	10 beds	10 beds		
Paediatric Surgery	10 beds			
Neurosurgery	10 beds			
Dermatology	10 beds			
Accident & Emergency	10 beds	10 beds	5 beds	4 beds
Labour room	10 beds	5 beds	5 beds	2 beds
ICU/CCU	10 beds	10 beds	5 beds	
NICU/PICU	10 beds	5 beds		
Dentistry unit	6 units	4 units	2 units	1 unit
Dialysis unit	6 units	4 units		
Anaesthesia	Х	Х		
Radiology	Х	Х		
Pharmacy	Х	Х	х	
Pathology	Х	Х		
Laboratory			Х	Х
Physiotherapy	Х			
Total beds	350 beds	210 beds	110 beds	42 beds

Table 3-27: Hospital standards, bed size

Table 3-28: Hospital standards, specialty and number of doctors

		Category A	Category B	Category C	Category D
Specialist	Surgeon	2	2	1	1
	Physician	2	2	1	1
	Gynaecologist	2	1	1	1
	Paediatrician	2	2	1	1
	Eye specialist/Ophthalmologist	2	2	1	
	ENT Specialist	2	2	1	
	Orthopaedic Surgeon	2	2	1	
	Cardiologist	2	1		
	Psychiatrist	2	1		
	Chest/TB Specialist	1	1		
	Neurosurgeon	1	1		
	Dermatologist	2	1		
	Nephrologist	1	1		
	Gastroenterologist	1			
	Anaesthetist	2	2	1	1
	Dental Surgeon	3	3	1	1
	Radiologist	2	2	1	1
	Pathologist	1	1		
	MO, WMO	108	84	32	16

Table 3-29: Hospital standards, physical infrastructure guidelines for secondary hospitals

Location	1. It should be within 15-30 minutes travelling time and must have a major access road.		
	In a district with good roads and adequate means of transport, this would mean a		
service zone with a radius of about 25km			
	2. It should be grouped with other institutional facilities, such as schools and cultural and market centres		
	3. It should be free from dangers of flooding; it must not, therefore, be sited at the lowest point of the district		
	4. It should be in an area free of pollution of any kind, including air, noise, water and land pollution		
	5. It must be serviced by public utilities: water, sewage and storm-water disposal,		
	electricity, gas and telephone. In areas where such utilities are not available, a		
	substitute must be found, such as a deep well for water, generators for electricity and		
	radio communication for telephone		
Land	a. 25-bed capacity: 40 Kanals		
requirement	b. 100-bed capacity: 79 Kanals		
	c. 200-bed capacity: 138 Kanals		
	d. 300-bed capacity: 198 Kanals		

(2) Improvements of health facilities by the provincial government

The government attaches importance on the infrastructure of service delivery of the primary to secondary levels. The provincial government understands JICA's assistance because the 'Strengthening Routine Immunization Project' by JICA had been conducted in Khyber Pakhtunkhwa since 2014. In terms of health facility development, the provincial government needs assistance through grant aid.

(3) Practices of public-private partnership

The provincial government tends to make partnerships with the private sector in the case of the purchase of expensive medical equipment like CT scanners and MRI. There are cases that DHQ hospital makes PPP agreements with private medical colleges. In Abbottabad, one of the sites of the field survey, there are four medical colleges: Ayub Medical College and three private colleges. The private colleges send their students to DHQ hospitals for undergraduate training. DHQ hospitals in Abbottabad, Mansehra and Haripur were visited in the field survey. They allot the charge payed by the colleges to the improvement of equipment and facilities.

Table 3-30: Private medical colleges making PPP agreements with visited DHQ hospitals

Private medical college	DHQ hospital (location)	
Women Medical College	DHQ hospital Abbottabad (Abbottabad district)	
Frontier Medical College	King Abdullah Teaching Hospital (Mansehra district)	
Abbottabad International Medical College	DHQ hospital, Haripur (Haripur district)	

*All the above medical colleges are located in Abbottabad district

3-3-5 Facilities visited in the field survey

The following five facilities were visited in the field survey with a focus on the paediatrics, obstetrics and related services.

Health facilities	-	Year of Establishment	Number of beds	Location
1. Ayub Teaching Hospital	General hospital	1995	1,465	Abbottabad
2. DHQ Hospital Abbottabad	DHQ hospital		380	As above
3. THQ Hospital Havelian	THQ hospital	1968	40	As above
4. King Abdullah Teaching Hospital	DHQ hospital	1976	350	Mansehra
5. THQ Hospital Oghi	THQ hospital	2010	20	As above
6. THQ Hospital Balakot	THQ hospital	1980s	10	As above
7. BHU Datta	BHU		-	As above
8. BHU Puno Dheri	BHU	1981	-	As above
9. DHQ Hospital Haripur	DHQ hospital	2008	210	Haripur
10. THQ Hospital Khanpur	THQ hospital	2007	60	As above
11. THQ Hospital Ghazi	THQ hospital	1970s	45	As above
12. DHQ Hospital Batagram	DHQ hospital	1993	134	Batagram

Table 3-31: Visited health facilities in Khyber Pakhtunkhwa

Note: New buildings are under construction at Balakot and Oghi

The tertiary hospitals of the province are located in either Peshawar or Abbottabad, and some patients of hospitals in Abbottabad come from Gilgit Baluchistan. Healthcare is complete for the primary through the tertiary level in the province. Some cases, however, are referred to Islamabad, especially when highly-advanced care is required.

Many buildings collapsed in the earthquake in 2005, and the building standards were updated in 2007 obliging earthquake-resistant design. THQ hospital Balakot was partially destroyed, and the hospital has been providing medical services at a temporary facility. The visited hospitals other than THQ hospital Balakot have completed reconstruction after the disaster. However, degradation and mold were seen in many hospitals, that is, appropriate general maintenance from the perspective of hygiene management is needed. Moreover, the shortening of the life of the building is a concern without appropriate maintenance.

The paediatric departments of the visited tertiary hospitals are equipped with incubators, phototherapy equipment, suction and other basic apparatuses, while the ICU and operating theatres were lacking patient monitors, ventilators and anaesthetic apparatuses. Most of the obstetric equipment is very old and has often been repaired.

DHQ hospitals in Abbottabad, Mansehra and Haripur have basic equipment which is very old and insufficient in number. Those old items are kept clean and used safely.

The number of beds at the visited THQ hospitals were different, but all hospitals provide 24-hour Emergency Obstetric and Newborn Care (EmONC) services. THQ hospitals Oghi and Khanpur were upgraded from RHC to Category-D hospitals in 2018 and began to provide EmONC services with specialists. The number of institutional deliveries has been increasing from the time of the upgrade. According to doctors in those hospitals, the number of pregnant women who want to give birth at a hospital has increased due to the improvement of medical equipment and human resources. In addition, its reputation has spread by word of mouth.

BHU is equipped with sphygmomanometers, scales, thermometers, basic forceps, delivery beds, delivery instruments and other basic items. Although the visited BHU has an incubator provided by a development partner, the apparatus is seldom used because the number of deliveries is small in the BHU.

The visited hospitals are summarized on the following pages.

Department	Medicine, Surgery, Obstetrics & Gynaecology, Peadiatrics, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, Traumatology, etc.
Number of patients*	Out-patients 111,407/year, In-patients 26,449/year (2017)
Number of staff	Doctors 205, Nurses 331
Hospital area	Site area 500,000m ² , Gross floor space 150,000m ²
Building structure	RC, 4 stories above ground: 1 story below ground

(1) Ayub Teaching Hospital (Established year 1995, 1,465 beds, Abbottabad)

*The numbers are only obstetrics & gynaecology and paediatrics

The Ayub Teaching Hospital was established in 1995, and is located to the east of Khyber Pakhtunkhwa. The hospital is the only tertiary hospital in the province except Peshawar. Most treatments can be done in the hospital. However, children and neonates who need surgery are referred to hospitals in Peshawar or Islamabad. The hospital accepts patients from neighboring districts and Gilgit Baluchistan. The hospital is always crowded because many patients who do not need tertiary care come to the hospital.

- Facility and Building

There are more than 20 buildings. A new building was constructed in 2013. A nuclear medicine centre and a radiotherapy centre are in the hospital area.

- Medical Equipment

The obstetrics and gynaecology department and paediatric department were relocated to the new building in April 2018. However, new apparatuses were not installed at that time so the equipment is very old. There are suction machines, nebulizer, incubator, phototherapy unit, etc., in the nursery room. Some of the apparatuses in the obstetrics and gynaecology department such as the anaesthesia machines are relatively new, but the other apparatuses are old and damaged. There are two autoclaves in the sterilization room. Sterilization is not keeping up with the number of operations due to one of the two units being out of order. On the other hand, the apparatuses of the central laboratory, which covers all examinations in the hospital, are regularly maintained by local agents.
(2) DHQ Hospital Abbottabad (380 beds, Abbotta
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Departments	Medicine, Surgery, Peadiatrics, Cardiology, Gastroenterology, Pulmonology, Neurosurgery,
	Orthopaedics, Dermatology, ENT, etc.
Number of patients	Out-patients 550,599/year, In-patients 64,434/year, Deliveries 3,429/year (2017)
Number of staff	Doctors 116, Nurses 140
Hospital area	Site area 15,000m ² , Gross floor space 8,000m ² (Women and children hospital)
Building structure	RC, 2 stories above ground, 1 story below ground (Women and children hospital)

The DHQ hospital Abbottabad consists of the General Hospital and Women and Children Hospital. The Women and Children Hospital is located one or two km from the general hospital. The hospital refers premature babies and patients who need intensive care to Ayub Teaching Hospital.

- Facility and Building

The Women and Children Hospital was damaged by the earthquake in 2005 and its restoration work was completed. However, the building is deteriorating and moldy due to water leakage and it does not seem to be maintained regularly. It is necessary to improve the building. A damaged, unsafe building which was the part of the hospital have been used as a staff hostel. Furthermore, unstable power is common problem in the district.

- Medical Equipment

The basic apparatuses such as an incubator, suction and phototherapy unit are very old and have often been repaired in the nursery room. The delivery room is equipped with a delivery table, suction, infant warmer and sterilization. Most of them are very old but maintained well. An ultrasound scanner is in the examination room.

- Investment Plan

The hospital has plans to renovate the operating theatre and the hospital

Departments	Surgery, Medicine, Obstetrics & Gynaecology, Emergency, Dental, etc.
Number of patients	Out-patients 82,653/year, In-patients 393/year, Deliveries 300/year (2017)
Number of staff	Doctors 25, Nurses 6
Hospital area	Site area 9,900m ² , Gross floor space 2,500m ²
Building structure	RC, 2 stories above ground

(3) THQ hospital Havelian (Established year 1968, 40 beds, Abbottabad)

The THQ hospital Havelian is a secondary hospital, about 15km south of Abbottabad city. The hospital is composed of the out-patient department and EmONC department. These buildings were constructed in 2012 and 2017, respectively. The EmONC department was established in order to enhance the delivery care. Furthermore, a new gynaecologist was dispatched to the hospital in April 2018, so the hospital is able to provide Comprehensive EmONC now. The number of deliveries, which was 25 on average per month in 2017, increased markedly to 85 cases in July 2018. Although the number of doctors is sufficient, there are only six nurses in the hospital. The hospital is putting effort into education for LHW and provides monthly workshops for LHWs and health workers.

- Facility and Building

There are two new buildings and one old building. The old building was used as RHC. In the outpatient department, natural light comes through the window, but the places far from the windows are dark. The hospital has a generator.

- Medical Equipment

There are two delivery beds, suction, oxygen tanks, etc., in the EmONC department. However, some of the equipment such as the vacuum extractor and infant warmer are insufficient. The apparatuses of the operating theatre are old but well maintained. General X-ray apparatuses and mobile X-ray apparatuses were installed in 2017. The hospital has two ultrasound scanners, but one of the two is very old and damaged. The ambulance is equipped with necessary and sufficient equipment for the transportation of patients.

Departments	Medicine, Surgery, Obstetrics & Gynaecology, Paediatrics, Cardiology, Neurosurgery,
	Orthopaedics, Traumatology, etc.
Number of patients	Out-patients 704,098/year, In-patients 27,095/year, Deliveries4,021/year (2017)
Number of staff	Doctors 110, Nurses 106
Hospital area	Site area 18,486m ² , Gross floor space 18,400m ²
Building structure	RC, 3 stories above ground

(4) King Abdullah Teaching Hospital (Established year 1976, 350 beds, Mansehra)

The King Abdullah Teaching Hospital was established in 1976 as the 100-bed DHQ hospital Mansehra. In 1999, the hospital was expanded to 250 beds, and became a teaching hospital when the hospital made a PPP agreement with Frontier Medical College Abbottabad. The cover population is 1.6 million and the hospital accepts patients from THQ hospitals and civil hospitals within the Mansehra district. Patients who need tertiary care are referred to Ayub Teaching Hospital.

Major buildings were damaged by the earthquake in 2005. The new building was constructed by the government of Saudi Arabia's assistance. The new building was completed in April 2018. The government of Saudi Arabia has supported Mansehra district for a long time.

- Facility and Building

There are many buildings in the hospital area. The new building has enough space for consultation. The existing building of the obstetrics and gynaecology department is deteriorating. The paediatric department has deterioration of the interior and the space is very small. Securing water is a challenge because the hospital is located on a hill. It is hoped that the new building will be used early on by preparing a water supply system.

- Medical Equipment

The apparatuses of the delivery room and operating theatre are very old and insufficient. The autoclaves are also very old and break frequently so sterilization can't keep up with the number of operations. The number of beds in the paediatric department is insufficient, for instance, 10 patients are taking treatment in three beds placed in the corridor.

Departments	Surgery, Emergency, Dental, etc.
Number of patients	Out-patients 19,526/year, Deliveries66/year (2017)
Number of staff	Doctors 6, Nurses 1
Hospital area	Site area 10,000m ² , Gross floor space 2,000m ²
Building structure	RC, 1 story above ground

(5) THQ Hospital Oghi (Established year 2010, 20 beds, Mansehra)

The THQ Hospital Oghi was established as a 20-bed RHC in 2010. The hospital was upgraded to a category-D hospital from an RHC and became a THQ hospital. Along with this upgrade, the consultation hours were extended, and the number of doctors was increased. The number of deliveries, which was 66 per year in 2017, increased markedly to 74 cases in July 2018. A doctor said that the number of deliveries will be increased to 100 or 150 per month in a few months. Patients who need care for antepartum and postpartum haemorrhage or caesarean section are referred to King Abdullah Teaching Hospital in Mansehra or Ayub Teaching Hospital in Abbottabad. However, it takes time to transport them because of the mountainous location and bad road condition. In addition, people who live in Oghi have difficulty in making money for transportation because of poverty. The provincial government started the construction of a Category-B hospital (210 beds) which is one km from the existing hospital in 2018.

- Facility and Building

The out-patient department and in-patient department are placed in parallel. The walls and ceilings are peeling in some rooms. The electricity is unstable and the hospital only has one small generator.

- Medical Equipment

There are two delivery rooms. One is for general patients and the other is for infected patients. The apparatuses of those rooms are used separately. There are delivery tables, suction, infant warmers, mobile operating lights and sterilizer. The ultrasound scanner in the out-patient department is very old and has often been repaired. The portable X-ray apparatus is very old, and it seems it is only used for fractured limbs.

Departments	Obstetrics & Gynaecology, Emergency, etc.
Number of patients	Out-patients 59,193/year, In-patients 1,918/year, Deliveries 150/year (2017)
Number of staff	Doctors 5, Nurses 3
Hospital area	Site area 600m ² , Gross floor space 300m ²
Building structure	RC, 2 stories above ground

(6) THQ Hospital Balakot (Established year 40-50 years ago, 10 beds, Mansehra)

The THQ Hospital Balakot is a category-D hospital, and is located one hour from Mansehra city. The old building was significantly damaged by the earthquake in 2005 so the hospital has been providing its services at a temporary facility which is the first floor of a residence in the community. The number of beds was 25 before the earthquake, but it is 10 beds now. The hospital provides 24-hour service for normal deliveries. Complicated pregnancies and caesarean sections are referred to King Abdullah Teaching Hospital. The number of deliveries was 150 in 2017. This number has increased by about twice since one female medical officer was dispatched in January 2018. Furthermore, more than 3,300 pregnant women visit for antenatal care per year. Insufficient medical staff and consultation space are the main challenges.

The provincial government started the construction of a Category-C hospital (110 beds) near the existing hospital in 2018. The function of the existing hospital will shift to the new hospital in the future.

- Facility and Building

The large and small rooms surrounding the courtyard are used as patient rooms, examination rooms, etc. The corridor is used as a waiting room. The building has rusty iron and leakage. The floor is mortar in the patient room. A vinyl floor sheet for non-slip use is spread for the prevention of falling and contamination in the delivery room. A generator is located outside.

- Medical Equipment

There are sufficient apparatuses for normal deliveries such as delivery tables, mobile operating lights, infant warmers and small sterilizers. However, the ultrasound scanner was broken and there was no fetal monitor in the hospital, so it is considered to be a delay in the detection of abnormalities during delivery. Apart from that, a microscope, a centrifuge, a small biochemical analyser, etc., are in the laboratory room and an old mobile X-ray apparatus is in the X-ray room.

(7) BHU Datta (Mansehra)

Number of patients	Out-patients 5,894/year (2017)
Number of staff	WMO 1, Other 5
Hospital area	Site area 3,530m ² , Gross floor space 126m ²
Building structure	Masonry construction, 1 story

BHU Datta is located on the border of Mansehra and the Abbottabad district and 15 minutes from Mansehra city by car. The BHU accepts about 40 patients per day, and provides primary healthcare such as immunization, ANC, Postnatal Care (PNC), and family planning. The main causes of child morbidity are pneumonia, acute respiratory infection and diarrhoea.

- Facility and Building

The building was damaged by the earthquake in 2005 and it has been repaired. The challenges are regular maintenance and repair work on the building. The room is ventilated and cool in spite of the hot season. Half of the external waiting area offers a good environment with shadows. The hospital uses well water.

- Medical Equipment

There are forceps for minor injuries, a small sterilizer, a refrigerator for vaccines, scales and a nebulizer. Although there is a delivery set, there were no delivery cases in 2017.

Number of patients	Out-patients 11,115/year Deliveries 4/year (2017)
Number of staff	Doctors 1, other 8
Hospital area	Site area 400m ² , Gross floor space 150m ²
Building structure	Masonry construction, 1 story

(8) BHU Puno Dheri (Established year 1981, Mansehra)

BHU Puno Dheri is a primary health facility, and is located 20 minutes from Mansehra by car. The BHU accepts about 100 patients per day, and provides primary healthcare such as immunization, ANC, PNC, and family planning. Acute respiratory infection and diarrhoea are major diseases among children and diabetes is a major disease among adults. The medical fee is free of cost including medicine so some people come just receive household medicine. Nomad tribes can also receive the service for free.

- Facility and Building

The new treatment room was built in 2017. The reception area is separated into male and female by a wall. The electricity is supplied by a solar panel on the roof. The natural light was sufficient for treatment during our visit. There is no air conditioning system, but there is a fan on the ceiling.

- Medical Equipment

There are basic apparatuses such as a blood pressure monitor, scale and thermometer. A delivery table, doppler and incubator are in the delivery room. The incubator was donated by a donor but it has never been used before.

Departments	Medicine, Surgery, Peadiatrics, Obstetrics & Gynaecology, Cardiology, Gastroenterology,
	Pulmonology, Neurosurgery, Orthopaedics, Dermatology, ENT, Traumatology, etc.
Number of Patient	Out-patients 283,957/year, In-patients 19,358/year, Deliveries 5,765/year (2017)
Number of staff	Doctors 101, Nurses 129
Hospital area	Site area 98,822m ² , Gross floor space 29,646m ²
Building structure	RC, 2 stories above ground

(9) DHQ Hospital Haripur (Established year 2008, 210 beds, Haripur)

The DHQ Hospital Haripur is a category-B hospital in the Haripur district. The number of beds is 210 officially, but the actual number is about 300. The hospital made a PPP agreement with an international medical college and receives medical students from the college. The hospital refers patients who need intensive care and complicated pregnancies to Ayub Teaching Hospital in Abbottabad. The hospital accepts all caesarean sections within the district due to other hospitals in the district not having an operating theatre.

- Facility and Building

Two buildings are placed in parallel and are connected by a corridor on the ground. The outpatient department is a single-story building. The exterior wall surface is uneven and natural light comes through the windows. The large room is a 12-bed room. However, 13 patients are in the obstetrics and gynaecology ward and 16 patients are in the paediatric ward. Japanese cartoon characters and bear pictures are on the wall in the paediatric department. It is necessary to improve the sanitary environment in the laundry and sterilization room and to repair the deterioration of the interior.

- Medical Equipment

The nursery room is very small because it is an old single room. Five or six beds are in the nursery room and from two to four babies are treated in one bed. Four delivery tables are lined up without a partition in the delivery room. The hospital has five operating theatres and there are operating lights, an operating table, an anaesthesia machine and an electrosurgical knife. Each operating theatre is very clean and neat. The large autoclave is out of order, and only a small and old one is operating. In the X-ray room, the partition of room and window position are not suitable for radiation protection so it is a concern that the medical staff and patients will be unnecessarily exposed to radiation.

Departments	Medicine, Paediatrics, Obstetrics & Gynaecology, Emergency, Dental, etc.
Number of patients	Out-patients 37,988/year, In-patients 1,311/year, Deliveries 22/year (2017)
Number of staff	Doctors 15, Nurses 3
Hospital area	Site area23,000m ² , Gross floor space 3,000m ²
Building structure	RC, 2 stories above ground

(10) THQ Hospital Khanpur (Established year 2007, 60 beds, Haripur)

The THQ Hospital Khanpur is a category-D hospital, and is located 25km from DHQ Hospital Haripur. The hospital was upgraded from RHC to a category-D hospital in May 2018. At the same time, the number of beds increased from 25 to 60. The medical equipment and other facilities are being prepared for an upgrade. The number of deliveries, which was 22 in 2017, increased to 40 on a monthly average, and is expected to increase more. The hospital accepts patients such as normal deliveries from BHU or sub-health centre. The hospital normally refers patients to DHQ hospital Haripur, but sometimes refers them to Ayub Teaching Hospital in Abbottabad.

- Facility and Building

The old RHC building and new building are placed in a large hospital area. The delivery room, operating theatre, ICU, and obstetric wards are on the second floor of the new building. The patient rooms have windows at each bedside and private washrooms. Although the hospital has a generator, it is refraining from using it due to the cost of fuel.

- Medical Equipment

Two delivery tables, suction and an infant warmer are in the delivery room. There are incubator and phototherapy units in the nursery room, but premature babies and infants who need phototherapy are referred to the DHQ hospital. Most apparatuses were installed in 2009 and there is no significant deterioration at present. However, it is a concern that a shortage of equipment will occur by improving the function and increasing the number of patients.

Departments	Medicine, Obstetrics & Gynaecology, Peadiatrics, Emergency, Dental, etc.
Number of patients	Out-patients 52,570/year, In-patients 1,943/year, Deliveries88/year (2017)
Number of staff	Doctors 1, Nurses 3
Hospital area	Site area 26,000m ² , Gross floor space 2,600m ²
Building structure	RC, 1 story above ground

(11) THQ Hospital Ghazi (Established year 1970s, 45 beds, Haripur)

THQ Hospital Ghazi was established in the 1970s as an RHC about 40 years ago and was upgraded to a category-D hospital in 2007. It is located one hour from DHQ hospital Haripur. The hospital provides normal deliveries. Caesarean sections are referred to DHQ hospital Haripur at present. The hospital will be able to provide services for caesarean sections in the near future because a surgeon and anaesthesia technician will be dispatched in September 2018.

- Facility and Building

A small room is located around a courtyard. The walls and ceilings are peeling and turning black and require repair. The old RHC is not used currently.

- Medical Equipment

The apparatuses of the delivery room have deteriorated. In particular, the delivery table is covered with rust and its footrests are broken so it may cause unsafe delivery. The fetal monitor is also very old. A new anaesthesia machine and defibrillator have been procured by the provincial government in spite of the fact that the operating theatre is not being used because there is no surgeon or anaesthesia technician. There is a biochemical analyser, blood cell analyser, microscope, etc., in the laboratory, and some of them are older but can be used for diagnosis at present. In the X-ray room, it is a concern over radiation exposure to not only medical staff, but also waiting patients, because there is no consideration for radiation protection, and there is no X-ray-protection board for the console. Some of the equipment in the hospital was donated with Japan's assistance.

Departments	Surgery, Medicine, Paediatrics, Obstetrics & Gynaecology, Orthopaedics, Traumatology,
	Emergency, Dental, etc.
Number of patients	Out-patients 21,3161/year, In-patients 10,703/year, Deliveries 1,488/year (2017)
Number of staff	Doctors 36, Nurses 56
Hospital area	Site area 18,800m ² , Gross floor space 12,000m ²
Building structure	RC, 3 stories above ground

(12) DHQ Hospital Batagram (Established year 1993, 134 beds, Batagram)

The Batagram district is located among the mountains, 150km north of Abbottabad. DHQ hospital Batagram is a 134-bed category-C hospital. The hospital was destroyed by the earthquake in 2005, and the new building was constructed with Japan's assistance. The hospital provides normal delivery care and caesarean sections, but complicated pregnancies and ICU patients are referred to Ayub Teaching Hospital, Abbottabad. The hospital ambulance is used for referrals and it is free of charge in the case of only cardiac disease and traffic accidents.

- Facility and Building

The hospital is comprised of three buildings which are the three-story main building, the outpatient department and the emergency department. LEDs are used instead of the fluorescent lamps for energy saving in some rooms. The lights are turned off and only natural light is used. The building, which is 13 years old, is deteriorating with the peeling of floor tiles, damaged wooden doors and leaks. Repair and maintenance are required.

- Medical Equipment

There is enough equipment for normal deliveries and caesarean sections. However, when multiple deliveries are conducted, the number of incubators and fetal monitors will be insufficient. Despite the large number of deliveries, which number more than 100 cases including caesarean sections, the number of beds is sufficient, because the hospitalization is one day for normal deliveries and three days for caesarean sections. According to some doctors, women who gave birth would stay longer in the hospital for recovery and education if the hospital had more staff and beds. There are incubators, infant warmers and phototherapy units in the nursery room, and six to eight babies are treated per day. The amount of equipment is sufficient at present, but most of it has been used for more than 10 years so new equipment will have to be introduced soon. The large autoclave is out of order and only two small sterilizers are operating in the sterilization room. Sterilization is able to address the number of operations. The ventilators are not used due to a lack of proper staff.

3-4 Balochistan

3-4-1 Overview

The province of Balochistan, the largest province with an area of 347,190km², is located in the south-western part of Pakistan. The population of the province is 12,344,408, and the population density is low. There are five divisions and 32 districts in Balochistan. The provincial population increased during 1998 to 2017 at an average rate of 3.37% annually.

Table 3-32: Population of Balochistan

	All	Urban	Rural
Population 2017	12,344,408	3,400,876	8,943,532
(Proportions of urban and rural)	100	28	72
Population 1998	6,565,885	1,768,830	4,797,055
Average annual growth, 1998-2017	3.37%	3.49%	3.33%

Source: PBS, Provisional Summary Results of 6th Population and Housing Census-2017

The rates of child mortality are higher than the other provinces. Not only the neonatal mortality, but also U5MR has an increasing tendency. In fact, the U5MR of successive five-year periods decreased from 101 per 1,000 live births during 1986-1990 to 59 during 2002 to 2006 and increased again to 111 during 2008 to 2012.

Table 3-33: Change of child mortality of successive five-year periods in Balochistan

	1986-1990	2002-2006	2008-2012
Under 5 mortality rate, 1,000 live births	101	59	111
Infant mortality rate, 1,000 live births	72	49	97
Neonatal mortality rate, 1,000 live births	46	30	63
Source NIDS Delviston Domographic and Health St	2012 12		

Source: NIPS, Pakistan Demographic and Health Survey 2012-13

The rate of institutional delivery of Balochistan is 15.8% and lower than the other provinces. In addition, the coverage of ANC is low in the province. There should be many challenges in the province.

Table 3-34: Providers of ANC in Balochistan

	All	Urban	Rural
Physician	27.7%	49.9%	22.2%
Nurse/Midwife/LHV	3.0%	4.4%	2.7%
Other	13.4%	5.8%	15.2%
No visit	55.7%	39.9%	59.6%
No. of respondents	348	68	280
of which having ANC visit	153	41	112

Source: NIPS, PDHS2012-13

3-4-2 Health administration

The provincial government of Balochistan has 26 departments. The total amount of PDSP 2017-18, which is equivalent to the ADP of other provinces, is Rs. 80 billion, of which 6.1% is allocated to the department of health.

Department	Number of Projects	Allocation (Rs million)	(percent)
Communication	562	16,934	(21.2%)
Education	331	7,640	(9.6%)
Public Health Engineering	270	6,772	(8.5%)
Physical Planning & Housing	254	6,201	(7.8%)
Water	222	5,246	(6.6%)
Agriculture	230	4,910	(6.1%)
Health	147	4,878	(6.1%)
Local Government	216	4,130	(5.2%)
Power	179	2,058	(2.6%)
Information Tech	15	1,723	(2.2%)
Sports	61	1,204	(1.5%)
Urban Planning & Development	32	1,014	(1.3%)
Other (14 Departments)	214	17,288	(21.6%)
Total	1,519	125,999	(100.0%)

Table 3-35: Allocation of PSDP 2014-18 of Balochistan

Source: Government of Balochistan, Public Sector Development Programme 2017-2018

3-4-3 Health facilities

There are hospitals, RHCs, BHUs and other facilities in Balochistan as follows.

Tertiary level	General Hospitals/Specialized Hospitals	4
Secondary level	DHQ Hospitals	27
	THQ Hospitals/Civil Hospitals	10
Primary level	RHC	82
	BHU	549
	Dispensaries	575
	MCH centres	90

Table 3-36: Number of public facilities in Balochistan

Source: TRF, Health Facility Assessment -Balochistan Provincial Report (2012)

3-5 Islamabad Capital Territory

3-5-1 Overview

Islamabad is located in the north-western part of Pakistan. The population of ICT is 2,006,572 or 0.97% of the total population, and it increased during 1998 to 2017 at an average rate of 4.91% annually.

Table	3-37:	Population	of ICT
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	All	Urban	Rural
Population 2017	2,006,572	1,014,825	991,747
(Proportions of urban and rural)	100	51	49
Population 1998	805,235	529,180	276,055
Average annual growth, 1998-2017	4.91%	3.48%	6.95%

Source: PBS, Provisional Summary Results of 6th Population and Housing Census-2017

3-5-2 Health administration

The Division of Capital Administration and Development is in charge of health and other social sectors of ICT. the total amount of the division's PSDP 2017-2018 is Rs 4,752 million, of which 36.8% is allocated to the health sector.

	Number of projects	Allocation (Rs million)	(percent)
Education sector	12	2,402.169	(53.0%)
Health sector	14	1.750,151	(36.8%)
Other	5	599.822	(12.6%)
Total	31	4,752.142	(100.0%)

Source: Capital Administration and Development, Public Sector Development Programme 2017-2018

3-5-3 Health facilities

There are two tertiary hospitals, the Federal Government Polyclinic Hospital and the Pakistan Institute of Medical Sciences in ICT. In addition, eight secondary public hospitals, three RHCs and five BHU, as well as many private facilities, are located in ICT.

3-5-4 Facilities visited in the field survey

The following two facilities in ICT were visited in the field survey.

Table 3-39: Visited health facilities in Islamabad

Health facility	Year of establishment	Number of beds
1. Federal Government Polyclinic Hospital	1966	545
2. PIMS=Pakistan Institute of Medical Sciences	1985	230

The visited hospitals are summarized on the following pages.

Departments	Medicine, Surgery, Paediatrics, Cardiology, Gastroenterology, Pulmonology, Neurosurgery,
	Orthopaedics, Dermatology, ENT, etc.
Number of patients	Out-patients 1,272,306/year, In-patients 25,080/year, Deliveries 6,460/year (2017)
Number of staff	Doctors 460, Nurses 802
Hospital area	13,006 m ²
Building structure	RC, 2 stories above ground

(1) Federal Government Polyclinic Hospital (Established year 1966, 545 beds, Islamabad)

The Federal Government Polyclinic Hospital was established in 1966. The hospital is the only general hospital which provides medical services free of charge in the country, and receives many patients form Islamabad, FATA and Gilgit-Baltistan.

- Facility and Building

The interior of the 52-year-old building was renovated. Each room has an individual air conditioner or electric fan, and the water supply and drainage facilities are kept clean. Power failures sometimes occur because of power shortages. Although the MCH centre, which is in another place, is relatively new compared with the main building, some areas including the staircase require repair because of deterioration.

- Medical Equipment

Only the digital general X-ray apparatus is new, but most of the equipment is more than 10 years old and the medical equipment is insufficient. In particular, the incubators and phototherapy equipment in the paediatric department are very old. The medical equipment in the MCH centre has also deteriorated with age.

- Investment Plan

Since the hospital was not designed as a tertiary hospital, the hospital has been expanded many times to handle the increasing number of patients. However, the hospital still doesn't have enough area for 100,000 out-patients per year. To improve the situation, the hospital has a plan to construct a new hospital (5 stories above ground and 2 stories below ground, 600 beds) on the site adjacent to the hospital which was provided by the embassy of Argentina.

Departments	Medicine, Surgery, NICU, PICU, Oncology, Emergency, etc.
Number of patients	Out-patients 2,237/day, In-patients 56/day (newly registered)
Number of staff	Doctors 57, Nurses 110
Hospital area	Site area 16,629m ² , Gross floor space 12,995m ²
Building structure	RC, 2 stories above ground and 1 story below ground

(2) PIMS Children Hospital (Established year 1985, 230 beds, Islamabad)

Shortly after the capital relocation in 1961, the construction of PIMS in Islamabad was planned to improve the level of medical services. After the establishment, PIMS has provided not only medical services for local residents and civil servants, but also medical education to develop health workers. PIMS has also played a role as a research institution. The PIMS Children Hospital was established in 1985 to improve paediatric care and to nurture paediatric specialists. Since there was no well-equipped paediatric hospital in the north area of country, the hospital has received may patients from the beginning. To handle the increasing number of patients, the buildings for out-patients and operating theatres were established in 1991 and in 2006, respectively. Furthermore, there is a plan to improve the Children Hospital and MCH centre.

Chapter 4 Development Cooperation in the Health Sector

4-1 Overview

According to the Organization of Economic Co-operation and Development (OECD), the total amount of official development assistance received by Pakistan was USD 4,186.6 million in 2016. Within the total, 55% was allocated to the social sectors, 20% to the education sector, 11% to the health sector and 24% to the other sectors. In Pakistan, high child and maternal mortality remains an urgent issue to be addressed. Most development partners put focus on reproductive, maternal, newborn and child health, immunization and nutrition as their priority areas. Many donors also provide direct and indirect support to the health sector in connection with areas of gender, child and adolescent, human development, poverty reduction, disaster preparedness and water and sanitation. The table below summarizes the support to sub-sectors by development partners.

	WHO	UNICEF	DFID	USAID	KfW	JICA
Health system	Х			Х	Х	
Reproductive, maternal, newborn and child health	Х	Х	Х	X	X	X
Immunization	Х	Х		Х		Х
Nutrition	Х	Х	Х	Х		
Family planning	Х		Х	х		
Infrastructure		Х		х	х	Х
Other	х	х	х	х		

Table 4-1: Support to sub-sectors by development partners

4-2 Strategies and activities of major development partners

4-2-1 World Health Organization

WHO established its country office in Pakistan in 1960 and has provided technical and managerial support to the health sector. Its areas of support have varied, including areas such as polio eradication, the improvement of routine immunization, emergency response and recovery, health system strengthening, maternal and child health, family planning, primary health care, nutrition, other communicable disease control, etc. In the Country Cooperation Strategy for WHO and Pakistan 2011–2017, seven priority areas of strategic direction by WHO were listed as follows:

- Health policy and system development with community involvement
- Communicable disease control
- Maternal, neonatal, child health and nutrition
- NCDs control including mental health
- Social determinants to health encompassing equity, human rights and gender dimensions
- Emergency preparedness and response and disaster risk management
- Partnerships, resource mobilization and coordination

The country office is in Islamabad, whereas sub-offices are located in Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan. Responding to the devolution of health administration in Pakistan, WHO aims to upgrade the sub-offices to enable a meaningful presence and the provision of appropriate support to departments of health at the provincial level.

4-2-2 United Nations Children's Fund

UNICEF provides support for Pakistan to achieve SDGs and its highest priorities are enhancing the immunization program and reducing infant mortality. UNICEF spent nearly half of its budget on polio eradication. UNICEF also plays a prominent role in the coordination of the procurement of polio vaccines by donor funds in Pakistan. The improvement of the water supply and sanitation is another priority and 230 million people were covered in 2016. Food provision for children as part of nutrition support was implemented in partnership with WHO, World Food Programme and Food and Agriculture Organization in all provinces in 2016. Inception of the National Nutrition Survey and the National Complementary Feeding Assessment was completed, with the surveys to be conducted in 2018. In addition, 38 Neonatal Intensive Care Units in hospitals in Pakistan were improved. In addition, UNICEF Pakistan trained healthcare providers, lady health workers and community mobilization workers on the use of chlorhexidine to prevent omphalitis in 44 Districts of Balochistan, Khyber Pakhtunkhwa, FATA and Punjab. In Punjab, support for the elimination of neonatal tetanus and nutrition education are provided.

4-2-3 Department for International Development of UK

The Department for International Development (DFID) leads the UK's global efforts to end extreme poverty, deliver the Global Goals for SDGs and tackle a wide range of global development challenges. The office of DFID is located at the British High Commission in Islamabad and the office holds four groups, namely the Basic Services Group, Governance Group, Economic Growth Group and Programme Effectiveness, Analytical and Business Support Group. DFID puts its focus on harnessing the potential of new trade relationships, creating jobs and promoting investment in Pakistan toward achieving its SDGs. The total amount of commitment to Pakistan in 2018-19 was about 345 million British pounds sterling. In the health sector, DFID focuses on its support provision to: 1) Primary and secondary health care including reproductive,

maternal, newborn and child health; 2) Nutrition; 3) family planning and; 4) the Integrated Disease Surveillance and Response System. The provincial Health and Nutrition Programme is the largest on-going project of DFID in the health sector. This programme aims to improve reproductive, maternal, newborn and child health in Punjab and Khyber Pakhtunkhwa with a budget of 160 million British pounds sterling from 2013 to 2019.

Title	Site	Туре	Period	Budget	Objective
Provincial Health & Nutrition Programme	Punjab, KP	GA, TA	2013- 2019	£ 160 million	To improve RMNCH services to the population through supporting SDG 2, 3 and 10.
Supporting Nutrition Programme in Pakistan	Sindh	GA, TA	2014- 2021	£68 million	To reduce undernutrition with a focus on poor women and children.
Pakistan Nutrition Survey	Federal	TA	2016- 2018	£9 million	Strengthened evidence base is used by government, donors, multilateral organizations and civil society organizations to inform multi-sectoral nutrition policies and interventions, evaluation and advocacy.
Delivering Accelerated Family Planning in Pakistan	4 districts	GA	2017- 2021	£9 million	More women are able to safely plan their pregnancies and improve their sexual and reproductive health.

Table 4-2: On-going projects in health sector by DFID

Note KP: Khyber Pakhtunkhwa, G/A: Grant aid, T/A: Technical Cooperation

4-2-4 United States Agency for International Development

The United States Agency for International Development (USAID) focuses on developing a stable, secure and tolerant Pakistan with a vibrant economy. In the health sector, USAID provides support mainly on preventing child and maternal mortality toward achieving SDGs and the government of Pakistan's Vision 2025. Over the last six years, USAID has: 1) Provided over 9.8 million women and children with quality maternal, child, and reproductive health care services; 2) Trained more than 51,000 people on new health care interventions for women and children; and; 3) Supported governments in Sindh, Punjab, Balochistan and Khyber Pakhtunkhwa to meet women's family planning needs. In addition, USAID financed the construction of the Jinnah Postgraduate Medical Center (2012) and the Jacobabad Institute of Medical Sciences hospital (2014) in Sindh.

Table 4-3: On-going projects in health sector by USAID

Title	Site	Туре	Period	Budget	Objective
Integrated Health Systems Strengthening/Service Delivery	KP, Sindh, Federal	G/A, T/A	2018- 2020	\$44.16 million	To improve the health of women and children through the availability of quality health services.

Title	Site	Туре	Period	Budget	Objective
Procurement and Supply Management Project	KP, Punjab, Federal	T/A	2016- 2020	\$14.22 million *as of 2018	To use evidence-based and integrated supply chain management to strengthen public procurement.
Promoting Quality of Medicines	KP, Punjab, Federal	T/A	2014- 2019	\$ 6.7 million *as of 2018	To strengthen the capacity of the Drug Regulatory Authority to monitor the quality of pharmaceuticals, particularly maternal and child health commodities.
Polio Eradication Program	Federal	F/S	1997- 2022	\$ 29.2 million *as of 2018	USAID supports WHO to maintain a vigorous and effective surveillance system that detects polio cases and quickly identifies possible outbreaks.
Strengthening Provincial Health Systems	Sindh	T/A	2018- 2020	\$ 1.5 million	To strengthen the provincial government's capacity in health management, disease surveillance, data analysis and its usage.
Strengthening Human Resources for Better Health Outcomes	Federal	T/A	2018- 2020	\$ 2.25 million	To develop new public health degree programs to train healthcare professionals and managers in specialized public health fields.
Strengthening National Health Systems	Federal	T/A	2018- 2020	\$ 2.25 million	To strengthen the health system by enhancing the capacity of Ministry of National Health Services, Regulations & Coordination.
Regional Training Institutes	Sindh	G/A	2019- 2022	\$ 8.5 million	To construct two buildings (in Larkana and Sukkur Districts) and renovate one building (in the Hyderabad District) of Regional Training Institutes.
Renovation and Refurbishment of MNCH Centres	Sindh	G/A	2016- 2019	\$ 9.2 million	To increase the utilization of MNCH services through the renovation of the building and provision to MNCH centres.
Support to National Immunization Support Program	Federal	F/S	2016- 2019	\$ 10 million	To provide funds to the multi donor fund for EPI programme managed by the World Bank.
Sustaining Health Outcomes Through the Private Sector (SHOPS)	KP, Sindh	T/A	2016- 2018	\$ 3 Million	To increase availability, improve quality, and expand the coverage of essential health products and services in maternal and child health in the private sector.
Maternal Child Survival Program	Punjab, Sindh, Balochistan	T/A	2016- 2019	\$ 5.4 Million	To enhance family planning programs through the provision of injectable contraception.

Note KP: Khyber Pakhtunkhwa, G/A: Grant aid, T/A: Technical Cooperation, F/S: Funding Support

4-2-5 The Asian Development Bank

The Asian Development Bank (ADB) completed its support to the health sector in Pakistan in 2009. Before that, ADB commenced a project on strengthening reproductive health through a combination of maternal and child health services and family planning services nationwide in 2007 with a budget of USD 70 million. However, the project was downsized and eventually

completed due to the devolution of health administration. In addition, ADB supported the rehabilitation and procurement of medical equipment while targeting the existing DHQ and THQ hospitals all over the country.

4-2-6 German Development Bank

The German Development Bank (Kreditanstalt für Wiederaufbau, KfW) started providing support to Pakistan in 1961, and the total amount of its commitment totals more than three billion euro. KfW commenced its support to the health sector in the 90s and its areas have varied such as TB control, polio eradication, reproductive health, family planning, medical insurance and the construction of RHCs and THQ hospitals. Since 2015, KfW has put its priority on achieving Pakistan's SDGs and regarded the health sector as one of the areas of social security programmes.

8 81	5		, ,					
Title	Site	Туре	Period	Budget	Objective			
Safe Blood Transfusion Services Project	Punjab, Sindh, KP, Islamabad	G/A	2016-2019	Eur 10 million	To establish provincial blood bank at target sites.			
Social Health Protection Initiative for Khyber Pakhtunkhwa	KP	G/A	2013-2018, 2019- to date	Eur 9 million	To improve access to quality health services for economically-vulnerable groups.			
Reproductive Health (Family Planning)	Health Punjab, KP, ing) FATA		2017-2019	Eur 7.5 million	To promote the family planning programme by providing medical equipment for obstetrics, nutritional supplements and contraceptives.			

Table 4-4: On-going projects in health sector by KfW

Note KP: Khyber Pakhtunkhwa, G/A: Grant aid

Chapter 5 JICA's cooperation and Japanese medical equipment in Pakistan

5-1 History of Japan's cooperation

Japanese Official Development Assistance (ODA) in Pakistan was commenced in 1954 based on the Colombo Plan. A cumulative amount of Japanese ODA loan during 1961 to 2015 was 9.9 million yen, and that of grant aid during 1970 to 2015 was 2.6 million yen in Pakistan. Japan's basic policy of assistance toward Pakistan is to build a stable and sustainable society through economic growth. Taking the "Free and Open Indo-Pacific Strategy" and Pakistan's "National SDGs Framework" into consideration, Japan utilizes its assistance to induce Japanese private sector investment in Pakistan and aim at expanding a vibrant middle class in an all-inclusive manner. This will bring up the poor to the middle class and accelerate economic growth. Sharing the benefits of economic growth with the entire society shall facilitate the development of a stable and sustainable society. In order to achieve the goal given above, Japan has set the three priorities namely, 1) Improvement of economic infrastructure, 2) Ensuring human security and improvement of social infrastructure, and 3) Balanced and stable regional development including the border region. Under the priority 2), Japan has continued providing assistance for eradication of polio and strengthening the health system with an emphasis on maternal and child health care, which is the area Pakistan has been struggling to meet the Millennium Development Goals (MDGs) targets. The first Japan's grant aid in health sector was the project for improvement of medical equipment for hospital in Sindh in 1980. To date, total 41 grant aid project have been implemented in the health sector and the cumulative amount of grant is 32 billion Japanese yen. The Japan's grant aid projects on construction and equipment supply in health sector in Pakistan are summarized in the following table.

Year Title E/N Amount Million JPY

Τ	ab	le	5-	1.	Japan	's grant	aid	on	constructio	on and	equi	pment	suppl	y ir	the	heal	th	sector	•
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1980	Project for Improvement of Medical Equipment for hospital in Sindh Province	600	
1981	Project for Improvement of Medical Equipment for National Health Institution	350	
1982	Construction Project of Children's Hospital, Islamabad	1,800	
1983	Construction Project of Children's Hospital, Islamabad	2,500	
1984	Establishment of the College of Nursing & Paramedical Institute	1,590	
1985	Establishment of the College of Nursing & Paramedical Institute	920	
1985	Project for Improvement of Medical Equipment for Punjab Medical College	1,670	
1985	Project for Improvement of Medical Equipment for hospital in Sindh Province	780	
1986	Project for Improvement of Medical Vehicle for hospital in Sindh Province	842	
1989	Project for the Establishment of Basic Health Units and Rural Health Centres in Punjab Province	770	
1989	Project for Strengthening of Drug Control and Traditional Medical Centre Located in the NIH	436	
1991	Project for Improvement of Medical Equipment for Punjab Medical College	1,250	
1994	Project for the Improvement of Medical Equipment for the North-West Frontier Province	897	
1995	Project for Improvement of Medical Equipment for the Bolan Medical College at Quetta	488	
1996	Project for the Establishment of Maternal and Child Health Centre	1,905	
1997	Project for the Establishment of Maternal and Child Health Centre	559	
2003	Project for Improvement of Islamabad Children's Hospital	625	
2003	Project for Improvement of Basic Health Care System in Balochistan	289	
2005	Project for the Renovation of Islamabad Children's Hospital	647	
2012	Project for the Improvement of Child Health Institute in Karachi	1,423	

Source: Ministry of Foreign Affairs of Japan

Japan's ODA loan has been extended for the polio eradication project phase 1 (2011-13, 4.9 billion Yen) and phase 2 (2016-18, 6.2 billion Yen). These projects adopt a loan conversion mechanism in cooperation with the Bill and Melinda Gates Foundation, which set a mission of eradicating polio worldwide. Under the mechanism, the Bill and Melinda Gates Foundation will repay the Japan's ODA loan for Pakistan if specific goals set for these projects are met through the efforts of Pakistan.

JICA started its first project-type technical cooperation in health sector of Pakistan in 1986. Since then, in total eight projects have been implemented.

Title	Period
JICA - Islamabad Children's Hospital (ICH) Project	1986 - 1993
Nursing Education Project	1987 - 1992
Maternal and Child Health Project	1996 - 2001
Aftercare Technical Cooperation for the Nursing Education Project	2000 - 2002
Tuberculosis Control Project	2006 - 2008
EPI/Polio Control Project	2006 - 2011
District Health Information System (DHIS) Project for Evidence-Based Decision Making and Management	2009 - 2012
Strengthening Routine Immunization Project	2014 - 2018

Table 5-2: List of Project-type technical cooperation in the health sector

5-2 Japanese medical equipment in Pakistan

According to the Ministry of Health, Labour and Welfare of Japan, gross domestic sales of medical equipment in 2015 was 2.9 trillion Yen. Within the total, domestic products account for 1.8 trillion Yen (64%) and imported foreign products account for 1.1 Trillion Yen (36%). Export value of domestic medical equipment in 2015 was 500 billion Yen. This accounts for only 2.5 % of the world market of medical equipment (20 Trillion Yen).

Around 20 years from 1980s to 2000s, many Japanese medical equipment was procured through the grant aid projects. Most of the equipment have past their durable years, and many were already replaced with foreign products. Currently, there is no published statistics on imports of medical equipment in Pakistan. However, according to the statistics of India, it is assumed that the major importing countries of medical equipment for Pakistan are the United States, China, Germany and Korea.

Japanese medical equipment enjoys good reputation in its features and high tolerance in Pakistan. For example, diagnostic imaging apparatus (including X-ray apparatus), endoscope, blood cell counter, incubator, infant warmer, phototherapy equipment and syringe pump are commonly seen in private hospitals. However, most domestic manufacturers struggle in the public procurement for medical equipment due to the high price competition. Also, method of payment of the public procurement in Pakistan, which is Pakistan Rupee settlement, hinders Japanese companies to enter the market. In this context, it is expected that utilizing schemes of Japan's grant aid and ODA loan projects, which apply Japanese Yen settlement and limitation of eligible source countries, can bolster Japanese enterprises' effort on expansion of the market share in Pakistan.

Chapter 6 Recommendations

6-1 Priority issues in the health sector

Although signs of an epidemiological transition have been observed in Pakistan, problems related to maternal and child health, nutrition and communicable diseases remain challenges. As stipulated in Chapter 2, the situation of maternal and newborn mortality suggests that the most important issues are problems related to delivery care in Pakistan.

Needless to say, disparities in access to healthcare, people's awareness, their care-seeking behaviour and other factors are related to those problems. The development of social infrastructures is not making the same progress all over the country with its huge area and population, nor is the deployment of health resources. In fact, relevant indicators suggest the worse situation in rural areas. In rural areas where emergency transfer should be more difficult, the fact that risks can suddenly occur during deliveries should be of even more concern given the situation where less than half of women deliver at health facilities

Under such circumstances in Pakistan, the improvement of delivery care requires adequate service provision of obstetric and newborn care, the correction of disparities in access to healthcare, an increase of people's awareness and better care-seeking. In this regard, it is thought effective to extend assistance to provide quality obstetric and newborn care at health facilities people can access easier through the improvement of buildings, facilities and equipment with the schemes of Japanese ODA grant aid and loan.

The provincial governments address the strengthening of health service delivery by improving health hospitals and health centres. Although some provinces have enough hospitals at the secondary level, health services are sometimes unsatisfying due to insufficient health staff and medical equipment. The tertiary hospitals have yet to be improved in cities, which should be the base of tertiary care in a region, other than provincial capitals and major cities. The strengthening of the service network is an urgent matter in the respective provinces. In any case, healthcare must have enough capacity and ability to meet the increasing medical demand when people take positive care-seeking with better knowledge in the near future. Some hospitals visited in the field survey have reported an increase of pregnant women who visit them for ANC and deliveries. Improved facilities might affect people's care-seeking.

In the field visits in the provinces of Punjab, Sindh and Khyber Pakhtunkhwa, it is observed that some hospitals need rehabilitation or reconstruction in terms of safe and adequate conditions as a medical facility. In addition, the observations through the field visits suggest that the low progress of improving secondary and tertiary hospitals has resulted in an extreme burden on tertiary hospitals in provincial capitals and major cities, and as a result, people's access to healthcare is significantly affected.

The demand for healthcare will be accelerated in Pakistan along with the increasing population.

Accordingly, quantitative and qualitative improvements of the health service network is an urgent matter in the country.

6-2 Directions of future assistance

It is proper as a JICA project to extend assistance targeting secondary and tertiary hospitals for the purpose of the improvement of services for maternal and child health.

Although the provincial governments aim to provide basic obstetric care including normal deliveries and caesarean sections at the hospitals of the secondary level, insufficient equipment and deteriorated buildings and facilities impede those clinical services at many hospitals. When these problems are solved, safe delivery care will be ensured at the secondary hospitals. As a result, an increase of institutional deliveries is expected which can be interpreted as an improvement of people's access to obstetric care. Such improvement of the services of secondary hospitals must be planned with a division-wide scope to achieve a desirable outcome.

Under governmental guidance, comprehensive medical care for complicated cases must be provided at the tertiary level in a province, and the current tertiary hospitals are so crowded with patients with common diseases that should be covered at the primary and secondary levels, that they cannot function as a tertiary hospital. Slow progress of tertiary services in remote areas accelerates the concentration of patients in the existing tertiary hospitals. In addition, it causes a heavier burden for patients in remote areas when they are referred to the tertiary level. An improvement of tertiary hospitals to cover remote areas would mitigate the burden of existing tertiary hospitals, and it would contribute to a correction of the disparity in access to healthcare in a province.

It should be possible to extend assistance with a wider scope for the aforementioned improvements of secondary to tertiary hospitals, as well as primary health facilities. A broader effect can be expected. The strengthening of primary facilities such as RHCs which cover antenatal and postnatal care, immunizations and health education, as well as secondary to tertiary hospitals, enables the enhancement of continuous antenatal, delivery and postnatal care including health education to raise the people's awareness.

6-2-1 Improvement of hospital services at division

(1) Improvement of hospital services at secondary hospitals (Figure 6-1: Model 1)

A project of Japan's ODA grant aid to improve medical equipment in DHQ hospitals and THQ hospitals in a selected division is thought to be possible, expecting the strengthening of obstetric and paediatric care at the secondary hospitals in the division.

It is important to cover all the DHQ hospitals and THQ hospitals after a target division is selected in order to improve the secondary services in an area. Apparatuses to be used for obstetrics and gynaecology care can be improved by the project. In addition, other relevant services such as diagnostic and laboratory services, central sterilization departments, etc., shall be included in the scope of equipment provision, in terms of quality hospital care of mothers and newborns.

When the obstetric and paediatric services are improved at the secondary level, better support from the secondary hospitals to the primary facilities can be expected. Such continuous care of mother and child at the primary and secondary levels will be a good platform for emergency obstetric and newborn care in the division, which will be crucial for safe motherhood in Pakistan in the near term.

(2) Improvement of tertiary hospitals located in a city other than a capital of a province (Figure 6-1: Model 2)

Another project of Japan's ODA grant aid to improve the buildings and equipment of departments for maternal and child health of a selected tertiary hospital is thought to be possible, expecting the improvement of people's access to medical services in a province.

It is important to target a province where an improvement of tertiary hospitals can mitigate the disparity or people's uneven access to medical services in the province. And then, a tertiary hospital covering remote areas of the province shall be selected to strengthen the hospital services in its catchment. The departments of obstetrics and gynaecology, paediatrics and other relevant services are thought to be an adequate scope of improvement.

When the tertiary hospital satisfyingly accepts referred patients after its services are strengthened, the people's burden is mitigated when they need diagnosis and treatment at the tertiary level. It will result in another effect to decrease the hospitals' burden in the provincial capital. As a result, the hospital services and patient referrals of the entire province will become stable, and advanced medical services can be introduced when necessary.

(3) Comprehensive Improvement of regional health care (Figure 6-1: Model 3)

A project of Japan's ODA loan to improve regional medical services with a combination of Models 1 and 2 above in the future. Primary levels can be included as well. An application of Japan's ODA loan or yen-loan enables the comprehensive improvement of regional healthcare at the tertiary to the primary level, the promotion of safe institutional delivery, and the establishment of basic and comprehensive emergency obstetric and newborn care.



Figure 6-1: Recommended Models

6-2-2 Improvement of management capacity of health facilities

Buildings, facilities and equipment shall be properly maintained. It is a prerequisite of the expected effects when Japan's ODA grant aid or loan are extended. Proper maintenance can be realized only when a hospital is well-managed with a clear vision that a hospital shall provide quality medical services. It is thought that visited hospitals have a certain level of hospital management capacity because they have prepared patient statistics and hospital budgets, which the survey team requested. For these reasons, it is preferable to extend possible technical assistance on the development of managing capacity in addition to grant aid or loan to improve buildings and equipment.

(1) Maintenance by manufacturer of medical equipment

Generally, the recipient will be responsible for the operation and maintenance of buildings and equipment improved under Japan's ODA grant aid or loan. However, there is no room for maintenance contracts with manufactures in both health departments and hospitals. With this background, it is usually the case that a five-year maintenance contract is required in public procurement for apparatuses that cost more than Rs 10 million in Pakistan. In this regard, it is preferable to include a maintenance contract which meets Pakistan's guidelines by manufacturers

for some equipment for a certain period after the handover in the scope of the ODA project.

(2) Training component of maintenance

Users' adequate operation is another important condition of good maintenance of equipment. Preventive maintenance, namely care to avoid damage, shall be understood and practiced by users. Air conditioning, the water supply, drainage and electricity shall be maintained in good condition. However, failures of apparatuses and facilities occur frequently so the repair time and cost causes a great burden on the hospital and makes it more difficult to manage routine maintenance. In this regard, it is preferable to include a training component of preventive maintenance in Japan's ODA grant aid.

(3) Motivation of better medical services

It is common that hospital workers are poorly motivated for better medical services especially when they feel their services are terribly hindered by a total lack of resources. Their motivation temporary and extremely increases when they see brand-new buildings and equipment ready for use at the completion of a project under Japan's ODA grant aid. Unfortunately, it is not recognized that a greater outcome can be expected if their high motivation is maintained.

This is another need for effective technical assistance on the strengthening of service delivery after the buildings and equipment are improved. For instance, it will be effective to implement a project of technical assistance on capacity development to provide better medical services with the optimum use of limited resources. A core hospital in a region shall be the site. An approach of 5S-KAIZEN-TQM shall be practically introduced.

(4) Medical waste

Some visited hospitals are facing many problems such as scattered garbage, mosquito infestation, and contamination of water and soil in terms of the disposal of medical waste. In general, there is a range of problems including the discharging of substances harmful in developing countries. Furthermore, medical waste, specific apparatuses and costs are required to burn needles and organs such as placenta. Although Japanese assistance is requested from the recipients, it is not easy to provide support in a country where the disposal of general waste has yet to reach satisfactory levels.

On the other hand, good practices are sometimes found in an Asian country although a country's disposal system is not established at all. For instance, selling off reusable metals through a complete separation and thorough sterilization of waste is practiced by a hospital in an Asian developing country.

When the recommended technical assistance is implemented and good managing capacity is developed, improvement in the disposal of medical waste at a hospital referring to Asian good practices and using Japanese technologies can be another priority agenda item of the Japanese assistance to the health sector in Pakistan.

Appendix 1. Schedule of the survey

#	Date		AM	PM
1	30-Apr	Mon	Leaving Tokyo	Arriving at Islamabad
2	1-May	Tue		Meeting with local consultant
2	2 Mari	Wed	JICA Pakistan Office	KfW
3	2-iviay	wed	Karachi>Islamabad *1	ADB
4	3-May	Thurs	Federal Government Service Hospital	WHO
5	4-May	Fri	UNICEF, USAID	DFID
6	5-May	Sat	Technology Links (Pvt) Ltd	
7	6-May	Sun		
0	7 Mov	Mon	Health Dept./ Planning & Development Dept.,	Islamabad > Abbottabad
0	/-1v1ay	WIOII	Government of Khyber Pakhtunkhwa	
9	8-May	Tue	DHQ Hospital Abbottabad	BHU ^{*2} Datta (Mansehra)
10	9-May	Wed	Ayub Teaching Hospital (Abbottabad)	BHU Puno Dheri (Mansehra)
11	10-May	Thurs	King Abdullah Teaching Hospital (Mansehra)	
12	11-May	Fri	Abbottabad>Islamabad	
13	12-May	Sat	PIMS	
14	13-May	Sun	Islamabad>Lahore	
15	14 Mar	Man	Lady Aitcheson Hospital (Lahore)	MEDEQUIPS
15	14-iviay	Mon	Lady Willingdon Hospital (Lahore)	Bio-Tech
16	15-May	Tue	Mayo Hospital (Lahore)	Lahore>Faisalabad
17	16 May	Wad	Allied Hospital (Faisalabad)	DHQ Hospital (Faisalabad)
17	10-1viay	weu		Faisalabad>Lahore
18	17 Mov	Thure	Planning & Development Dept., Government	
10	1 /-1viay	Thurs	of Punjab	
19	18-May	Fri	Service Hospital	ENDOKARE
20	19-May	Sat		
21	20-May	Sun	Lahore>Karachi	
22	21-May	Mon	Health Dept./ Planning & Development Dept.,	Technology Links (Pvt) Ltd
22	21-1v1ay	WIOII	Government of Sindh	
23	22-May	Tue	National Institute of Child Health (Karachi)	
24	23-May	Wed	Civil Hospital (Karachi)	
25	24-May	Thurs	Liaquat University Hospital (Hyderabad)	
26	25-May	Fri	Karachi Children Hospital	
27	26-May	Sat	Allmed Solutions	Karachi>Islamabad
28	27-May	Sun		
29	28-May	Mon	Karachi>Islamabad	
29	20-1v1ay	WIOII	RHC ^{*3} Khayban-e-Sir Syed Rawalpindi	
30	29-May	Tue	Benazir Bhutto Hospital (Rawalpindi)	
31	30-May	Wed	DHQ Hospital (Rawalpindi)	World Bank
32	31-May	Thurs	Holy Family Hospital (Rawalpindi')	JICA Pakistan Office
33	1-Jun	Fri	JICA Pakistan Office	Leaving Islamabad
34	2-Jun	Sat	Arriving at Tokyo	

First Mission (30th April 2018 – 2nd June 2018)

*1 MoNHSR&C/Ministry of National Health Service Regulations & Coordination

*2 BHU/Basic Healthcare Unit

*3 RHC/Rural Health Centre

#	Date		AM	PM
1	4-Aug	Sat	Leaving Tokyo	Arriving at Islamabad
2	5-Aug	Sun		Meeting with local consultant
3	6-Aug	Mon	Health Dept./ Planning & Development Dept., Government of Khyber Pakhtunkhwa	JICA Pakistan Office
4	7 4.02	Tua	Islamabad>Haripur	THQ Hospital Khanpur
4	/-Aug	Tue	DHQ Hospital Haripur	Haripur>Abbottabad
5	8-Aug	Wed	District Health Office Abbottabad	THQ Hospital Havelian
6	9-Aug	Thu	DHQ Hospital Batagram	THQ hospital Oghi
7	10-Aug	Fri	THQ Hospital Balakot	
8	11-Aug	Sat	THQ Hospital Ghazi	Abbottabad>Islamabad
9	12-Aug	Sun		Islamabad>Karachi
10	13-Aug	Mon	Health Dept./ Planning & Development Dept., Government of Sindh	Meeting with local consultant
11	14-Aug	Tue	National Holiday	
12	15-Aug	Wed	Karachi>Hyderabad District Health Office Hyderabad	Liaquat University Hospital
13	16-Aug	Thu	Hyderabad>Karachi	Karachi>Lahore
14	17-Aug	Fri	Specialized Healthcare & Medical Education Dept, Government of Punjab	Planning & Development Dept., Government of Punjab
15	18-Aug	Sat		
16	19-Aug	Sun	Lahore>Faisalabad	
17	20-Aug	Mon	District Health Authority, Faisalabad	Allied Hospital (Faisalabad)
18	21-Aug	Tue	Faisalabad>Islamabad	JICA Pakistan Office
19	22-Aug	Wed		Leaving Islamabad
20	23-Aug	Thu	Arriving at Tokyo	

Second Mission (30th April 2018 – 2nd June 2018)

Appendix 2 Member list of the survey

Kazuhiro Abe	Team Leader/Health System
	International Techno Center Co., Ltd
Kota Yoshifuji	Medical Equipment Plannning International Techno Center Co., Ltd
Masato Utsunomiya	Health Facility Planning
	K.ITO Architects & Engineers Inc.

Appendix 3 List of members concerned

 Ministry of National Health See Dr. Sabee Afzal Dr. Raze Zaudi Hasan Bin Hamza Dr. Urooj Aqeel 	ervice Regulations & Coordination Deputy Director Health Sector Specialist Senior Epidemiologist Research Associate
2. Planning and Development De	epartment, Khyber Pakhtunkhwa Government
Mr. Ozair Rahim	Senior Research Office
3. Health Department, Khyber Pa	akhtunkhwa Government
Mr. Hafeez Ahmed	Plannning Officer
4. Abbottabad District Health Of	fice
Dr. Shah Faisal	District Health Officer
Dr. Shahzad	District Coordinator-MNCH
Dr. Qadir Shah	District Coordinator-Public Health
Dr. Usama Shabir	Medical officer-EPI
Dr. Shahid	District Coordinator-DHIS
Dr. Ashfaq	District Coordinator-Polio
Dr. Fozia Nor	Female Medical Officer
5. Planning and Development De	epartment, Punjab Government
Dr. Shabbana Haider	Member P&DB
Dr. Sajid Rasool	
Mr. Muhammad Abid Razzaq	Senior Chief Health II
Mr. Muhammad Kashif Iqbal	Assistant Chief
Mr. Kinza Bajwa	Consultant P&D
Mr. Uzma Hafeez Assistant	Chief Health
Ms. Saleem Masih	Chief -Health-I
6. Primary & Secondary Health (Care Department, Punjab Government
Dr. Ahmed Sadain	
Mr. Mazhar Mahmood	Procurement Cell
7. Specialized Healthcare & Med	lical Education Department, Punjab Government
Mr. Saqib Zafar	Secretary
Mr. Salman Shahid	Additional Secretary -Technical
Mr. Syed Mhummad Hussain	Public Relation Officer

8. Planning and Development Department, Sindh Government

Ms. Ishtaqe Ahmed	Chief Economist (Health)
Mr. Irfan Ansari	AGM, Chief (Foreign Aid)
Mr. Muhammad Asif	Planning Officer (Foreign Aid)

9. Health Department, Sindh Government

Dr. Dabeer Ahmed Khan	Director of Development & Evolution
Mr. Mohsin A. Shaikh	Additional Director Development & Evolution

10. Hyderabad District Health Office

Dr. Muhammad Asif Shahzad	District Health Officer
Dr. Syed Ata-ul-Munamm	District Coordinator

11. Federal Government Polyclinic Hospital

Dr. Shanid Hauif	
Dr. Maila Israr	Head of Gynaecology Department
Dr. M Ayub	
Dr. Earzana Hayay	Head of Radiology Department
Dr. Shahzad Mumi	Head of Paediatric Department

12. Pakistan Institute of Medical Science (PIMS)

Prof. Jai Krishan	Head of Department of Paediatric (Children Hospital)
Prof. Haider Sherazi	(Children Hospital)
Dr. Rafaqat Ali Butt	Civil Engineer (Children Hospital)
Mr. Hamad	Bio- Medical Engineer (Children Hospital)
Mr. Riaz	Bio- Medical Engineer (Children Hospital)
Mr. Hussan Raza	Bio- Medical Engineer (Children Hospital)
Mr. Nighat Yasmin	Nursing Superintendent (Children Hospital)
Mr. Yahya Shah	Admin Officer (Children Hospital)
Mr. Khalid Riaz	Assistant to Director (Children Hospital)
Dr. Haider Shiraz	Professor (Children Hospital)
Prof. Nadeem Akhtar	Professor (Children Hospital)
Dr. Syeda Batool Mazhar	Head of Department. of MCH Center (MCH Center)
Allah Rakha	Statistical Officer (MCH Center)
Mrs. Nusrat Parveen	Nursing Officer (MCH Center)
Dr. Amber	DID MCH (MCH Center)
Dr. Kamran	Associate Professor (MCH Center)

13. Ayub Teaching Hospital Dr. Shandana Jadon

Assistant Professor of Gynaecology/ Obstetric

Dr. Sardar	Deputy Medical Superintendent
Mr. Amin Ullah	Engineer
14 DHO Hospital Abbottaba	đ
Dr. Aamir Israr	Deputy Medical Superintendent (Admin)
Dr. Khalid Javed	Deputy Medical Superintendent
Mr. Shahid Ahmad	PHC Technologist
Dr. Kausar inayat	Medical Officer
Dr. Hamida Nasir	Senior Medical Officer
Dr. Ajmal Khan	
Dr. Alamgir Khan	Head of Department
15. THQ Hospital Havelian	
Dr. Rubina	Medical Officer -In charge
Dr. Shagufta	Gynaecologist
Dr. Shah Faisal	Abbottabad District Health Officer
16. King Abdullah Teaching I	Hospital
Dr. Javed khan	Medical Superintendent
Mr. Abdul Samad	
Mr. Waqar Khan	Statistical Assistant
17. THQ Hospital Oghi	
Dr. Adnan	Medical Officer-In charge
Dr.Sajjad	Medical Officer
Dr. Tahira	Senior Woman Medical Officer
Dr. Humaira	Woman Medical Officer
Ms. Rozona Naz	Female Technician
Mr. Muhammad Tufail	Medical Technician
18. THQ Hospital Balakot	
Dr. Faiza	Woman Medical Officer
Dr. Shaista	Woman Medical Officer
Mr. Abdul Basit	Medical Technician
19. BHU Datta	
Dr. Saba Bashir	Woman Medical Officer
Alam Zaib Khan	Senior Medical Technician

20. BHU Puno Dheri	
Dr. Arroba	Woman Medical Officer
21. DHQ Hospital Haripur	
Dr. Saif Ullah Khan	Medical Superintendent
Dr. Sardar	Medical Officer
Dr. Misbah Qazi	Gynaecologist
22 Maria Hagnital	
22. Mayo Hospital	Madical Superintendent
Dr. Sood Dutt	Deputy Medical Superintendent
Dr. Saad Bull	Deputy Medical Superintendent
Dr. Irian Dar	Deputy Medical Superintendent
Dr. Anjum	Principal Medical Officer
Dr. Asif	Deputy Medical Superintendent
Dr. Khalid Bin Aslam	Additional Medical Superintendent
Dr. Iqbal	Deputy Medical Superintendent
Dr. Mimpal Singh	Paediatric Medicine
23. Lady Aitchison Hospital	
Dr. Fauzia Syed	Medical Superintendent
Dr. Mustaf	Medical Officer
Dr. Thseen Fatima	Woman Medical Officer
Dr. Sidra Ali	Senior Register
24. Lady Willingdon Hospital	
Prof. Dr. Aisha Mabh	Professor
Dr. M Ather Naqshcandi	Additional Medical Superintendent
Mr. Ali Nawaz	Bio-Medical Engineer
Dr. M Ali Khan	Medical Officer
Dr. Amna Zia Ebsaah	Associate Professor
25. Services Hospital	
Prof. Mehmood Ayyaz	Principal
Prof. Mehmood Waris Farook	Professor of Surgery
Prof. Rehman	Professor of Gynaecology
Prof. Humayun Iqbal Khan	Professor of Paediatric
26 Allied Hourst-1	
20. Alled Hospital	Madical Superinter dent
Dr. Knuram Altaf	Medical Superintendent
Dr. M. Akram	Additional Medical Superintendent (Admin)
Dr. Faheem Yusuf	Deputy Medical Superintendent (Admin)
---------------------------	---------------------------------------
Mr. Muhammad Haseeb Aslar	nBio-Medical Engineer

27. Faisalabad DHQ Hospital	
Dr. Khalid Fakhar	Medical Superintendent
Dr. Rifat Barkat	Statistical Officer
Mr. Faisal Yaqoob	Sub-Engineer
Mr. Irfan Siddique	Bio-Medical Engineer

28. Benazir Bhutto Hospital	
Dr. Arshad Ali Sabir	Medical Superintendent
Dr. Asif Raza Chohan	Additional Medical Superintendent
Dr. Shugafta Saeed	Professor / Head of Obstetrics & Gynaecology
Dr. Humera Naureen	Assistant Professor-Obstetrics & Gynaecology
Dr. Tallat Farkhanda	Assistant Professor-Obstetrics & Gynaecology
Dr. Rai Muhammad Asghar	Professor / Head of Peadiatric

29. DHQ Hospital Rawalpindi	
Dr. Khalid Randhawa	Medical Superintendent
Dr. Farzana Zafar	Additional Medical Superintendent

30. Holy Family Hospital	
Dr. Shahzad Ahmed	Medical Superintendent
Dr. Irfan Bashir	Additional Medical Superintendent
Ms. Rubina	Nursing Superintendent

31. RHC Khayaban-e-Sir Syed Dr. Lubna Ishaov Senior

Senior Woman Medical Officer

32. National Institute of Child Health

Dr. Jamal Raza	Director
Dr. Khalid Mahmood A.Khan	Professor
Dr. Mohsina	Professor
Mr. Majid Ali	Senior Engineer
Dr. Muhammad Anwer	Associate Professor Paediatric Surgent

33. Civil Hospital

Dr. Mohammad Tofique	Medical Superintendent
Dr. Arfniaz	Additional Medical Superintendent

34. Children Hospital

Dr. Manzoor Memon	Medical Superintendent
Mr. Gohar Ali Shah	GM Operations (Poverty Eradication Initiative)
Dr. Fatima Mohabat Ali	CEO
Dr. Ahmed Rashid	Director Operation
Dr. Dabeer Ahmed Khan	Director Development & Evaluation
	(Health Department, Government of Sindh)
Mr. Mohin A. Sheikh	Additional Director Development
	(Health Department, Government of Sindh)

35. Liaquat University Hospital,

Dr. Abdul Wahab Wadho	Medical Superintendent
Dr. Naeem Zia Memon	Additional Medical Superintendent
Mr. Nasurullah	Assistant Engineer

36. The Asian Development Bank, ADBMr. Munir Abro Social Sector Specialist Pakistan Resident Mission

37. World Health Organization, WHO

Dr. Zulfidar Khan	Health System Development
Dr. Jamal Tharbet Nasher	Coordinator- Health System Development

38. Department for International Development, DFID

Mr. Anthony Daly	Health Adviser- Health and Nutrition Team
Mr. Sherwan Asif	Programme Manager
Mr. Naveed Aziz	

39. United Nations Children's Fund, UNICEF

Dr. Kennedy Ongwae	Chief health
Dr. Samia Rizwan	Health Specialist-Maternal, Newborn and Child Health Care

40. United States Agency for International Department, USAID

- Dr. Sangita Patel Health Officer Director
- Dr. Muhammad Ahmed Isa Senior Technical Advisor -Health Office

41. Kreditanstalt für Wiederaufbau, KfW

Dr. Masuma Zaidi Senior Project Coordinator-Health

42. World Bank

Dr. Aliya Kashif Senior Health Specialist

43. Technology Links (Pvt) Ltd

Mr. Kalim Farooqui	Managing Director
Mr. Zubair Farooqui	Director
Mr. Amir Akhtar	Senior Manager (Karachi)
Mr. Gohar Saeed	Senior Manager-Medical Service (Karachi)
Mr. Imtiaz Hussain	Senior General Manager (Islamabad)

44. ENDO-KARE (M. M. & Co.)

Mr. Sardar Hassan Kamran Chief Executive Officer

45. MEDEQUIPS

Mr. Sehikh Muhammad Abrar Director Projects Mr. Muhammad Aftab Alam General Manager-Sales

46. Allmed Solutions

Mr. Imran Danish	Managing Director
Dr. Arman Kaiser	Head of Business Development
Mr. Omar Farooq	Group Product Manager

Appendix 4. Outline of visited facilities

					Number	of Patients	liveries	Be Occup Rate	d ancy (%)	Medical Personnel				I	Budget (1	Million	PKR)			Cha	llenge		
No Facility	Location	Established Year	Туре	Beds	Out patient	In Patiient	Number of De	Obstetrics& Gynaecology	peadatric	Doctor	Nurse	Total	Total	Personnel Expense	Procurement Medical Fauinment	Medicine & Consumables	Maintenance	for Facility	Maintenance for Equipment	Facility and Building	Medical Equipment	Investment plan of hospital	Remarks
1 Services Hospital	Lahore, Punjab	1958	General	1,450	786,357	7 25,080	12,381	130	108	460	802	2 1,263	3,500	1,000	10) 7	22	40	24	Deterioration of Obs&Gyn building	Old and lack of medical equipment in Obs&Gyn	Eight plans in line with the master plan including renovation of obs&gyn	Medical equipment was improved Non- Project Grant Aid(2012)
2 Mayo Hospital	Lahore, Punjab	1871	General	2,399	1,004,227	7 107,086	-	-	154	78 ^{*1}	65 [°]	^{°1} 163 ^{°1}	-	2,200	-	8	50	25	28	Insufficient capacity of ICU	Lack of medical equipment in NICU		*1 the amount of only paeds
3 Lady Aitchison Hospital	Lahore, Punjab	1887	Obs&Gyn	200	100,853	3 29,994	14,500	92	2	79	5:	5 251	387	196	6 1.5	,	65		3.5	Deterioration of facility	Old Equipment for delivery Lack of medical equipment in NICU	/ Extension of delivery room and wards	Affiliated hospital of the Mayo hospital.
4 Lady Willingdon Hospital	Lahore, Punjab	1930	Obs&Gyn	235	77,083	3 39,185	-	126	5	193	182	2 426	656	359		:	80	1.5	1.6	Deterioration of interior, electricty and water supply	Old and lack of equipment in NICU and CSSD.	Construction of new building inclusing management building Improvement of medical equipment	Affiliated hospital of the Mayo hospital.
5 Allied Hospital	Faisalabad, Punjab	1987	General	1,500	124,071*	² 54,503 ^{*2}	6,240	109	121	568	759	9 1,700	2,689	1,225		6	10	14	50	Deterioration of exterior and interrior	Old medical equipment in delivery room and OT Lack of medical euipment i NICU and CSSD	Establishment of Traumatology Center, Renovation of Operating Theatre, Obs&Gyn n department, Paediatric department, and others	*2 the amount of only peads and Obs&Gyn
6 DHQ Hospital, Faisalabad	Faisalabad, Punjab	1956	General	850	914,035	5 35,308	8,125	99	174	520	26	2 788	1,452			3	80	16		Deterioration of interior	Old and lack of medical equipment in Obs&Gyn	Construction of new building inclusing Paeds emergency department, ICU, Obs&Gyn, Brain Surgery and Internal Medicine	
7 Benazir Bhutto Hospital	Rawalpindi, Punjab	1957	General	750	709,709	9 52,447	10,670	228	3 >150	668	26	8 1,064	1,380	707	4.7	2	69	7	7	Lack of space for paediatric NICU and Obs&Gyn department	Old and lack of medical equipment in Obs&Gyn Troubled equipment in CSSD.	Construction of new building inclusing OT, private ward, CSSD, Incinerator, Laudry, Paeds, Hemodialisis and parking.	
8 DHQ Hospital Rawalpin	li Rawalpindi, Punjab	1958	General	453	921,760	45,653	7,322	181	_	269	196	6 525	872	421	4.8	3 2	17 Nil		17	Deterioration of interior	Old and lack of medical equipment in Obs&Gyn. an OT.	Construction of high rise building d The new peads department will be openen in July, 2018.	
9 Holy Family Hospital	Rawalpindi, Punjab	1948	General	1,062	234,125*2	106,827 [*]	37,960	220) 141	200 ^{*2}	80*	2		600	Nil	1	00 Nil		2	Deterioration of facility	Old and lack of medical equipment in Obs&Gyn. an lack of beds in Pediatry Department.	d Renovation of building for Obs&Gyn and Paeds	
10 RHC Khayaban-e-Sir Syee	Rawalpindi, Punjab	1989	RHC	20	104,882	2 2,036	1,049	-	-	9	3	3 19	23	-	-	-		-					
11 National Institute of Child Health	Karachi, Sindh	1962	Paediatric	500	330,074	4 215,441	-	-	100	82	184	4 601	825	327	10		96	56	9	Deterioration of OT and CSSD	Lack of medical equipment in every department and troubled equipment in CSSD.	Construction of Paeds Surgery, Rehabilitation, Oncology, Bio-medical department	
12 Civil Hospital	Karachi, Sindh	1898	General	1,840	1,605,407	7 81,796	-	-	-	645	410	0 1,478	3,830		34	1,0	38 Nil		22	Renovation of facility that histric monument	Old and lack of medical equipment in Obs&Gyn and OT	Construction of medical tower including paediatric department	Teaching hospital of Dow University of Health Sciences/ The graduate's association has been supported the hospital
13 Children Hospital	Karachi, Sindh	2003	Paediatric	213	365,735	5 6,060	-	-	74	115	13	5 325	439	163	22	2	83	21	2.4	1			Established by Japan's grant aid Management by PEI(Poverty Eradication Initiative).
Liaquat University Hospital,Hyderabad	Hyderabad, Sindl	h 1881	General	806	1,048,167	65,619	12,231	-	-	804	300	1516	2,685	1,317	55	6	00	101	19	Deterioration of facility	Old and lack of medical	Expansion of 3 building including MCH Plan to increase 1,050 beds in the Hyderabad hospital and 750 beds in the	
Liaquat University Hospital,Jamshoro	Jamshoro, Sindh	1956	General	700	228,838	8 11,644	2,318	-	-	000	509	1,540		1,439	85	6	14	100	22	Deterioration of facility	equipment	Jamshoro hospital	

Appendix 4. Outline of visited facilities (Continued)

						Number of	f Patients	liveries	Bee Occup Rate (d ancy %)	Medic	al Perso	nnel		Budget	(Millio	on PKF	ł)		Cha	llenge		
No	Facility	Location	Established Year	Туре	Beds	Out patient	In Patiient	Number of De	Obstetrics& Gynaecology	peadatric	Doctor	Nurse	Total Tot	Personnel Expense	Procurement Medical	Equipment Medicine &	Consumables	Maintenance for Facility	Maintenance for Equipment	Facility and Building	Medical Equipment	Investment plan of hospital	Remarks
15	Ayub Teaching Hospital	Abbottabad, KP	1995	General	1,465	111407*2	26449 ^{*2}	-	100	113	205	331	533 1,7	00 1,28	4 25	53	398	43	7	Deterioration of interior	Old and lack of medical equipment in Obs&Gyn, paediatric and CSSD		
16	DHQ Hospital, Abbottabad	Abbottabad, KP	Unknown	DHQ	380	550,599	64,434	3,429	73	-	116	140	54 ^{*2} 4	32 42	2 NI	IL	22	NIL	NIL	Deterioration of interior Unstable electricity	Old and lack of medical equipment in Obs&Gyn and paediatric	Renovation of building including OT	Women and Children Hospital(160beds)is 2 km away for this hospital. Teachinf hospital of Women Medical College (Private)
17	THQ Hosppital Havelian	Abbottabad, KP	1968	THQ	40	82,653	393	300	-	-	25	6	56 -	-	-	-	-	-	-		Old and lack of medical equipment in Obs&Gyn and OT		
18	King Abdullah Teaching Hospital	Mansehra, KP	1976	DHQ	350	704,098	27,095	4,021	100	100	110	106	352 3	28 28	5 0	.4	20	NIL	0.3	Undeveloped of water supply system	Old and lack of medical equipment in the delivery room, peadiatric and CSSD		The new facility was constructed by Saudi Arabia Govearnement as earthquake recovery project. Teaching hospital of Frontier Medical
19	THQ Hospital Oghi	Mansehra, KP	2010	THQ	20	19,526	-	66	-	-	6	1	28 -	-	-	-	-	-	-	Deterioration of interior Unstable electricity	Lack of medical equipment in Obs&Gyn	The new THQ hospital is under costruction by the provincial government	
20	THQ Hospital Balakot	Mansehra, KP	1970s	THQ	10	59,193	1,918	150	-	-	5	3	20 -	-	-	-	-	-	-			The new THQ hospital is under costruction by the provincial government	
21	BHU Datta	Mansehra, KP	Unknown	BHU	-	5,894	-	-	-	-	1	0	6 -	-	-	-	-	-	-				
22	BHU Pano Dheri, Mansehra	Mansehra, KP	1981	BHU	-	11,115	-	4	-	-	2	0	9 -	-	-	-	-	-	-				
23	DHQ Haripur Hospital	Haripur, KP	2008	DHQ	210	283,957	19,358	5,765	98	157	101	129	369 -	47	7 3	34	NIL	NIL	1.2	Lack of space for nursery room Water leakage	Luck of equipment in Obs&Gyn Old equipment in OT		
24	THQ Hospital Khanpur	Haripur, KP	2007	THQ	60	37,988	736	22	-	-	15	3	60 -	-	-	-	-	-	-	Deterioration of interior and exterior	Lack of medical equipment		Upgradedfrom RHC to Category-D in 2018
25	THQ Hospital Ghazi	Haripur, KP	1970s	THQ	45	52,570	1,943	88	-	-	14	3	33 -	-	-	-	-	-	-	Radiation leakage	Old equipment in Obs&Gyn		Upgraded from RHC to Category-D in 2017
26	DHQ Hospital Batagram	Batagram, KP	1993	DHQ	134	213,161	10,703	1,488	91	159	36	56	150 -	17	3 3	35	17	NIL	0.11	Deterioration of facility	Lack of equipment and bed in Obs&Gyn Broken down of stelirizer		
27	Federal Government Polyclinic Hospital	Islamabad	1966	General	545	1,272,306	25,080	6,460	100	96	460	802	503 -	1,00	0 1	10	722	40	24	1	Old and lack of medical equipment in MCH centre	Construction of new building (600 beds)	MCH Center is located 2 km away for this hospital.

NOTE

KP: Khyber Pakhtunkhwa, Obs & Gyn: Obstetrics and Gynaecology, Paeds: Paediatrics, OT: Operation Theatre, CSSD: Central Sterile Supply Department

Appendix 5. Trend of morbidity, mortality and patient referral in visited facilities

					Obstetrics			Peadiatric									
NO.	Facility	Morbidity	Mortality		Referral fr	om		Referral t	0	Morbidity	Mortality		Referral f	rom		Referral	to
		1 America	1 Cardian diaman	Number	From	Reasons	Number	To	Reasons	Sama as Main Causa	1 Ennois	Numbe	From	Reasons	Number	To	Reasons
1	Services Hospital	1.Anaenia 2.GDM 3.HDP 4.APH/PPH 5.Extrauterine pregnancy	2.Eclampsia 3.PPH	224	2.Kot Khawaja Saeed 3.Main Munshi	and medical services at lower facilities.	-	Micine & Oncology 2.Punjab Institute of Cardiology	Cancer chemotherapy	of Death	2.Prematurity 3.Birth Asphyxia 4.Hypoxic Ischemic Encephalopathy(HIE)	180	2.Kot Khawaja Saeed 3.Main Munshi	and medical services at lower facilities	-	-	-
2	Mayo Hospital								1.Acute Respiratory Infection(ARI) 2.Tuberculosis 3.Seizure Disorder 4.Asthma 5.Diarrhoea	1.HIE 2.Neonatal Sepsis 3.Pneumonia 4.Diarrhoea	15,130	1.Lady Aichison Hospital 2.Nawaz Sharif Hospital 3.Kot Khawaja Saeed Hospital	Intensive Care and Respiratory Care	2,108	1.Children Hospital Lahore 2.Institute of Childe Heath Lahore	Diagnostics and medical service for Cardiac Disease patients	
3	Lady Aitchison Hospital	1.Scarred Uterus 2.GDM 3.HDP 4.Anaemia 5.Placenta accreta	1.PPH 2.Pulmonary Embolism 3.Cardiac Disease 4.Sepsis 5.APH	2,700	1.DHQ SharkPur 2.DHQ Sheihupura 3.K.E.Allied Hospitals	APH/PPH, Prematurity, Eclampsia, Uterine Rupture	62	1.Mayo Hospital	Mergers of cardiac diseases, Neonatal resuscitation								
4	Lady Willingdon Hospital	1.Anaemia 2.HDP 3.GDM 4.APH/PPH	1.PPH 2.Anasthesia Complication 3.DIC 4.Sepsis 5.Uterine Rupture	4,320	1.DHQ & THQ Shark Pur 2.THQ Muridkey 3.THQ NarangMandi 4.THQ Sharargar 5.DHQ Narowal	Eclampsia, APH/PPH, Fetal asphyxia	-	1.Mayo Hospital	-								
5	Allied Hospital	1.Eclampsia 2.HDP 3.Comprecated Pregnancy 4.PPH	1.PPH 2.Eclampsia 3.Amniotic fluid embolism 4.Acute Fatty Liver 5.Renal Failure	235	1.DHQ Faisalabad 2.DHQ Jhang 3.DHQ TT Singh 4.DHQ Chiniot 5.THQ Samondari 6.THQ Jueawala	Comprecated Pregnancy	-	-	-	1.Diarrhoea/Dysentery 2.Birth Asphyxia 3.BacrerialSepsis 4.Pneumonia 5.Pre-Maturity	1.Birth Asphyxia 2.Bacrerial Sepsis 3.Pre-Maturity 4.Meningitis 5.Neonatal Jaundic 6.Pneumonia	8,672	1.DHQ Faisalabad 2.DHQ Jhang 3.DHQ TT Singh 4.DHQ Chiniot 5.THQ Samondari 6.THQ Jueawala	Not enough diagnostic and medical services at lower facilities.	-	1.Children Hospital Lahore	Specialized care
6	DHQ Hospital, Faisalabad	I.Breeding of Endometrial origin 2.Fibroid Uterus 3.UterusProlapse 4.Heavy Menstrul Bleeding 5.Ovarian Mass (including Gynaecology)	1.PPH 2.Eclampsia 3.APH 4.Sepsis 5.Complicated Pregnancy with Cardiavascular disease	350	1.THQ Samnaabad 2.RHC Khurianwala 3.THQ Jarawala 4.RHC Satiana	PPH, Amniotic fluid embolism, Birth Asphaysia	-	-	-	1.Birth Asphaysia 2.Birth defects 3.Pre-Maturity 4.Pneumonia 5.Neonatal Sepsis 6.Diarrheoea	1.Birth Asphaysia 2.Pre-Maturity 3.Pneumonia	2,000	THQ, RHC, BHU	Not enough diagnostic and medical services at lower facilities.	100	1.Children Hospital Lahore	Dialysis Treatment, Bronchoscopy, Open heart surgery
7	Benazir Bhutto Hospital (BBH)	1.Anamia 2.Scarred Uterus 3.Oligohydramnios 4.HDP 5.GDM	1.Pulmonary Embolism 2.PPH 3.Peripartum cardiomyopathy 4.Eclampsia	375	1.THQ Kalar Sayedan 2.THQ Kotli Sattiyan 3.THQ Gujar Khan	PPH, GDM, Ruptured Uterus, Birth Asphaysia	7	Nuclear Medicine, Oncology & Radiotherapy Institute(NORI)	Chemical Treament	1.ARI 2.Diarrhea 3.Urinary Tract Infection(UTI) 4.Neonatal Sepsis 5.Birth Asphaysia	1.Neonatal Sepsis 2.Pre-Maturity/LBW 3.Birth Asphaysia 4.Pneumonia 5.Respiratory Distress Syndrome(RDS)	630	1.PIMS 2.DHQ Rawalpindi 3.THQ Kallarsyedan 4.HFH 5.Sifa International Hospitals	Intensice care & Resperatory contorl	36	1.PIMS 2.Rawalpindi Institute of Cardiology 3.HFH	
8	DHQ Hospital Rawalpine	I.Anaemia 2.Hypertensive 3.Diabetes 4.Obstetric haemorrhage 5.Infection diseases	1.Pulmonary Embolism 2.Obstetric haemorrhage 3.Eclampsia 4.Cerebrovascular attack	369	-	PPH, Sepsis, Comprecated Pregnancy	1,310	1.BBH 2.HFH 3.NORI 4.PIMS	Patient needed for neonatal care	1.Transect Tachypnoea of the New born(TTN) 2.Birth Asphaysia 3.Maconium Aspiration pnemonia 4.Preterm babies 5.Sepsis	1.Neonatal Asphyxia 2.Pre-Maturity/LBW 3.Sepsis	-	-	-	987	1.BBH 2.HFH 3.NORI 4.PIMS	Patients needed for Birth Asphaysia (NICU 7 Beds)
9	Holy Family Hospital (HFH)	1.Puerperal Fever 2.Scarred Uterus 3.Hemmorrahage 4.Uterine Prolapse	1.APH/PPH 2.Sepsis 3.Eclampsia 4.Uterine Rupture	42,000	-	-	-	-	-	1.ARI 2.Diarrhoea 3.Fever	1.Pre-Maturity/LBW 2.Diarrhoea 3.Neonatal Sepsis 4.Birth Asphaysia	10,000	-	-	-	-	-
10	RHC Khayaban-e-Sir Syed	1.Pregnancy 2.Comprecated Pregnancy 3.Anaemia	-	-	-	-	87	1.BBH 2.HFH 3.DHQ Hospital Rawalpindi	Complicated delivery	1.ARI 2.Diarrhoea 3.Fever 4.Measles	-	-	-	-	270	1.BBH 2.HFH 3.DHQ Hospital Rawalpindi	Traffic accident, Diarrheoea, Respiratory Infection

Appendix 5. Trend of morbidity, mortality and patient referral in visited facilities (Continued)

					Obstetrics			Peadiatric									
NO	. Facility	Morbidity	Mortality		Referral fi	om		Referral	to	Morbidity	Mortality		Referral fr	om		Referral	to
11	National Institute of Child Health (NICH)			Number	From	Reasons	Number	То	Reasons	1.Pneumonia 2.Diarrhoea 3.Neonatal Sepsis	1.Neonatal Sepsis 2.RDS 3.Pneumonia	Numbe -	r From	Reasons Advance medical treatment	Numbe -	- To	Reasons Diagnostics and medical service for Cardiac Disease
12	Civil Hospital	1.PPH 2.Eclampsia 3.Sepsis 4.Alveolar mole 5.GDM	1.PPH 2.Aminotic fluid Embolism 3.ardiac disease 4.Sepsis	No data	1.Jinnah Postgraduate Medical Centre(JPMC) 2.Abbasi Shaheed 3.Aga Khan University Hospital 4.Private Hospitals	Not enough diagnostic and medical services at lower facilities.	-	-	Lack of beds	1.Pneumonia 2.Diarrhoea 3.Malnutrition 4.Malaria	4.Tetanus 1.Pneumonia 2.Meningitis 3.Malnutrition 4.Malaria	-	1)JPMC 2)Abbasi Shaheed Hospital 3)Private Hospitals	Not enough diagnostic and medical services at lower facilities.	-	-	patients Lack of beds
13	Karachi Children Hospital							1.Pneumonia 2.Malnutrition 3.Meningitis 4.Measles 5.TB	1.Neonatal Sepsis 2.Pre-Maturity/LBW 3.Birth Asphaysia 4.Pneumonia 5.Respiratory Distress Syndrome(RDS)	-	Self-ri	eferred	2,616	1.NICH 2.Civil Hospital 3.Abbasi Shaheed Hospital	Intensive care, Respiratory control, CT diagnosis		
14	Liaquat University Hospital	Complicated Pregnancy Complicated Pregnancy with Cardiavascular disease Sepsis	1. PPH 2. Transfusion reaction 3. Eclampsia 4. Sepsis	-	-	-	-		-	1.Birth Asphaysia 2.Congenital Anomaly 3.Pre-Maturity 4.Diarrhoea	1.Diarrhoea 2.Meningitis 3.Birth Asphaysia 4.Neonatal Sepsis	-	-	-	-	-	-
15	Ayub Teaching Hospital (ATH)	1.Eclampsia 2.Ectopic pregnancy 3.Complicated Pregnancy 4.PPH	1.PPH 2.Eclampsia 3.Pulmonary Embolism 4.Cardiac disease	-	1)DHQ Abbottabad 2)DHQ Mansehra 3)DHQ Haripur 4)DHQBatagram 5)DHQ Kohistan 6)Private Hospital	-	-	-	Cardiology care	1.ARI 2.Neonatal Sepsis 3.Diarrhoea 4.Measles	1.Late referral 2.Meseals 3.Pneumonia 4.Communicable disease 5.Neonatal sepsis	-	DHQ &THQ hospitals and other private hospitals in Hazara division	Infection, Pneumonia, Premature complication	-	1.PIMS 2.Hayatabad Medical ComplexPeshawar 3.Lady Rading Hospital Peshawar 4.Children Hospital Peshawar	Aplastic anaemia Intensive respiratory care, Liver transplantation
16	DHQ Hospital, Abbottabad	-	-	-	1)RHU 2)BHU	Complehesive EmONC	-	1.ATH	Lack of blood product, ICU Care	1.Unknown 2.Diarrhoea 3.ARI 4.Pneumonia	-	-	RHU and BHU in the district	-	-	АТН	Intensive care, Perinatal care
17	THQ Hosppital Havelian	1.PPH 2.Deep Vein Thrombosis(DVT) 3.Sepsis	1.APH/PPH 2.Eclampsia 3.Uterine rupture	-	BHU, LHW, TBA	Sharing information about prenant women	16	1.ATH	Anaemia, PPH, Copmlicated Prengnacy	-	-	-	-	-	-	АТН	-
18	King Abdullah Teaching Hospital (KATH)	1. PPH 2. Anemia 3. Complicated Pregnancy	1.Eclampsia 2.PPH 3.Pulmonary Embolism	-	1.Civil Hospital 2.Nainazbad 3.THQ Balakot	Eclampsia, Hemmorrahage, Caesarean Section	404	1.ATH	Other Obsteric Complications, Eclampsia,Diabetes Mellitus	1.Diarrhoea 2.ARI 3.Measles 4.Unknown fever 5.Birth Asphaysia	1.Pneumonia 2.Birth Asphaysia 3.Neonatal sepsis 4.Pre-Maturity/LBW	-	1.Civil Hospital 2.Nainazbad 3.THQ Balakot 4.Civil Hospital Garhi Habib Ullah	Diarrhoea, Pneumonia, Meningitis	-	АТН	Advanced medical treatment, CT diagnosis, cardiology care
19	THQ Hospital Oghi	1. Anaemia 2. HDP 3. GDM	1. Ecampsia 2. PPH 3. Sepsis 4. Severe anaemia	-	RHC,BHU	Consultation of Specialist, Complicated pregnancy, ANC,PNC	-	1.KATH 2.ATH	APH/PPH, Caesarean Section	-	-	-	-	-	-	-	-
20	THQ Hospital Balakot	1. Anaemia 2. Eclampsia 3. Puerperal Fever 4. APH/PPH 5. HDP	1.APH/PPH 2.Delivery by non-Skilled Birth Attendant	162	RHC,BHU	Normal delivery, ANC,PNC	124	1.KATH 3.ATH	APH/PPH, Caesarean Section, Eclampsia,	1.Pneumonia 2.Anaemia 3.Diarrhoea 4.Malnutrition 5.Infectious disease	-	29	RHC, BHU in Balakot Teshil	Pneumonia, Diarrhoea, Malnutrition	69	1.KATH 2.ATH	
21	BHU Datta	-	РРН	-	-	-	1	1.KATH	Ultrasound examination	-	-	-	-	-	2	KATH	Diagnostics and medical service for Cardiac Disease patients
22	BHU Puno Dheri, Mansehra	-	-	-	-	-	226	1.KATH 2.ATH	Pregnancy Hipertension syndrome, Anomalies, Severe anemia	1.ARI 2.Diarrhoea 3.Unknown fever 4 Dog bite	-	-	-	-	-	1.KATH 2.ATH	Diarrhoea, Pneumonia

Peadiatric Obstetrics Referral to Referral from Referral from Referral to NO Facility Morbidity Mortality Morbidity Mortality Number From Reasons Number To Reasons Jumber From Reasons Numbe To Reasons .Pneumonia .Neonatal Sepsis Advance medical Diagnostics and National Institute of Child 2.Diarrhoea 2.RDS treatment medical service for 11 Health (NICH) Neonatal Sepsis Cardiac Disease .Pneumonia Tetanus patients 1 PPH 1 PPH Lack of beds 1) IPMC No 1.Jinnah Postgraduate Not enough diagnostic 1.Pneumonia .Pneumonia Not enough diagnostic Lack of beds 2.Eclampsia 2.Aminotic fluid Embolism data Medical ind medical services at 2.Diarrhoea 2.Meningitis 2)Abbasi Shaheed and medical services a entre(JPMC) 3.Malnutrition 3.Sepsis 3.ardiac disease wer facilities 3.Malnutrition Hospital wer facilities. 12 Civil Hospital 4.Alveolar mole 4.Sepsis Abbasi Shaheed 4 Malaria 4.Malaria 3)Private Hospitals 5.GDM 3.Aga Khan University Hospital 4.Private Hospitals 1.Pneumonia .NICH Neonatal Sepsis Intensive care. 2.Pre-Maturity/LBW .Civil Hospital 2.Malnutrition Respiratory control, 3.Meningitis 3.Birth Asphaysia 3.Abbasi Shaheed CT diagnosis 13 Karachi Children Hospital 4.Measles 4.Pneumonia Self-referred 2,616 Hospital 5.TB 5.Respiratory Distress Syndrome(RDS) .Anaemia 1.PPH/APH THQ hospital in CEmONC 1.ATH Complicated . Diarrheoa . Measels THQ, RHC, BHU in Operation, .ATH ICU, hi-level diagnosis APH/PPH 2.Eclampsia 2.PIMS 2.PIMS Haripur district 2. ARI . Diarrheoa Hospitalization pregnancy Haripur 23 DHQ Haripur Hospital **GDM** ARI 8 Fever 3 .Mutiple pregnancy Malnurtrition . Malnutrition . Measels 1.APH/PPH 1.Eclampsia LHW, BHU, RHC lormal delivery, 1. DHQ hospital Anaemia, Multiple Diarrheoa .DHQ hospital 2.APH/PPH ANC,PNC Malnurtrition Infectious disease Haripur regnancy Haripur 24 THQ Hospital Khanpur . ARI 3.Eclampsia 3.Infectious disease 2.ATH 2 ATH 4.Death related HDP BHU,RHC 1. DHQ hospital 1.DHQ hospital NICU, PICU I.Anaemia 1.Eclampsia Anaemia, Complicated Anaemia,Caesarean 25 THQ Hospital Ghazi 2.APH/PPH 2.PPH pregnancy 180 Haripur Section 170 Haripur 2.ATH 2.ATH Complicated pregnancy 1.HDP .Cardiac Disease BHU,RHC Anaemia, Complicated 1.ATH Anaemia, Complicated 1.Diarrheoa .Diarrheoa .ATH NICU, PICU 2.Eclampsia 2.Eclampsia ARI .ARI pregnancy orengancy 3.Measels 3.PPH 3.Amniotic fluid embolis 3.Measels 26 DHQ Hospital Batagram -4.Severe anaemia 4.Intrahepatic cholestasis 4.Neonatal Sepsis I.Neonatal Sepsis of Pregnancy(ICP) 5.Low-birth weight infant 1.PPH Assad Jam Kashmir, Other Obsteric 1)PIMS Self referral, ICU care 1.ARI .Pneumonia 1.PIMS Lack of beds, 2.Pulmonary Embolism 2)AFIC CVA 2.AFIC Gilgit-Baltidtan, Complications. 2. Malnutrition 2.Meningitis Quarantine care. Federal Government 27 3.Eclampsia 128 Islamabad Caesarean Section 120 3)NORI 3.Pneumonia 3.Diarrheoa 71 3.NORI Cancer and cardiology Polyclinic Hospital 4.Meningitis 4.Sepsis care

Appendix 5. Trend of morbidity, mortality and patient referral in visited facilities (Continued)

NOTE:

GDM: Gestational Diabetes Mellitus, HDP: Hypertensive Disorder of Pregnancy, APH: Antepartum Haemorrhage, PPH: Postpartum Haemorrhage, DIC: Disseminated Intravascular Coagulation, ICP: Intrahepatic cholestasis of Pregnancy, ARI: Acute Respiratory Infection, UTI: Urinary Tract Infection