Data Collection Survey on Health Sector

Country Report
People's Republic of Bangladesh

October 2012

Japan International Cooperation Agency
(JICA)

KRI International Corp.

TAC International Inc.

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This report is prepared to support JICA's country operation in health through strategic programming. The contents, however, may need to be supplemented with the latest and more detailed information by the readers since the report is mainly based on literature review and not on field study, with the exception of some countries.

Foreword

Background

The current situation surrounding the health sector in developing countries has been changing, especially at the start of the 21st century. Based on the recommendations from the concept of "Macroeconomics and Health"[1], development assistance for health has greatly increased to accelerate efforts to achieve the Millennium Development Goals (MDGs) by 2015. The development assistance for health has risen sharply from USD 10.9 billion to USD 21.8 billion in 2007[2]. Moreover, development assistance was harmonized by the common framework developed at the three consequent high-level forums in Rome (2003), in Paris (2005) and in Accra (2008).

Regardless of such favorable environmental changes for the health sector in developing countries, the outcomes do not seem to reach the level of expectation in many countries. Many developing countries, particularly Sub-Saharan African countries, will not achieve some of their MDGs 4 (Reduce child mortality), 5 (Improve maternal health) and 6 (Combat HIV/AIDS, malaria and other diseases) by 2015. Therefore, while raising more money for health is crucial for lower-income countries striving to move closer to universal coverage[3]; "More Money for Health[4]", it is just as important to get the substantial health gains out of the resources available; "More Health for Money[5]". Efficiency is a measure of the quality and/or quantity of output of services for a given level of input, and improving efficiency should also be seen as a means of extending coverage for the same cost and the improved health outcomes.

Considering this situation surrounding the health sector in developing countries, in a recent movement of its development assistance work, JICA has been working on country-based analytical work. This consists of macro level and sector wide analytical work aiming to clarify JICA's aid direction in each country by looking at priority areas of concern and aid mapping. The purpose of the Data Collection Survey on Health Sector is to contribute to JICA's analytical work efforts. In the past, JICA's analytical efforts were concentrated on the project planning purpose, as a consequence, information gathered in such analytical works were naturally limited to be around the particular projects. It is therefore thought to be important for JICA to conduct a country-based health sector review to gather complete information and analyze the whole sector to learn about the situation of the country and identify high priority problems and issues to be tackled in the health system.

Objectives of the Study

The key to the formulation of a good project is having conducted thorough sector reviews. Good sector reviews and analyses help us to understand the health situation and its determinants, and the capacity for health project implementation in the countries. They also help us to contribute to the countries for identifying the feasible projects in the context of priorities and developing the necessary policies and strategic planning for the health service delivery. It is also necessary to conduct such health sector review studies on a regular basis in order to develop and implement effective and efficient health projects. Based on this concept, JICA decided to carry out the sector review studies of 23 selected countries. The objectives of the sector review are to give recommendations to JICA on the aid direction for the health sector in each country, and to improve strategic approaches and the efficiency of aid cooperation.

Structure of the Report

The health sector study country report consists of seven chapters. Chapter 1 is the summary of the socio-economic situation of each country. Chapter 2 is an analysis of the national health policy, strategic approaches, and plans. Chapter 3 describes the health situation of each country to show the priority health problems by using health information and data. Chapter 4 is an analysis of the health service delivery function of each country, while Chapter 5 is an analysis of other functions of the country's health system namely: human resources for health, health information systems, essential medical products and technologies including the health facilities, health financing, and leadership and governance. Chapter 6 is an analysis of the development partners' assistance and cooperation. Based on the above analysis, Chapter 7 provides recommendations to JICA on the strategic areas of cooperation and its approaches.

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1 WHO announced "Macroeconomics and Health: Investing in Health for Economic Development" in December, 2000. This regards Health is an intrinsic human right as well as a central input to poverty reduction and socioeconomic development and the process helps place health at the centre of the broader development agenda in countries.

2 Ravishankar N., Gubbins P. Cooley J.R., et. al; June 2009; Financing of global health: tracking development assistance for health from 1990 to 2007; the Lancet 373:2113-2132

3 According to WHO, Universal coverage (UC) is defined as ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship. (http://www.who.int/health_financing/universal_coverage_definition/en/index.html)

4 In the World Health Report 2010 (WHO), the report advocates it with the following concrete three suggestions as the requirements; 1) Increase the efficiency of revenue collection, 2) Reprioritize government budgets, and 3) Innovative financing. As the forth suggestion, it advocates increasing development aid and making it work better for health.

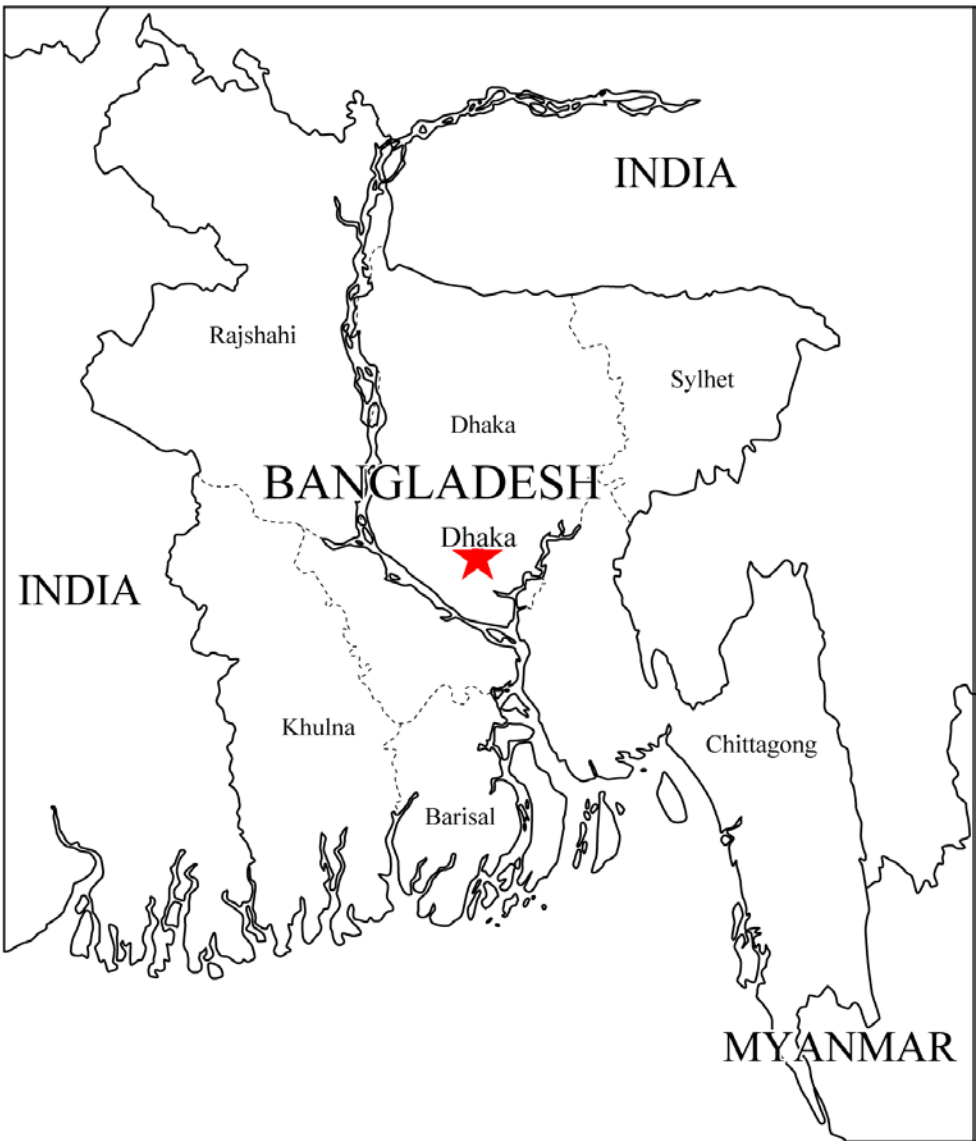
5 The World Health Report 2010 also suggests the needs of improving the efficacy in the health systems and eliminating the inefficiency/waste will enable the poor countries to improve the availability and quality of the services.

Abbreviation and Acronyms

ACT	Artemisinin-based Combination Therapy
ADB	Asian Development Bank
AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-retroviral Therapy
AusAID	Australian Agency for International Development
BCC	Behavior Change Communication
BCG	Bacillus Calmette Guerin
BDHS	Bangladesh Demographic Health Survey
BEmOC	Basic Emergency Obstetric Care
BFS	Bangladesh Fertility Survey
BMI	Body Mass Index
BMMS	Bangladesh Maternal Health Services and Maternal Mortality Survey
BNHA	Bangladesh National Health Account
BRAC	Bangladesh Rural Advancement Committee
BSS	Behavioral Surveillance Survey
CC	Community Clinic
CEmOC	Comprehensive Emergency Obstetric Care
CG	Community Group
CHCP	Community Health Care Provider
CHW	Community Health Worker
CIDA	Canadian International Development Agency
CMMU	Construction Management and Maintenance Unit
CMSD	Central Medical Stores Depot
CSBA	Community-based Skilled Birth Attendant
CSG	Community Support Group
DFID	Department for International Development
DGDA	Directorate General of Drug Administration
DGFP	Director General Family Planning
DGHS	Director General Health Service
DIC	Drop-in center
DOTS	Directly Observed Therapy Short-course
DPT	Diphtheria, Pertussis, Tetanus
DSF	Demand Side Finance
EC	European Commission
EPI	Expanded Programme on Immunization
ESD	Essential Service Delivery
EmOC	Emergency Obstetric Care
FP	Family Planning
FSW	Female Sex Worker
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor

GAVI-HSS	Global Alliance for Vaccine and Immunization - Health System Strengthening
GII	Gender Inequality Index
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNI	Gross National Income
GOB	Government of Bangladesh
HA	Health Assistant
HDI	Human Development Index
HED	Health Engineering Directorate
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HNPSP	Health, Nutrition and Population Sector Program 2003-2011
HPNSDP	Health, Population and Nutrition Sector Development Program 2011-2016
HRH	Human Resource for Health
HTC	High Tuberculosis Burden Countries
IDA	International Development Association
IDU	Injecting Drug Users
IMCI	Integrated Management for Childhood Illness
IPHN	Institution for Public Health Nutrition
ITN	Insecticide-Treated Mosquito Net
JICA	Japan International Cooperation Agency
LCG-Health	Local Consultative Groups-Health
LLIN	Long Lasting Insecticide-Treated Net
LLP	Laval Level Planning
LMIS	Logistic Management Information System
MA	Medical Assistant
MARP	Most-at-Risk Population
MDA	Mass Drug Administration
MDGs	Millennium Development Goals
MDR-TB	Multidrug-Resistant Tuberculosis
MICS	Multiple Indicator Cluster Survey
MNCAH	Maternal, Neonatal, Child, and Adolescent Health Care
MOH&FW	Ministry of Health and Family Welfare
MOLGRD	Ministry of Local Government, Rural Development and Co-operatives
MSM	Men who have Sex with Men
NASP	National AIDS/STD Programme
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
NIPORT	National Institute of Population Research & Training
NMCP	National Malaria Control Program
NNP	National Nutrition Project
NNS	National Nutrition Service
NSAPR-II	Second National Strategy for Accelerated Poverty Reduction
NTDs	Neglected Tropical Diseases

NTP	National Tuberculosis Programme
ODA	Official Development Assistance
OP	Operational Plan
OPP	Outline Perspective Plan
PHC	Primary Health Care
PIP	Programme Implementation Plan
PLMS	Procurement and Logistics Management Cell
PMIS	Personnel Management Information System
PMMU	Program Management and Monitoring Unit
PPM	Public Private Mix
PPP	Public Private Partnership
PRSP	Poverty Reduction Strategy Paper
PRSP-II	Poverty Reduction Strategy Paper II
PWD	Public Works Department
RDT	Rapid Diagnostic Test
SACMO	Sub-Assistant Community Medical Officer
SBA	Skilled Birth Attendant
SFYP	Sixth Five Year Plan
SIDA	Swedish International Development Cooperation Agency
STD	Sexually Transmitted Disease
STH	Soil-Transmitted Helminths
SVRS	Sample Vital Registration System
SWAps	Sector-Wide Approaches
TB	Tuberculosis
TEMO	Transportation and Equipment Maintenance Organization
TFR	Total Fertility Rate
U5MR	Under 5 Mortality Rate
UH&FWC	Union Health and Family Welfare Center
UHC	Upazila Health Complex
UHS	Upazila Health System
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing
WB	The World Bank
WFP	World Food Programme
WHO	World Health Organization
WHO-GHO	WHO Global Health Observatory
icddr,b	International Center for Diarrhoeal Diseases Research, Bangladesh



Note: In 2010, 8 Northern districts were removed from Rajshahi Division and became Rangpur Division (not shown on the map).

Source: http://www.freemap.jp/asia/asia_bangladesh_all.html (accessed 04/2012)

People's Republic of Bangladesh

Summary

1. For the last five years the People's Republic of Bangladesh ("Bangladesh" hereafter) needed to maintain an economic growth rate of an average 6.2%, which is considered a stable growth. However, the gross national income (GNI) per capita of Bangladesh is 700 US $, which is still low, and 32% of the whole population live below the poverty line. Health status, poverty, size of the population and gender are closely related and especially in Bangladesh have a major effect on the performance of interventions in the health sector.

2. The Awami Government, which had been established in 2008, announced the "Outline Perspective Plan (OPP) 2010-2021" in 2010 with the purpose to materialize its "Vision 2021". The government settled on the Sixth Five Year Plan (SFYP) as a national medium-term plan. In the health sector, the National Health Policy was revised in 2011 in order to respond to issues such as maternal and child health and improvement of nutrition. Provision of highly advanced health care and delivery of services to the socially vulnerable are also included as one of the objectives. "Health, Population and Nutrition Sector Development Program (HPNSDP) 2011-2016" is now in effect as a third sector program. HPNSDP's priorities are efficient delivery of services, strengthening of Upazila Health System (UHS) on the basis of Community Clinics (CC), decentralization, Local Level Planning (LLP) and strengthening of nutrition services.

3. For the last twenty years the health situation in Bangladesh has greatly improved. Disease patterns have changed from communicable diseases to the "double burden of diseases" . While communicable diseases remain a challenge, noncommunicable diseases are emerging and imposing a new burden on the country. With demographic transitions the burden on public services may increase. Though the maternal mortality ratio (194 per 100,000 live births in 2010) is decreasing, it is still relatively high, which is why it is necessary to further strengthen health services. Mortality rate of under-five and that of infants are declining and there is a high possibility for the country to achieve Millennium Development Goals (MDGs) in 2015. On the other hand, as the neonatal mortality rate is still high it is necessary to intensify measures. The spread of HIV remains localized while the Tuberculosis prevalence rate is declining. However, the number of reported cases of malaria is still high, despite the fact that the malaria death rate has already decreased to the level which MDG specifies. Death rate due to diarrhea is declining. Concerning Neglected Tropical Diseases (NTDs), filariasis and dengue fever are still active. Mortality rate of noncommunicable diseases shows a tendency to rise. According to an estimate of WHO, 62% of deaths in the period 2007 to 2010 were caused by noncommunicable diseases, especially cardiovascular diseases, cancers and injuries.

4. A specific feature of the delivery system of public health service in Bangladesh is that two Directorates are involved: the Directorate General of Health Services (DGHS) working in the field of health services and the Directorate General of Family Planning (DGFP) active in the field of family planning. Coordination between the two Directorates and efficient utilization of human resources and materials are important issues. Furthermore, a large number of NGOs and private institutions with a partnership agreement with the Government of Bangladesh are delivering services inside and outside the government program, contributing a lot to the improvement of health indicators. The establishment of "Upazila Health System" (UHS), which covers the level of Upazilas, became the center of attention as a new strategy to strengthen the primary health care (PHC). Maternal and child health services are being delivered as the essential service package and Emergency Obstetric Care Program. However, there are still problems to be solved, such as the low ratio of births in institutions and of births attended by skilled birth attendants (SBA), shortage of nurses and so on. Owing to many years of efforts in family planning services, contraceptive prevalence is gradually increasing. In child health services, high immunization coverage could have been achieved through Expanded Program on Immunization (EPI) but service coverage is still low in nutrition programs. With the support of the Global Funds To Fight AIDS, Tuberculosis and Malaria (the Global Fund) and others, AIDS control programs have been strategically in effect since the early stage, not without success. Due to strengthening of the examination system, reported cases of malaria have increased. Improvement in malaria treatment methods has considerably lowered malaria mortality rate. The Tuberculosis control has improved due to the effective enforcement of case finding and treatment, increased funds from outside, and strengthening of testing and surveillance system.

5. The most important problem in Bangladesh' health system is human resource. Universal coverage of services has not yet been achieved not only because the absolute numbers of doctors, nurses and medical engineers[6] are insufficient but also due to challenges such, as the concentration of human resource in urban areas, insufficient management of quality, and imbalanced skill-mix[7]. There are many NGOs, private clinics and hospitals and the ratio of unqualified service providers in rural areas is very high. As there are neither standards nor systems to maintain the quality of the care delivered by providers, management of private sector's quality is also a problem. Because health services delivered by the government is not satisfactory, and because there are more private facilities available to the people, utilization of private services has increased, which partly causes raising the rate of expenditure for medical treatment. As for medical equipment, though a list of standard of medical equipment has been made available, there are many problems in the arrangements. Allotting insufficient budget, and weak maintenance system and technology also play a role, resulting in a decline in the quality of the services. Regarding health information, as there are many information systems it is essential to integrate, manage and make good use of necessary data. The drug and medical equipment supply system does not meet the needs resulting in a shortage of stocks, deficient procurement system, insufficient budget, etc. Health expenditure per capita is US $ 57 (purchasing power parity), which is the lowest among neighboring countries. Total health expenditure of GDP is 3.5% and public health expenditure of total health expenditure is 1.2%, both of which are very low. On the other hand, the ratio of health expenditure of total household expenditure is increasing, which means the burden on individual is becoming larger and which may affect the access of poor people to health services.

6. Bangladesh is one of the countries that introduced Sector-Wide Approaches (SWAps) in health sector in the '90s and is now carrying out the third sector program. 62.5% of the assistance of development partners will be contributed to the pool fund, an account which is administered by The World Bank. Assistance cooperation is being conducted mainly with Local Consultative Groups (LCG-Health) and their sub-groups (as of July 2012 called Task Groups and Working Groups). Moreover, "Bangladesh Development Forum", a Bangladesh donors' conference, is being held almost every year.

   Since 2000 Japan has been providing technical assistance for maternal and child health, communicable disease control, arsenic mitigation project as well as providing grants for medical equipment and materials. It is considered important to expand technical cooperation with the aim to improve administration capacity of local governments and strengthen the local health system through maternal and child health projects in the future. In addition, assistance to human resource development sector and cooperation specialized in poor and remote areas are considered to be important. Furthermore, in the long run, it is necessary to include assistance in the area of noncommunicable diseases control, which will become more important in the future, and introduction of a health insurance system.

[6] Medical technicians/technologists or professionals who work in the areas of clinical laboratory test, radiographic examination, physiotherapy, drug management and dispensing, dentistry etc. All of them are either university graduates or technical school graduates.

[7] Skill-mix means a mix of staff with different categories in the workforce (or working jointly). In a broader meaning, it aims to deliver effective and efficient care by a mix of multi professions and by transfer and alternation of authority among them.

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Country Report
People's Republic of Bangladesh

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Chapter 1 Country Situation

The People's Republic of Bangladesh (hereafter referred to as "Bangladesh"), after liberalizing its economy along with political democratization in 1991, has maintained an average economic growth rate of 4.5% in 90's. From 2002 to 2011 the growth rate was 6.0% on average, with an average of 6.2% during the past five years. Due to its stable economic growth, Bangladesh is the only state among poor countries that has been identified as one of the rising nations of "Next 11"[8] following BRICS[9] countries, and attracts attention as a potential center of industry and a promising market. Furthermore, macro-economic indicators of the country, such as a financial deficit and foreign currency reserves, are improving. However, as gross national income (GNI) per capita remains low, Bangladesh is given the status of a low income country[10]. Non-continuity of policies, due to antagonism between the two largest parties, and problems in governance such as of the increase of corruption and insufficient legal order are the major restricting factors for realization the country's potential of economic growth and development [1][2].

Table 1-1 Major Demographic and Socioeconomic Indicators

Indicator/Index	Unit	Value	Year	Source
Total population	Million	150.5	2011	UNDP
Population growth rate (average annual growth)	%	1.3	2011	UNDP
Urban population (% of total)	%	28.6	2011	UNDP
Life expectancy				
Economic growth rate	%	6.1	2010	WDI
GNI per capita	US$	700	2010	WDI
Ratio of government development aids against GDP	%	0.8	2009	UNDP
Population below income poverty line: PPP 1.25 US$ a day	%	49.6	2000-2009	UNDP
Population in severe poverty	%	26.2	2007	UNDP
Total adult literacy rate (>15 years old)	%	55.9	2009	WDI
Primary school gross enrolment ratio (female) / Survival rate to last primary grade (female)	%	97 / 67-80	2000-2010	UNICEF
Gender Inequality Index (GII)	rank in 179 countries	112	2011	UNDP
Human Development Index (HDI)	rank in 179 countries	146	2011	UNDP

Sources: 1. UNDP (2011), Human Development Report 2011 [3]
2. UNICEF (2011), The State of the World Children 2012 [4]
3. The World Bank (2011), World Development Indictors & Global Development Finance Database [5]

Health status, poverty, population and gender are closely related. Especially in Bangladesh, these factors greatly influence the performance of interventions in the health sector. Bangladesh could have surely attained a major reduction in poverty[11]. However, 31.5% of the total population is still poor with much inequality, including the gap between the rich and poor and between regions. This inequality is pointed out as a new poverty problem [2]. Gender is an important health determinant since it is closely linked to nutrition and health status of women and children, fertility rate and violence. This is especially true in a country like Bangladesh whose GII is high.

8 NEXT 11 are the eleven countries identified by the Economic Research Department of Goldman Sachs investment bank in December 2005 as having a high potential of being highly-influential economies in the world in 50 years' time.

9 BRICS is the title of an association of leading emerging economies consisted of **B**razil, **R**ussia, **I**ndia, **C**hina and **S**outh Africa.

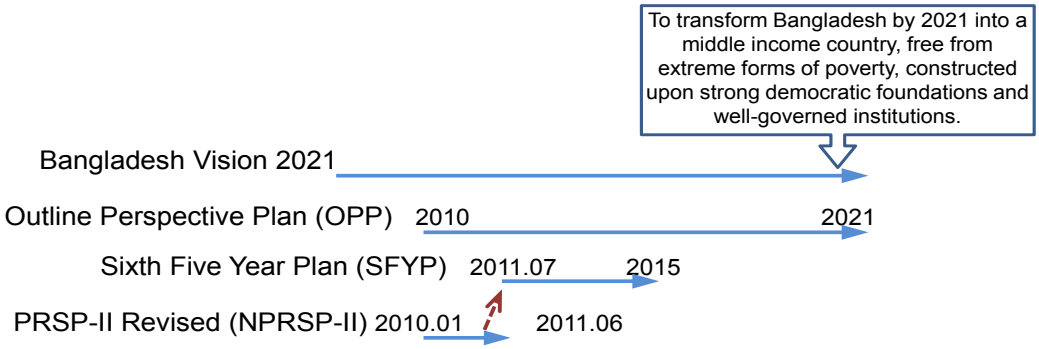
10 Classification according to GNI per capita (Atlas method, 2010): Low income countries: 1,050 US$ or less, Lower middle income countries: 1,006 - 3,975 US$, Upper middle income countries: 3,976- 12,275 US$, High income countries: 12,276 US$ or more (source: http://data.worldbank.org/about/country-classifications/)

11 Proportion of poor population to total has decreased from 48.9% (rural 52.7%, urban 35.2%) in 2000 to 31.5% (rural 35.2%, urban 21.3%) in 2010. (Source: Bangladesh Household Income Expenditure Study 2005 and 2010)

Chapter 2 National Policies and Plans

2.1 National Development Policy

The Awami Government, which had been established in 2008, announced the "Outline Perspective Plan (OPP) 2010-2021" in 2010 with the purpose to materialize its "Vision 2021". The government settled on the Sixth Five Year Plan (SFYP) as a national medium-term plan. The Poverty Reduction Strategy Paper (PRSP), which determined the government's development policies, is reflected in the Medium-term Five Year Plan and they are now connected (Figure 2-1) [2].



Source: Ministry of Foreign Affairs, Country Evaluation Report: Bangladesh, 2010 [2]

Figure 2-1 Structure of National Development Policies

The OPP shows a comprehensive and holistic course to promote national development and outlines eleven thrusts of action for the attainment of the goal. One of the points is "promoting sustainable human resource development (in the areas of education and training, and health, nutrition and population)". It refers to attaining and maintaining the Millennium Development Goals (MDGs), the need to increase the number of facilities and health providers, efficiency in resource use in the health sector, coordination of health services and family planning services, and improvement of public health, and indicates the amount of food intake for improving nutrition condition. It also notes the "one-child policy" [6].

The goal of health, nutrition and population sector in the SFYP is "to achieve sustainable improvement in health, nutrition, and reproductive health, including family planning, for the people, particularly of vulnerable groups, including women, children, the elderly, and the poor". It sets up the MDGs as the targets of achievement and gives various strategies including public service delivery strategies and delivery capacity, strategies related to budgeting and financing, ensuring gender equality, and promoting roles of private sector. It also addresses that eradication of gaps between rural and urban areas, the poor and rich, and others is a big challenge to achieve universal coverage of health services [7].

Table 2-1 Performance Indicator for Health, Population, Nutrition Sectors of Sixth Five Year Plan (SFYP)

	Impact/Outcome Indicator	Baseline (Year)		Target (2015)
1	Life expectancy at birth	66.6	(2007)	70
2	Population growth rate (%)	1.40	(2007)	1.3
3	Maternal mortality ratio (per 100,000 live births)	194	(2010)	143
4	Neonatal mortality rate (per 1000 live births)	37	(2007)	27
5	Infant mortality rate (per 1000 live births)	52	(2007)	31
6	Under 5 mortality rate (per 1000 live births)	65	(2007)	50
7	Malaria death rate (per 100,000 population)	4.4		2.2
8	Maintain low prevalence of HIV (%)	<1		<1
9	Prevalence of night blindness among pregnant women (%)	2.9		1
10	Underweight of children (6 - 59 months) (%)	41	(2007)	33
11	Stunting of children (16 - 50 months) (%)	43	(2007)	25
12	Total fertility rate (TFR)	2.7	(2007)	2.2

Source: GED (General Economic Division), Planning Commission, GoB, Sixth Five Year Plan FY2011-FY2015, Part. Strategic Directions and Policy Framework [7]

2.2 Health Sector Development Policies

2.2.1 National Health Policy

The National Health Policy, which was made public in 2011, lists fifteen goals and states ten policy principles and thirty-two strategies for attaining those goals [8]. Among the goals are:

- To provide health service for maternal, child and reproductive health services
- To arrange special health services for the mentally retarded, the physically disabled and elderly population.
- To introduce systems for advanced medical treatment in the country
- To implement effective and integrated programs for improving nutrition status of the population
- To ensure universal access to quality health services for people of all strata through improvement, management and quality control of health facilities, medical equipment and human resources
- To strengthen and expedite the family planning program and make the program more acceptable and easily available particularly among the extremely poor and low-income communities to reduce TFR to replacement level[12]

2.2.2 National Population Policy

The goal of the National Population Policy is "to improve the overall standard of living standard of the people of Bangladesh through improved reproductive health status and reduction of population growth rate". Its main objectives are as follows:

- To attain Net Reproduction Rate equal to one in order to stabilize the population
- To provide adequately quality maternal health services with emphasis on the causes of maternal mortality and to reduce infant mortality rate
- To ensure population development linkages and participation of different ministries
- To encourage and motivate adolescent girls
- To develop human resources associated with the health and population activities
- To ensure people's right connected with reproductive health
- To ensure gender equality and empowerment of women

[12] 2.08 which is required for population reproduction

- To provide nutritional knowledge and to ensure food security
- To reduce influx of population from rural to urban areas, and to ensure conducive environment.

The plan outlines strategies for achieving the objectives, such as ensuring the provision of a client-centered essential reproductive health service through the one-stop service and home delivery system, ensuring supply of contraceptives and contraceptive devices, raising awareness amongst high-risk population groups, ensuring opportunity and freedom to choose contraceptive methods according to individual needs and preference, etc. [9].

2.2.3 National Food Policy

The national level nutrition policy has not yet been developed but is included in the National Food Policy (2006) and the National Food Policy Implementation Plan (2008-2015). These policies were made centering on acquiring food. They also mention non-food based nutrition policies (nutrient deficiency and supplement of micronutrient, etc.) though these are not given priority among food policies.

2.2.4 Sector program

A sector-wide program has been introduced in Bangladesh since 1998. The present Health, Population and Nutrition Sector Development Program (HPNSDP) is the third sector-wide program, covesing the period 2011 to 2016.

(1) Issues of the previous sector program

The end-point evaluation of the previous sector program (Health, Nutrition and Population Sector Program: HNPSP), appraised that substantial improvement on 15 indicators for 7 prioritized goals is shown and that a significant progress towards achievement MDG 4, 5 and 6 can be observed. Although improvements in almost all indicators are seen even in the lowest wealth quintile, it pointed out that there is still a big gap between the lowest and the highest wealth quintile.

In regards to service delivery the evaluation pointed at problems in perinatal care and response to increasing noncommunicable diseases. According to the evaluation, in order to improve structural, operational and performance management, efficient and effective service provision can be obtained through coordination between and integration of many operational plans (OPs) as well as the OPs and other projects outside the sector program. It also mentions strengthening and streamlining of project management and monitoring including information management system.

(2) Outline and strategies of HPNSDP

Responding to the problems and issues pointed out by the end-point evaluation on HNPSP, promoting neonatal care and births attended by skilled birth attendant (SBA) has become the focus of HPNDSP, An OP of maternal, neonatal, child, and adolescent health care (MNCAH) was formulated separately from the OP of essential service delivery (ESD). In addition to enhancing capacity of PHC delivery, it is planned to promote local level planning (LLP) including budgeting at district level. HPNSDP aims at efficient and effective service provision through coordination between and integration of operational plans (OPs) and projects, also outside the sector program, strengthening and streamlining of project management and monitoring including information management system, strengthening Upazila Health System (UHS) keeping community clinic

(CC) as a base, improvement of procurement and supply of drugs and medical supplies, decentralization and LLP, stewardship of Ministry of Health and Family Welfare (MOH&FW), etc.

The strategies of HPNSDP are summarized in Table 2-2 and its components are in Table 2-3.

Table 2-2 Goal and strategies of Health, Population and Nutrition Sector Development Program (HPNSDP)

Goal	To ensure quality and equitable health care for all citizens in Bangladesh by improving access to and utilization of health, population, and nutrition services.
Objective	To improve access to and utilization of essential health, population and nutrition services, particularly by the poor.
Strategies	- Streamline, expand the access and quality of maternal, neonatal and child health (MNCH) services, in particular supervised deliveries. - Revitalize various family planning interventions to attain replacement level fertility. - Improve and strengthen nutritional services by mainstreaming nutrition within the regular Directorate General of Health Services (DGHS) and Directorate General of Family Planning (DGFP) services. - Strengthen preventive approaches as well as control programs to communicable diseases and expand NCD control efforts at all levels. - Strengthen hospital accreditation and management systems. - Strengthen the various support systems by increasing the health workforce at Upazila and CC levels (strengthening of Upazila Health System (UHS)). - Strengthen drug management and improve quality drug provision. - Increase coverage and quality of services by strengthening coordination with other intra and inter-sectoral and private sector service providers. - Pursue priority institutional and policy reforms, such as decentralization and LLP, incentives for service providers in hard to reach areas, public private partnership (PPP), single annual work plan, etc.
New elements or issues	- A new OP titled MNCH Care will be put in place under DGHS for emphasizing MNCH issues separately. - Maternal and neonatal health (MNH) services will address needs during preconception, pregnancy, childbirth and the immediate postpartum period by increasing number of skilled birth attendants (SBAs). - Facilities will be staffed and equipped to gradually provide services, for appropriate management of complications in emergency obstetric care (EmOC). - Areas with high MMR, the geographically and socially disadvantaged, and the poor will be prioritized for providing quality MNH services. - The current maternal health strategy will be updated incorporating new born care and other recent issues. - Community Clinic (CC) and domiciliary level will provide women-friendly preconception and pregnancy care. NGOs will be encouraged to provide similar services where appropriate. - Detailed guideline will be prepared for functional integration of MNH services, incorporating expertise and facility sharing between DGHS and DGFP. - Home-visit by a trained worker within two days of child birth will be ensured. - Sick newborn services will be strengthened at the UHCs and district hospitals with rapid referral systems. - MNH services for urban slums, in collaboration with Ministry of Local Government, Rural Development and Co-operatives (MOLGRDC) and other health care providers including NGOs will be promoted. - Nutrition will be made available in an integrated way through all facilities providing MNCH services. - The nutrition service will be housed in the DGHS and implemented through an OP titled "National Nutrition Service (NNS)". - A medical officer of the UHC will be designated as medical officer (public health and nutrition) and will be responsible for coordinating NNS activities. - Community nutrition activities will be merged with the CCs. - Nutrition activities will be scaled up in all the Upazilas, with particular priority given to remote and poorer areas through community based integrated management of child illness (IMCI) programs. - Ministry of Health and Family Welfare (MOH&FW) will collaborate with MOLGRDC for providing nutrition in the urban areas.

Source: MOH&FW, Strategic Plan for Health, Population & Nutrition Sector Development Program (HPNSDP) 2011-2016, Apr. 2011[11]

Table 2-3 Major Program Components of HPNSDP

Component I: Improving health services	Component II : Strengthening health systems
IA: Improving health service	1) Governance, stewardship and legal framework
1) Maternal, neonatal, child, reproductive and adolescent health	2) Gender, equity and voice
2) Population and family planning services	3) Parastatal organization
3) Nutrition and food safety	4) NGO and public private partnership (PPP)
4) Prevention and control of communicable and noncommunicable diseases (NCDs)*	5) Health sectors planning and budgeting
5) Climate change and health protection	6) Research and development (R&D)
6) Disease surveillance	7) Human resource for health (HRH), training and nursing services
7) Alternative medical care (AMC): Unani, Ayurvedic and Homeopathic services	8) Quality assurance, standards and regulation
8) Behavior Change Communication (BCC)	9) Drug administration and regulation
IB: Improving service provision	10) Procurement and supply chain management
1) PHC services	11) Physical facility and maintenance
2) Service for population in remote area and the vulnerable people	12) Sector wide management and coordination
3) Secondary and tertiary health care (hospital autonomy, licensing and accreditation, blood transfusion services, medical waste management)	13) Financial management
4) Urban health services	14) Technical assistance

Note: * Targeted communicable diseases: tuberculosis, HIV/AIDS and sexually transmitted diseases , malaria, leprosy, neglected tropical diseases (NTDs) including lymphatic filariasis, Kala-Azar, soil-transmitted helminths (STH), etc.

Targeted NCDs: arsenic poisoning, cardiovascular diseases, cerebrovascular diseases, cancers, diabetes, eye disease, mental health, hearing disability, oral health, traffic accident and injury, violence against women, emergency preparedness and response, occupational health and safety, Tobacco control and substance abuse, etc.

Source: MOH&FW, Strategic Plan for Health, Population & Nutrition Sector Development Program (HPNSDP) 2011-2016, Apr. 2011 [11]

2.2.5 HPNSDP Implementation Structure and Monitoring System

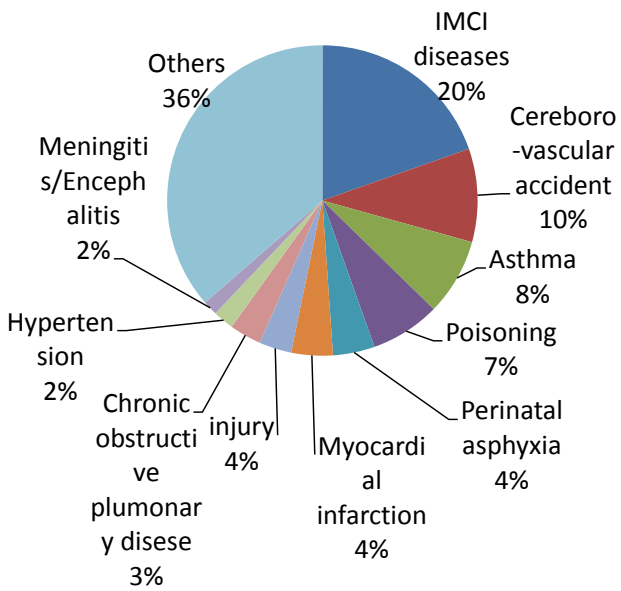
The primary implementation structure of the HPNSDP is an operational plan (OP). There are 32 OPs for the program implementation plan (PIP). Budget is allocated for each OP and a director in charge for each OP is assigned. According to the PIP, monitoring mechanism is that each OP sets monitoring indicators (input, process, output, outcome and impact indicator), and progress review is carried out every 6 month and a report is prepared. And in order to strengthen monitoring and evaluation of the sector program, a program management monitoring unit (PMMU) was established in the planning division of MOH&FW.

Chapter 3 Health Status of the People

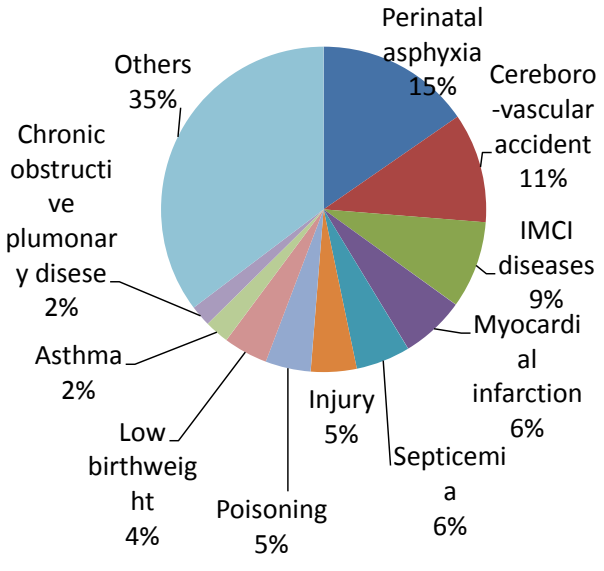
3.1 Overview

A number of strong interventions by the Bangladesh government have led to a gradual reduction in total fertility rate (TFR) and population growth rate. As a result, the called population pyramid is changing from the type of high birth and high infant mortality rates into a bell-shape type (low birth and low premature death rates), which indicates the demographic transition has started. However, the population is still increasing and it is estimated to increase with 12% (18.56 million) in the period 2011-2020 from, and with 28.4% (23.68 million) by 2040. This means that expansion of social services responding to the increasing population will continue to be required. In Bangladesh, communicable diseases, though on the decline, still contribute heavily to the cause of morbidity and mortality. Increasingly, noncommunicable diseases contribute to the cause of morbidity and mortality as well. As a result, the health sector has started to suffer from a double burden of communicable and noncommunicable diseases. Furthermore, the proportion of population above 65 year old is expected to grow, which requires the health sector to prepare for the delivery of health services for the elderly [12][13].

During the past 20 years, the health status of Bangladesh has improved significantly. According to WHO estimates in 2008, noncommunicable diseases caused 62% of total deaths and it can be assumed that the disease structure is shifting. On the other hand, as Figure 3-1 shows, perinatal conditions and communicable diseases still contribute to the cause of death in primary and secondary health care facilities, and remain important health issues.



Upazila Health Complex (UHC)
(the number of facilities: 390, reported total death cases: 5,775)



District hospital and district level general hospital
(the number of facilities: 62, reported total death cases: 14,111)

Note: 1. Please note that these are government data and might not be fully reliable. Data of specialized hospitals are not included.
2. IMCI diseases are pneumonia, diarrheal diseases and other under 5 child diseases.
Source: MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011 [14]

Figure 3-1 Ten Leading Causes of Death in Hospitalized Patients

As Table 3-1 shows, both communicable disease and noncommunicable diseases are the cause of deaths among hospitalized patients.

Table 3-1 Ten Leading Diseases in Hospitalized Patients and its Proportion (2010)

	Upazila Health Complex (UHC)		**District hospital and District level general hospital**		**Medical college hospital**	
	(total number: 1,681,459)		(total number: 984,386)		(total number: 264,375)	
	Diseases	%	diseases	%	diseases	%
1	Diarrhea	15.03	Diarrhea	9.30	Road traffic accident	5.43
2	Assault	11.89	Assault	7.21	Assault	4.42
3	Pneumonia	7.27	Pneumonia	6.13	Diarrhea	4.29
4	Peptic ulcer	5.67	Peptic ulcer	3.76	Scabies	3.1
5	Enteric fever	3.16	Road traffic accident	3.17	Myocardial infarction	2.66
6	Road traffic accident	2.41	Bronchial asthma	2.12	Pneumonia	2.43
7	Poisoning	2.32	Hypertension	1.75	Suppurative otitis media	2.3
8	Chronic obstructive pulmonary disease	1.75	Poisoning	1.75	Cardiovascular disease	1.71
9	Bronchial asthma	1.69	Enteric fever	1.62	Peptic ulcer	1.69
10	Anemia	1.63	Anemia	1.47	Abortion (women only)	2.49
	Others	52.82	Others	38.28	Others	30.52

Note: Data was made up based on the reports submitted by the government facilities, but a submission rate is not 100%. Data of specialized hospitals are not included.

Source: MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011 [14]

In regards to progress towards Millennium Development Goals (MDGs), trends in outcomes and outputs in the health, population and nutrition sector can be seen in Table 3-2.

Table 3-2 Millennium Development Goals (MDGs): Bangladesh Progress

Indicators	1990/ 1991	Current status (year)	National targets in 2015	Progress (*1)
GOAL 1: Eradicate extreme poverty and hunger				
Target 1C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger				
1.8. Prevalence of underweight children under-5 years of age (%)	66.0	45 (2009)	33.0	↓
GOAL 4: Reduce child mortality				
Target 4A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate				
4.1. Under-five mortality rate (per 1000 live births)	146	50 (2009)	48	→
4.2. Infant mortality rate (per 1000 live births)	92	39 (2009)	31	→
4.3. Proportion of 1 year-old child immunized against measles (%)	54	85.3 (2010)	100	→
GOAL 5: Improve maternal health				
Target 5A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio				
5.1. Maternal mortality rate (per 100,000 live births)	574	194 (2010)	143	↓ (→ *2)
5.2. Proportion of births attended by skilled health personnel (%)	5.0	26.5 (2010)	50	↓
Target 5B: Achieve by 2015, universal access to reproductive health.				
5.3. Contraceptive prevalence rate (%)	39.7	61.7 (2010)	72	
5.4. Adolescent birth rate (%)	77	105 (2010)	---	---
5.5a. Antenatal care coverage (at least one visit)	27.5 (1993)	71.2 (2010)	100	↓
5.5b. Antenatal care coverage (at least four visits)	5.5 (1993)	23.4 (2010)	100	↓
5.6. Unmet need for family planning (%)	19.4 (1993)	17.1 (2007)	7.6	↓
GOAL 6: Combat HIV/AIDS, malaria and other diseases				
Target 6A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS				
6.1. HIV prevalence among population (%)	0.005	0.1	Halting	→
6.2. Condom use rate at last high risk sex (%)	6.3	44-67 (2010)	---	---
6.3. Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS (%)	---	17.7 (2009)	---	---
Target 6B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it				
6.5. Proportion of population with advanced HIV infection with access to antiretroviral drugs (%)	---	47.7 (2009)	100	---
Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases				
6.6a. Prevalence of malaria per 100,000 population	776.9 (2008)	512.6 (2010)	310.8	→
6.6b. Deaths of malaria per 100,000 population	1.4(2008)	0.32 (2010)	0.6	→
6.7. Proportion of children under-5 sleeping under insecticide treated bed nets (13 high risk malaria districts) (%)	81(2008)	90 (2010)	90	→
6.8. Proportion of children under-5 with fever who are treated with appropriate anti-malaria drugs (%)	60 (2008)	80 (2009)	90	---
6.9a. Prevalence of TB per 100,000 population	639	79.4 (2010)	320	→
6.9b. Deaths of TB per 100,000 population	76	43 (2010)	38	→
6.10a. Detection rate of TB under DOTS, %	21(1994)	70.5 (2010)	70	→
6.10b. Cure rate of TB under DOTS, %	73(1994)	92 (2010)	>85	→
GOAL 7: Ensure environmental sustainability				
Target 7C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation				
7.8. Proportion of population using an improved drinking water sources (%)	78	86 (2009)	89	→
7.9. Proportion of population using an improved sanitation facility (%)	39	62.7 (2009)	70	***

Note: *1. UNDP's evaluation based on data in 2005-2009: ↓ = needs attention, → = on track, *** = caution needed
*2. "on track" by BMMS(2010)

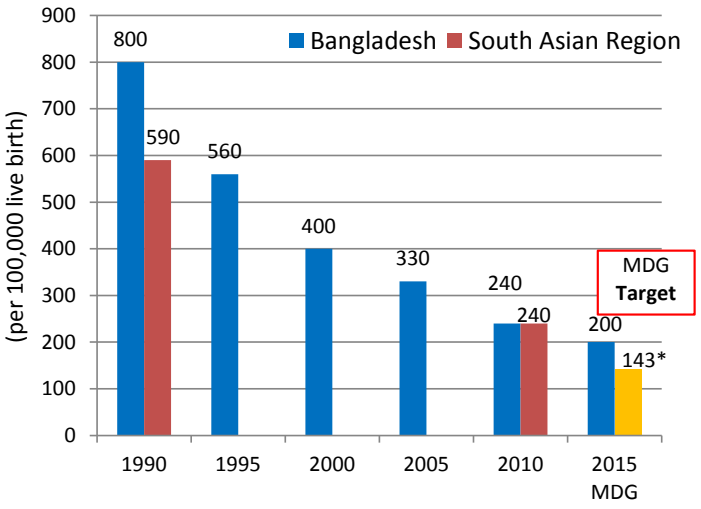
Sources: 1. The MDGs Bangladesh Progress Report 2011 [15]
2. MDGs in Bangladesh, UNDP [16]

3.2 Maternal and Child Health

3.2.1 Maternal Health and Fertility

Maternal mortality ratio (MMR) is steadily improving towards achievement of the MDGs (Figure 3-2). However the figure is still high compared to other countries in the region. According to a survey of maternal mortality and health care in Bangladesh (BMMS 2010), mortality related to pregnancy accounted for 14% of the mortality of women in reproductive age (15-49 years), after cancer (21%) and cardiovascular disease (16%). The risk of death associated with childbirth is one per 500 births [17]. It is the leading cause of death in women of 15-24 years and 25-49 years old in Upazila Health Complexes (UHCs) and district level hospitals [14].

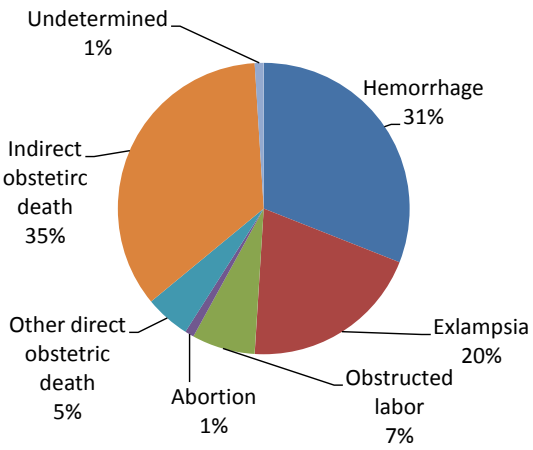
The major cause of maternal death is direct obstetric death due to hemorrhage, eclampsia and obstructed labor, which account for 64% of total deaths (Figure 3-3). Compared to the BMMS 2001, the MMR has been reduced by 40% due to a significant reduction of hemorrhage and eclampsia [17].



Note: * The MDG target. Its baseline is 574 in 1990 obtained by the Sample Vital Registration System (SVRS) of Bangladesh.

Sources: 1. The MDGs Bangladesh Progress Report 2011 [15]
2. WHO, Trends in Maternal Mortality 1990-2010 - WHO, UNICEF, UNFPA, and the World Bank Estimates 2012 [18],

Figure 3-2 Trends in Maternal Mortality Ratio (1990 - 2010)

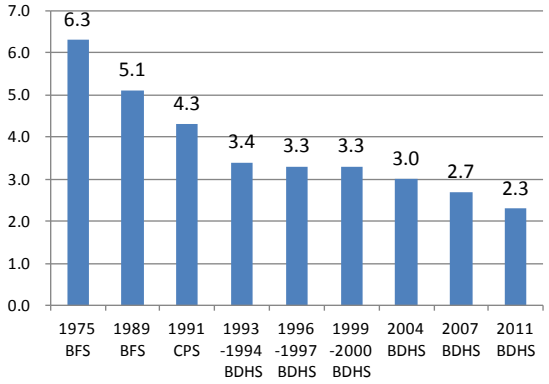


Source: NIPORT/MEASURE Evaluation/UNC-CH,USA, Bangladesh Maternal Mortality and Health Care Survey 2010 - Summary of Key Findings and Implications 2011 [17]

Figure 3-3 Causes of Maternal Deaths (2010)

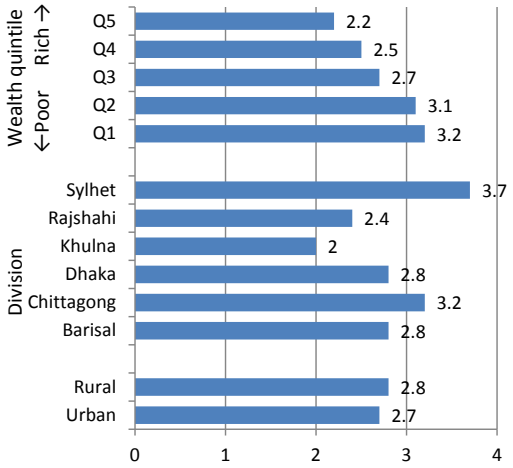
The decline of the Total Fertility Rate (TFR) is closely related to a reduction in maternal mortality. According to BMMS, 25% of the reduction in maternal mortality from 2001 to 2010 is due to the declining TFR. According to BDHS 2011, TFR was 2.3[13] (Figure 3-4), and the national target "to reduce TFR to replacement level (2.2)" seemed to be in reach. However, there are big differences in outcomes between divisions as well as between wealth quintiles, and rich-poor gaps are bigger than divisional gaps (Figure 3-5). There is 0.4 gap between "actual TFR" and "wanted TFR" (the ideal number of children women desire = 2.3) [19].

[13] This figure is from a preliminary report of BDHS 2011 as the final report has not been made available yet.



Source: NPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report, 2012 [20]

Figure 3-4 Trend in Total Fertility Rate (BFS 1975 – BDHS 2011)

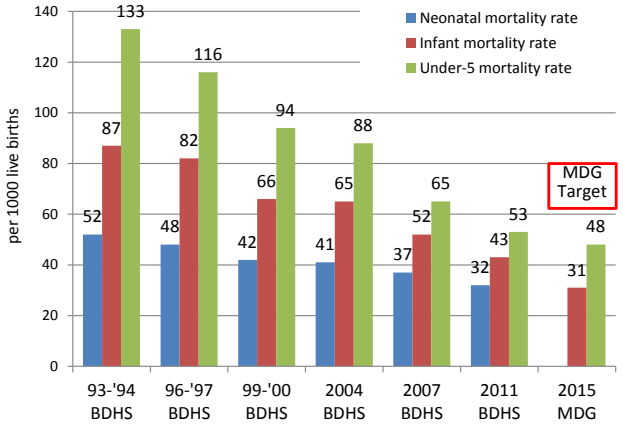


Source: NIP0RT (National Institute of Population Research and Training) / Mitra and Associates / Macro International Inc., Bangladesh Demographic and Health Survey 2007 [19]

Figure 3-5 Total Fertility Rate by Wealth Quintile, Divisions and Urban-rural (BDHS 2007)

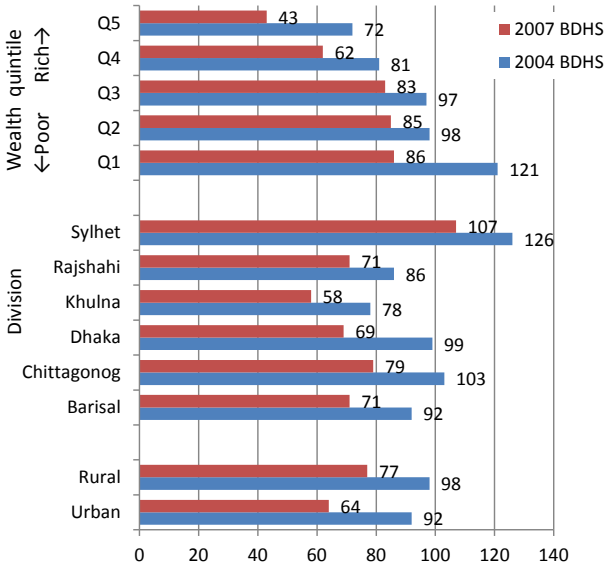
3.2.2 Child Health

Childhood mortality has been consistently declining as shown in Figure 3-6. Both infant and under-5 children mortality rate has been steadily improving towards attainment of MDGs, to which high coverage of services such as vaccinations and Vitamin A supplementation, as well as an increase of the general level of education in women are believed to be contributing. However the gap between urban and rural areas is getting bigger and the gaps between wealth quintiles and divisions are significant as well (Figure 3-7). The degree of reduction in neonatal mortality rate is small, and it accounts for 60 % of under-5 children mortality rate (BDHS 2011).



Source:NIPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report, 2012 [20]

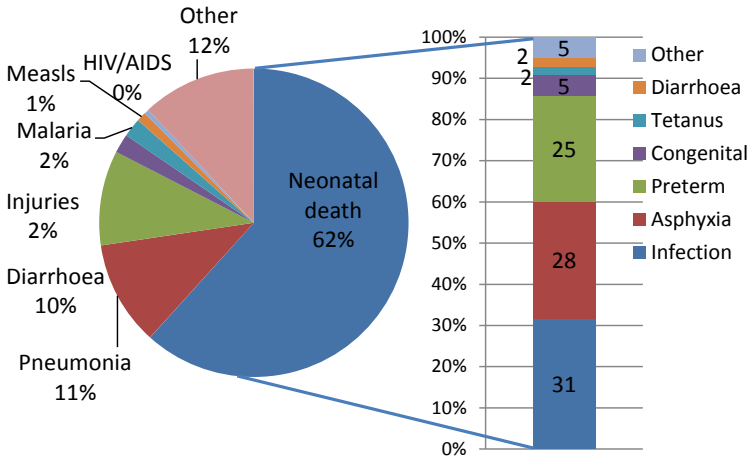
Figure 3-6 Trends of Childhood Mortality Rate (1990-2010)



Source:NIPORT (National Institute of Population Research and Training) / Mitra and Associates / Macro International Inc., Bangladesh Demographic and Health Survey 2007 [19]

Figure 3-7 Under-5 Mortality Rate by Wealth Quintile, Divisions and Urban-rural

As shown in Figure 3-8, major causes of deaths among under-5 children are communicable diseases and diarrheal diseases that are preventable through appropriate preventive care and primary health care (PHC) services. There is a high number of neonatal deaths that can be avoided with appropriate neonatal care.



Source: Countdown to 2015, Country Profiles: Bangladesh Health Data 2012 Profile [21]

Figure 3-8 Causes of Under-5 and Neonatal Deaths (2008)

3.3 Communicable Diseases

3.3.1 HIV/AIDS

Although HIV prevalence among the general population has been below 1% since the first HIV-positive case was reported in 1989, HIV prevalence in male injecting drug users (IDUs)[14] in Dhaka increased to 7% in 2006, which changed Bangladesh from a low prevalence country for HIV to a concentrated epidemic country. There were an estimated 6,300 (5,200 - 8,300) HIV positive cases as of 2009. Among new HIV positive cases in 2009, 63% was male, and by age groups, 26-35 years made up for 32%, 36-45 years for 30% and 16-25 years for 20% of total cases[22]. By November 2011, there were 2,533 reported cases of HIV positive and 1,101 cases of AIDS. Among them 325 cases resulted in death [23].

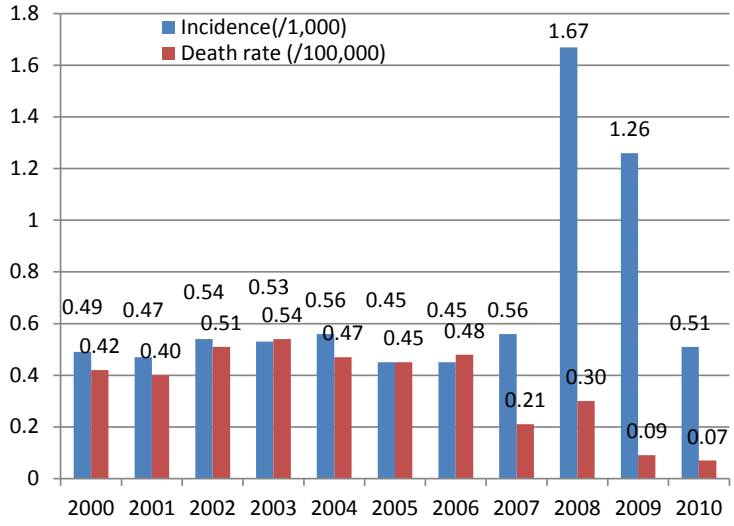
A serological survey conducted in 2011 shows that HIV prevalence among IDUs was the highest (5.3%). Amongg most at risk population (MARP)[15] as a whole HIV prevalence is 0.7%, increasing slightly since 2001. Among MARP, the infection rate of sexually transmitted infections and Hepatitis C were also high. It is important to contain the HIV prevalence below 1% in the general population, and particularly to decrease HIV prevalence among MARP in Dhaka and around the capital [24].

Regarding HIV/AIDS knowledge and attitude, the percentage of people aged 15-49 who have ever heard about AIDS is relatively high (67% for women and 87% for men), but knowledge of HIV prevention measures is low (32-33% for women and 57-66% for men) (BDHS 2007) [19].

[14] It is estimated that there are 20,000-40,000 IDUs in Bangladesh (source [14]).
[15] In Bangladesh, MARP includes sex workers (both male and female), IDUs, MSMs (men who have sex with men), and Hijra (physiological males who have feminine gender identity).

3.3.2 Malaria

A total of 13 districts in the hilly areas along Indian and Myanmar borders are malaria endemic areas where about 34% of the population, approximately 50.6 million people, live and 95% of malaria cases have been reported from. Among these areas, three districts, where 7% of the population lives, are highly endemic areas. As a result, malaria is one of the major public health issues in Bangladesh. Figure 3-9 shows the trends in malaria incidence and death rates. It is considered that a significant increase of incidence and decrease of mortality rate since 2007 is due to enhanced surveillance and testing system, as well as artemisinin-based combination therapy (ACT) by the Global Fund [14] [25].



Sources: 1. WHO, Malaria Situation in SEAR Countries - Bangladesh [25]
2. MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011 [14]

Figure 3-9 Trends in Malaria Incidence Rate (/1000) and Death Rate (/100,000) (2000-2010)

3.3.3 Tuberculosis

According to WHO, Bangladesh is the world's sixth highest tuberculosis (TB) burden country among 23 high tuberculosis burden counties (HTC)[16]. TB is the major cause of death in adults. According to WHO estimates, 83,000 people die from TB every year [14]. In 2010, the number of total notified cases was 158,698,. Among them 150,903 cases were newly notified cases, while total retreatment is 7,795, and under 15 years cases make up 26.7%. By divisions, Dhaka has the largest number of patients. Table 3-3 shows the TB situation in 2010 and Figure 3-10 shows TB death rate, incidence rate and prevalence rate. The death rate is decreased but the incidence rate has not declined since 1990, and neither the prevalence rate decreased recently. Multidrug-resistant tuberculosis (MDR-TB) has been increasing, with 339 cases detected in 2010.

[16] WHO specified 22 countries as "high TB burden country" that have highest tuberculosis burden in the world since 2000. In the Asian region they are Afghanistan, Bangladesh, Cambodia, China, India, Indonesia, Myanmar, Pakistan, the Philippines, Thailand and Vietnam.

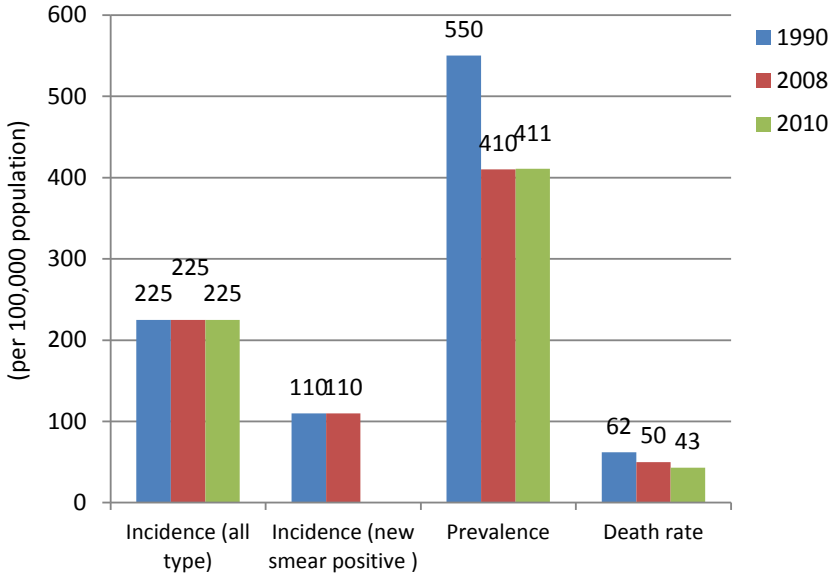
Table 3-3 Tuberculosis Situation (2010) and Estimated Number of Patients by Divisions (2006)

Indicators	Bangladesh	HTC average
Incidence rate per 100,000 population (including HIV+)	225	166
Death rate per 100,000 population	43	20
Prevalence rate per 100,000 population	411	231
HIV-positive TB per 100,000 population	0.45	12
Case detection rate (%) (all types of TB)	47	
MDR-TB (%)	2.1	---

Division	Estimated number of patients
Barisal	9,102
Rajshahi	34,442
Khulna	16,774
Dhaka	46,046
Sylhet	9,105
Chittagong	23,047

Note: Incidence rate includes HIV-positive TB, prevalence and death rates exclude HIV-positive TB.

Sources: 1. WHO, Global Tuberculosis Control: WHO report 2011 [26]
2. NTP, Progress in TB Control [27]



Sources: 1. WHO (2011) Global Tuberculosis Control, WHO Report 2011 [26]
2. WHO, Fifth Joint Monitoring Mission of the Bangladesh National Tuberculosis Control Program [28]

Figure 3-10 Trends of TB Death, Incidence and Prevalence Rates (/100,000)

3.3.4 Other Communicable Diseases

(1) Diarrhea

Diarrheal diseases occur all year round but the number of deaths has decreased. According to a study on stool-samples drawn from patients at a Dhaka hospital of the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b), the most common pathogens are vibrio cholera, rotavirus, enterotoxigenic E. coli (ETEC) and campylobacter for both adults and children[17] [14].

(2) Neglected tropical diseases (NTDs)

Bangladesh is an endemic area for the following NTDs [14] [29]:

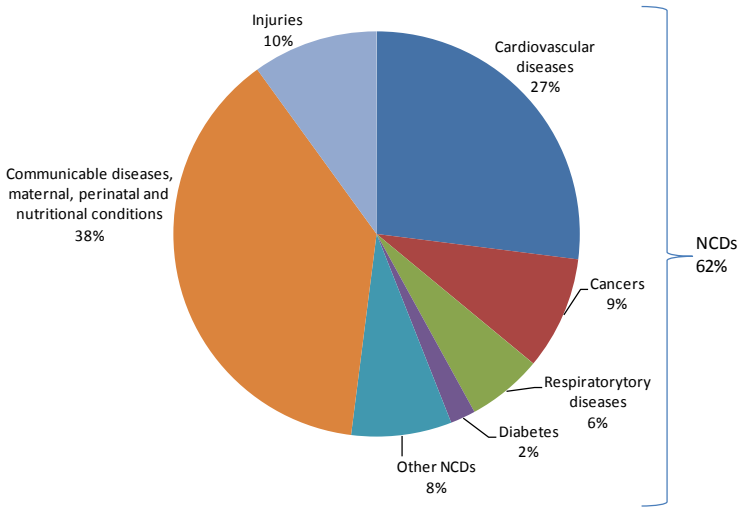
- Lymphatic filariasis: Among endemic 19 districts, the northern 5 districts are highly endemic areas. Population at risk is 7 million.

[17] The most common pathogens in adults are vibrio cholera, vibrio cholera in children of 5-14 years old and rotavirus in children under 5 years old.

- Visceral leishmaniasis (Kara Azar): The disease has reemerged since 1994. Among 45 endemic districts, the highly endemic areas are 7 Upazila of 3 districts in the Dhaka Division and one district in the Rajshahi Division. The number of patients in 2010 was 3,801.
- Soil-transmitted helminth (STH): Endemic areas are all 64 districts. Prevalence rate differs according to surveys but about half the population is infected.
- Leprosy: Incidence rate has declined to less than one per 100,000 population at the national level, however, some epidemic pocket areas remain.
- Dengue fever: This disease becomes epidemic every year in Dhaka.

3.4 Noncommunicable Diseases (NCDs)

Although there is no reliable national surveillance system of noncommunicable diseases (NCDs), NCDs, according to WHO estimates (2007-2010), accounted for 62% of causes for deaths (Figure 3-11) [30]. The Ministry of Health and Family Welfare (MOH&FW) noted that 2010 data from public hospitals reveal that NCDs occupy a major share of the disease burden and form the main cause of deaths [14]. Data collected for more than 40 years in the Matlab areas by icddr,b also showed the increase mortality related to NCDs [12].



Source: WHO, Noncommunicable Disease Country Profile 2011 [30]

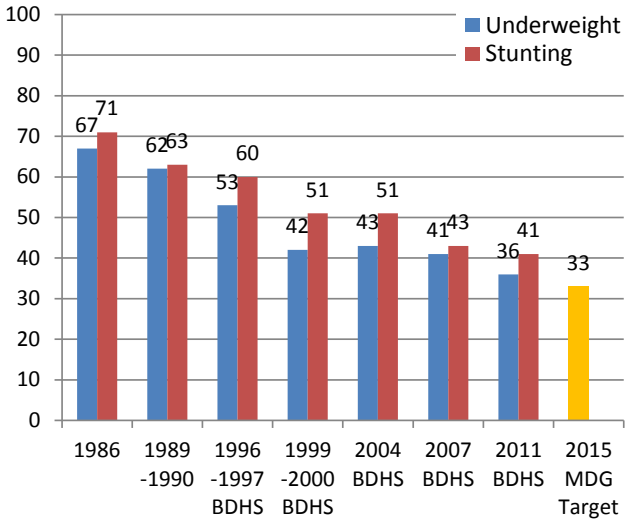
Figure 3-11 Causes of Deaths (WHO Estimate, 2007-2010)

As shown in Table 3-1 and Figure 3-1, the proportion of chronic diseases and injuries is high among hospitalized patients and contributes significantly to the cause of deaths in hospitals. The number of cancer patients being treated at the National Institute of Cancer Research and Hospital has been increasing [18]: the numbers of outpatients and inpatients increased with 18% in 2007 and 25% in 2010.. A NCD risk factor survey in 2010 showed that prevalence of diabetes was 5% in rural adults and 10% in urban adults [31].

[18] Major cancer-affected organs are breast, cervix and lymph-node and lymphatic in women, and lungs, lymph-node and lymphatic and esophagus in men.

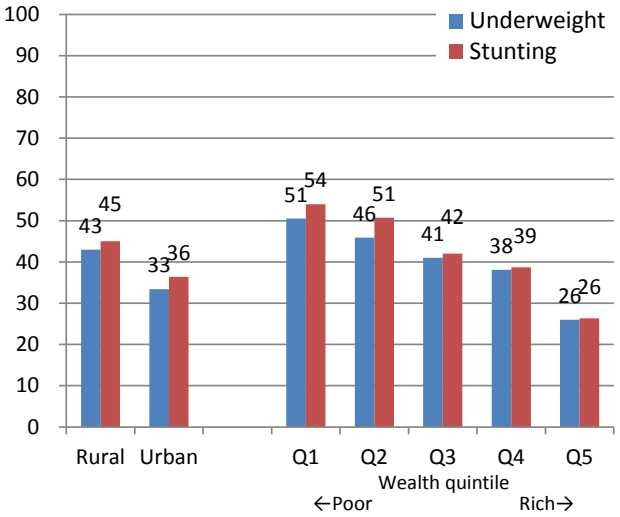
3.5 Nutrition

Nutrition status is an important underlying factor for causes of morbidity and mortality in children and mothers. It is also related to poverty, which is why to decrease the prevalence of underweight children is one of the targets for MDG 1 (Eradicate extreme poverty and hunger). After 2000 there was no improvement in the indicator and Bangladesh was in fact one of the four countries where the prevalence of underweight children was more than 40%[19] [4]. However, the preliminary report of BDHS 2011 shows that the number of underweight children decreased to 36% (Figure 3-12). According to BDHS 2007 the proportion of malnutrition is the highest in 36-47 month old children, higher in children from rural areas, children of older mothers, and among children whose mothers are less educated. The gap between wealth quintiles is evident, while among children of the lowest quintile more than a half are stunting and underweight (Figure 3-13). The proportions of children suffering from severe underweight and stunting are 12% and 16% respectively [19].



Source: Countdown to 2015, Country Profile - Bangladesh [21]

Figure 3-12 Trends in Proportions of Underweight and Stunting Among Children Under-5 (1986-2011)



Source: NIP0RT (National Institute of Population Research and Training) / Mitra and Associates / Macro International Inc. Bangladesh Demographic and Health Survey 2007 [19]

Figure 3-13 Proportions of Underweight and Stunting Among Children Under-5 (BDHS 2007) by Rural-urban and Wealth Quintiles

The nutrition status of women aged 15-49 was measured by height and body mass index (BMI) in BDHS 2007. 15% of women was below the cutoff of 145 centimeters[20] in height, and 30% was less than 18.5 (undernourished) of the BMI. These figures hardly not improved since 2004, when the BDHS outcomes were 16% and 34% respectively [19]. A 1999 survey shows that 49.7% of pregnant women and 52.7% of preschool children in rural areas suffer from iron-deficiency anemia [14].

[19] According to The State of the World's Children 2012 by UNICEF there were only four countries in which the proportion of underweight children was more than 40%.

[20] According to BDHS, the risk of difficulties during pregnancy and chances of giving birth to low-weight babies are higher among women of small stature. The cutoff point at which mothers can be considered at risk because of short stature is normally between 140-150 centimeters.

3.6 Water, Sanitation and Environment

3.6.1 Water and Sanitation Facility

Basic sanitary environment is an important factor for health. Particularly drinking water and toilets are closely related to water-borne infectious diseases and intestinal parasitosis, and the spread of them. In Bangladesh diarrheal diseases are very common. The Multiple Indicator Cluster Survey (MICS) of 2009 shows that the proportion of the population who can access improved drinking water was 97.8%, but taking arsenic contamination into account the real proportion stands at 86%. The number of people who can access improved sanitation facilities has improved in rural areas but not in urban areas, and both remain less than 60%. In urban slums the proportion is only 12% (Table 3-4) [15] [32].

Table 3-4 Proportion of the Population That Can Access Improved Drinking Water and Sanitation Facility (%)

	Access to improved drinking water			Access to improved sanitation facility		
	1990	2000	2010	1990	2000	2010
Rural area	75	77	80	34	43	55
Urban area	87	86	85	58	58	57
Total	77	79	81	39	47	56

Note: Data for "access to improved drinking water" was adjusted to include arsenic contamination

Source: UNICEF/WHO, Progress on Drinking Water and Sanitation 2012 Update 2012 [32]

3.6.2 Arsenic Contamination of Water

A 2003 study estimated that 3.5 million people are at risk as a result of drinking arsenic contaminated water. Since the first cases of health problems caused by contaminated-water were report in 1994, the cumulative number of reported cases till 2010 was 56,758. The National Arsenic Program of the Directorate General of Health Services (DGHS) conducts several activities including community awareness raising, identification and management of arsenicosis patients and community capacity-building on arsenic mitigation [14].

3.6.3 Indoor Air Pollution

In Bangladesh around 89% of the population uses solid fuels, including biomass like cow dung, stick/fire wood or coal for cooking and heating indoors. The indoor air pollution by solid fuels is considered to have effect on respiratory/lung diseases [12].

Chapter 4 Health Services

4.1 Health Service Delivery System

4.1.1 Outline of Health Service Delivery System

There are two lines of public health service delivery systems under the Ministry of Health and Family Welfare (MOH&FW), being one under the Directorate General of Health Service (DGHS) and the other under the Directorate General of Family Planning (DGFP). Both directorate generals have their own staff and facilities to provide services (Table 4-1). The DGFP provides mainly services related to population including family planning and reproductive health. Better coordination between these two directorate generals and effective utilization of their human resources and materials is a challenge.

Table 4-1 Outline of the Health Service Delivery System

Referral	Level of administration*	Service delivery facilities* (Under DGHS)	Person in-charge / management staff / field workers	Service delivery facilities (Under DGFP)
	Central	The Ministry of Health and Family Welfare	Secretary for health; DGHS; DGFP	The Ministry of Health and Family Welfare
Tertiary	Central	-Medical institute/hospital -Teaching hospital -Other hospital	Institute Directors; Institute Directors	Model clinic at medical college hospital
Tertiary	Division (7)	-Medical college hospital -General hospital -Communicable disease hospital	Divisional Director; Divisional Director	Clinic of medical college hospital
Secondary	District (64)	-District hospital/District level general hospital	Civil Surgeon; Deputy Director Family Planning	-MCH-FP clinic (in district hospital) -MCWC
Primary	Upazila (483)	-Upazila Health Complex (UHC) -Tuberculosis clinic	Upazila Health and Family Planning Officer; Upazila Family Planning Officer	-MCH-FP unit (in UHC) -MCWC
Primary	Union (4,501)	-Union sub-center (USC) -Union Health and Family Welfare Center (UHFWC)	Assistant Health Inspector (AHI); Medical Assistant (MA); Family Planning Visitor (FWV); Family Planning Inspector (FPI)	-Union health and family welfare center (UHFWC) -MCWC -Rural dispensaries (RD)
	Ward (40,509)	Community Clinic (CC)	Health Assistant (HA) CHCP; Family Welfare Assistant (FWA)	

Note: Abbreviations in the table : "MCH-FP" Maternal Child Health and Family Planning、"MCWC" Maternal Child Welfare Center, "CHCP" Community Health Care Provider
* Facilities at Upazila level and above provide inpatient and clinical laboratory services. District-level hospitals and UHC have a 24-hour service system.
Sources: 1. Health Bulletin 2011 [14], 2. Bangladesh Health Sector Profile 2010, Final Version [12]
3. Countrywide FP Service Outlets and Institutions [33], 4. HRD Data Sheet 2011 [34]

Each district has a district-level hospital which functions as a secondary referral hospital. At Upazila level there is an Upazila Health Complex (UHC), and in most cases services of both DGHS and DGFP are

provided in the UHC building. Doctors including obstetrician, surgeon, physician, anesthesiologist and dentist are working at UHCs and they have facilities for hospitalization and clinical laboratory examinations. These services are available at Upazila level and above. Each union has a union sub-center or a union health and family welfare center (UH&FWC) which are outpatients facilities. They are also facilities to which the Community Clinic (CC) staff and health staff on home visits may refer their patients.

Primary health care (PHC) services can be found in urban areas[21] and fall under the jurisdiction of the Ministry of Local Government, Rural Development (MOLGRD). Services have been provided through healthcare centers, PHC centers and PHC outreach centers by NGOs based on partnerships with the Ministry.

Apart from the public sector, the private sector[22] also provides health services. Many NGOs and private institutions are delivering health services through government programs under a partnership agreement with the government. Other private service providers offer services outside the government programs. Activities of these private sector providers have contributed much to the improvement of health indicators in Bangladesh. On the other hand, as services by private sector have been rapidly expanded, standards and quality of care are not necessarily well maintained or controlled. The stewardship of MOH&FW is being questioned.

4.1.2 Referral system

According to a JICA report [35], patient referrals from field workers to the primary institutions or those between different level's institutions are frequent exercises. The numbers of referral cases are recorded in monthly reports. Each program or project has built its own referral system. Although the services delivered in each level of institution are designated, patients are referred depending on the availability of health personnel as well as drugs, medical supplies and equipment as these are almost always in shortage. Furthermore, the burdens of district hospitals and medical college hospitals are increasing as patients increasingly skip primary health institutions and go directly to the secondary or tertiary institution.. The Hospital Department of DGHS has developed a guideline on structured referral and introduced a plan to spread it to district hospitals and medical college hospitals by 2013. However, hospitals at Upazila level and below are not included in this initiative. At Upazila Health System (UHS) level, referral system within the UHS has been discussed.

4.1.3 Community Clinic (CC) and Upazila Health System (UHS)

Revitalization of the Community Health Care Initiative[23] has been put into operation from 2009 to 2014 as a project outside the limit of the former sector program, with the purpose to strengthen PHC with community participation. But it has been included in the Health, Population, and Nutrition Sector Development Program (HPNSDP) since 2011 as a new strategy for the program. Community Clinic (CC) facilities are managed by

[21] MOLGRD urban PHC program covers all six city corporations (Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Sylhet) and five municipalities (Bagra, Comilla, Madhobdi, Savar, Sirajgonj).

[22] Private health service providers are (1) providers of traditional medical services, (2) individual practitioners (doctors, nurses, dentists, community health workers, medical assistants and so on. many practice as side jobs while working in government institutions), (3) private hospitals and clinics (including medical examination institutions), (4) NGO (about 2,000 national NGOs and international NGOs), and (5) retail shops, such as pharmacies. In total, 2,137 NGOs from all the fields are registered in NGO Department of the Prime Minister's Office.

[23] The initiative is regarded as one of the core projects of the current government. (Source: [14])

organizations of local people and local governments called "Community Groups (CG)". Each CC has a Community Health Care Provider (CHCP)[24] and a comprehensive package of basic services as listed in Table 4-2. There is a target to ultimately build one CC per 6,000 people at the ward level (18,000 CCs in total). It is also planned to establish two or three Community Support Groups (CSGs) under CG to provide referral support and awareness-raising activities in health and fund-raising.

Moreover, in a strategic plan of HPNSDP, building a three-layered Upazila Health System (UHS), consisting of CC at the community level, Upazila health and family welfare centers and health centers at the union level, and an Upazila Health Complex (UHC) at the Upazila level, is considered a key strategy to strengthen the PHC system. CCs are considered as the basis of the PHC infrastructure. The HPNSDP plans to expand its program across the country after carrying out pilot projects in 14 Upazilas.

Table 4-2 Package of Health Services in Community Clinic

- Maternal and neonatal health care (MNH) services
- Integrated management of childhood illness (IMCI)
- Reproductive health and family planning services (RH/FP)
- Expanded program on immunization
- Nutrition education and micronutrients supplements
- Distribution of family planning commodities
- Health education and counseling
- Identification of other severe illness, like tuberculosis, malaria, pneumonia, emergency obstetric care, life-threatening influenzas, anthrax, etc.
- Treatment of minor ailments and first-aid
- Referral to union-level facilities (health and family welfare centers, union sub-centers, rural health centers, etc.), UHCs, and district hospitals

Source: Health Bulletin 2011, MIS, DGHS, MOH&FW, 2012 [14]

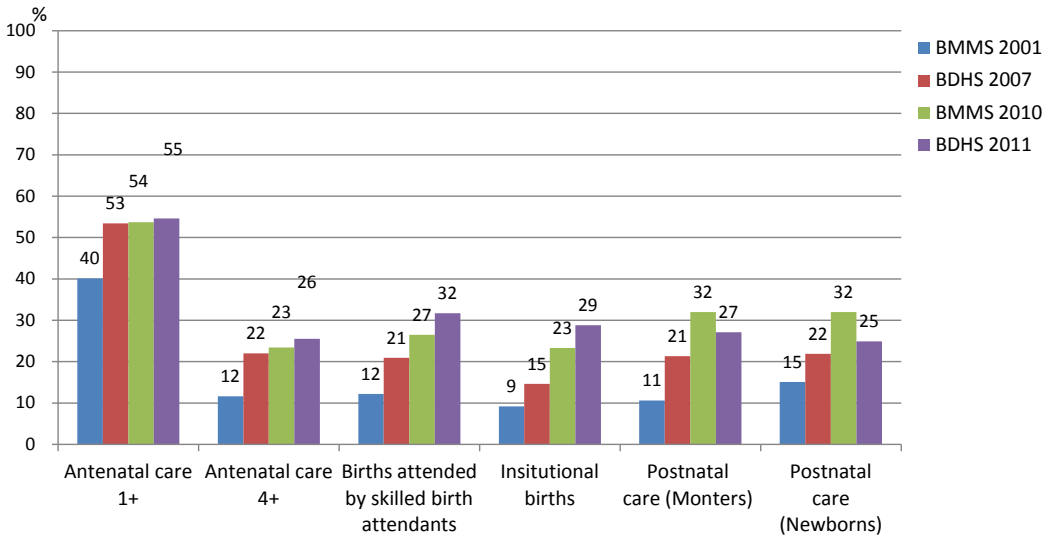
4.2 Maternal and Child Health

4.2.1 Maternal and Neonatal Health

The Essential Service Package is being delivered in CC at the community level (Table 4-2). Home-visit health care services are being delivered by health assistants (HA) and family welfare assistants (FWA). Antenatal and postnatal care services, counseling services on breast-feeding, family planning, and micronutrient supplements are being delivered in all health facilities at the union and Upazila level.

The Maternal mortality ratio and service coverage related to births and newborns shows improvements but the rates are still low (Figure 4-1). Though service coverage even in the lowest wealth quintile shows improvements, the gap between the lowest and the highest wealth quintiles tends to widen (Figure 4-2).

[24] According to the Management Information System of the Ministry of Health and Family Welfare, 13,500 personnel have already been employed till 2011. From March 2012, a three month CHCP training has been commenced nationwide.



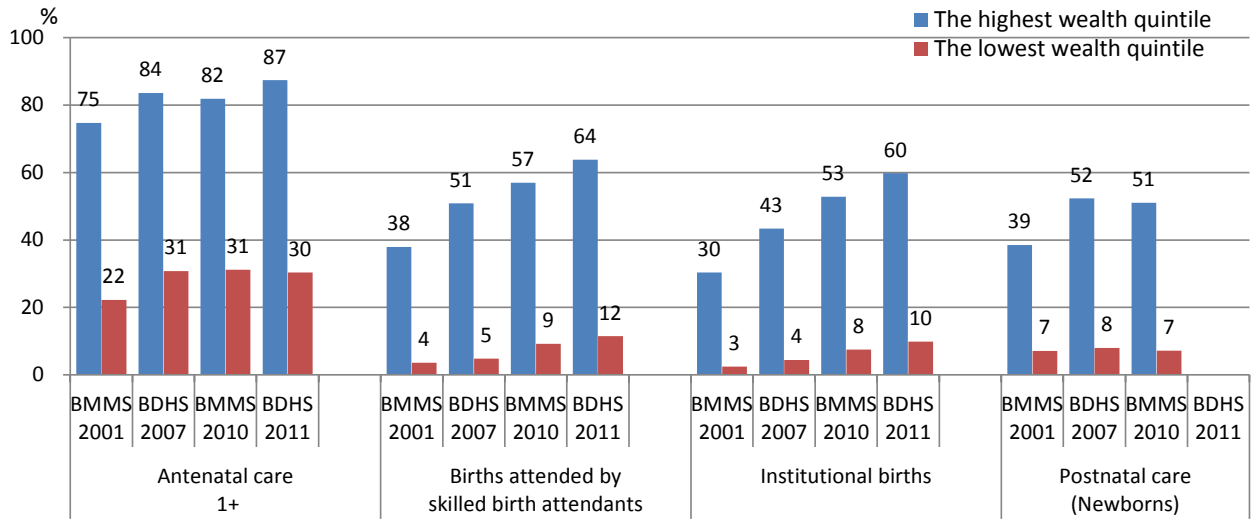
Note: 1. "Antenatal care", "Births" and "Postnatal care" indicate ratios of women who received care by health personnel who have been medically trained. (HAs, FWAs and trained traditional birth attendants (TBAs) are not included.)
2. Data of "Postnatal care" in 2001 indicates the ratio of mothers and newborns who received care within two months after delivery. Data in other years are ratios of mothers and newborns who received care within two days of delivery.

Sources: 1. NIPORT/ORC Macro/Johns Hopkins University/ICDDR,B, Bangladesh Maternal Health Services and Maternal Mortality Survey 2001 - Final Report . [36]
2. NIPORT, Bangladesh Demographic and Health Survey 2004. [37]
3. NIP0RT (National Institute of Population Research and Training) / Mitra and Associates / Macro International Inc., Bangladesh Demographic and Health Survey 2007 [19]
4. NPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-1 Trends in Maternal and Neonatal Health Care (BMMS 2001 – BDHS 2011)

There is a large difference in service coverage between rural and urban areas. Since the ratio of coverage and utilization of health services by mothers and newborns were low, an operation plan (OP) of maternal, neonatal, child, and adolescent health care (MNCAH) was formulated separately from the Essential Service Delivery (ESD) OP. Regarding neonatal care, the National Neonatal Health Strategy and Guidelines was first formulated in 2009. The coverage of tetanus vaccination has greatly improved and no case of tetanus in pregnant women and newborns has been reported since 2008 [14].

In addition, in order to improve service utilization among especially poor pregnant women, a scheme called Demand-Side Financing (DSF) has been introduced since 2004. It is a system to provide specific free health services, and a direct monetary incentive to both service providers and pregnant women. It contributed to improvement of service utilization in the target areas. DSF's expansion is planned but as it requires tremendous costs and time to operate the scheme, the implementation will be carried out after reviewing the scheme [35][38].



Note: 1. "Antenatal care", "Births" and "Postnatal care" indicate ratios of women who received care by health personnel who had medically trained. (HAs, FWAs and trained traditional birth attendants (TBAs) are not included.)
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2. NIPORT, Bangladesh Demographic and Health Survey 2004. [37]
3. NIP0RT (National Institute of Population Research and Training) / Mitra and Associates / Macro International Inc., Bangladesh Demographic and Health Survey 2007 [19]
4. NPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-2 Trends in Maternal and Neonatal Health Care by Wealth Quintiles (BMMS 2001 – BDHS 2011)

Comprehensive emergency obstetric care (CEmOC) is provided in all 59 district hospitals, in 3 general hospitals, 14 medical college hospitals, 132 UHCs, and 63 maternal child welfare centers. In other UHCs basic emergency obstetric care (BEmOC) is provided [14]. According to Bangladesh Demographic and Health Survey (BDHS) 2007, the ratio of births by Caesarean section[25] of total births is 7.5% which increased by 4 points from 3.5% in BDHS 2004. In the highest wealth quintile it increased about 30 points (from 14.4% to 43.4%), of which 67% is a contribution by private sectors.

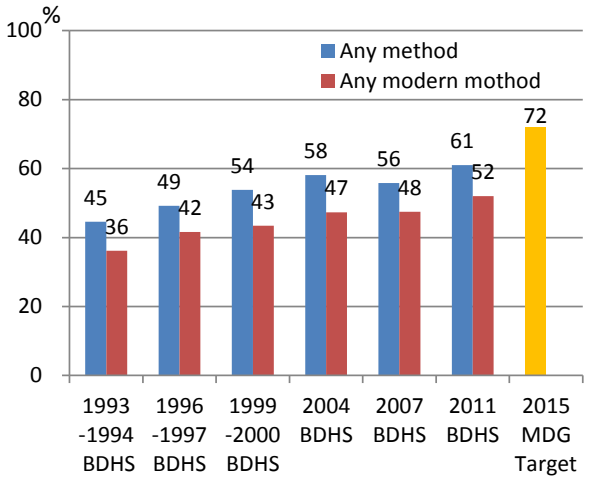
The Community Skilled Birth Attendant (CSBA) Program started in 2001 with the purpose to promote births attended by skilled birth attendants (the target for Millennium Development Goals (MDGs) is 50%). However, research showed that the strengthening of this program contributed little to the achievement of the MDG target of 50%. Births attended by skilled birth attendants increased mainly due to the increase of births in health facilities. The CSBA Program in future will play a more important role in communities in which it is very difficult to access health facilities [39].

4.2.2 Family Planning

The contraceptive prevalence rate among married women has gradually been increasing (Figure 4-3) but the rate varies per area (Division). The rate of unmet needs of family planning has reduced to 12% in BDHS 2011 (Figure 4-4). The relatively slow improvements are contributed to insufficient use of Behavior Change

[25] Births by Caesarean sections are considered an indication of mothers' access to skilled birth care in complicated deliveries..

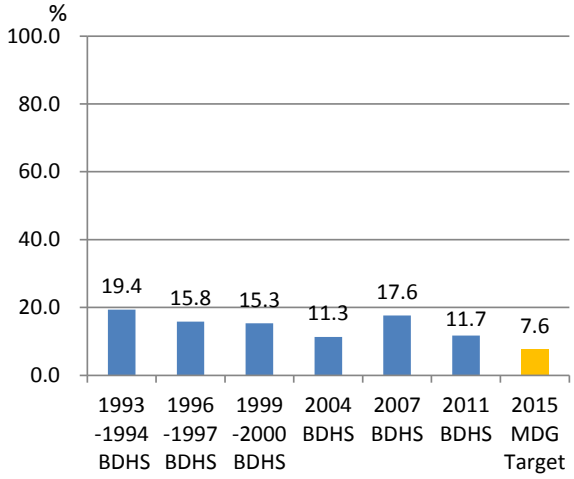
Communication (BCC) approach to overcome negative perceptions of clinical contraceptive method, and to instable supplies of contraceptives commodities [19]. In order to achieve MDGs of 2015, further Information, Education and Communication (IEC) & BCC activities and service provision need to be implemented.



Note: Until 2004 data are of 10-49 years old women, data of 2007 and 2011 are of 15-49 years old women

Source: NPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-3 Trends in Contraceptive Use Among Married Women (%)

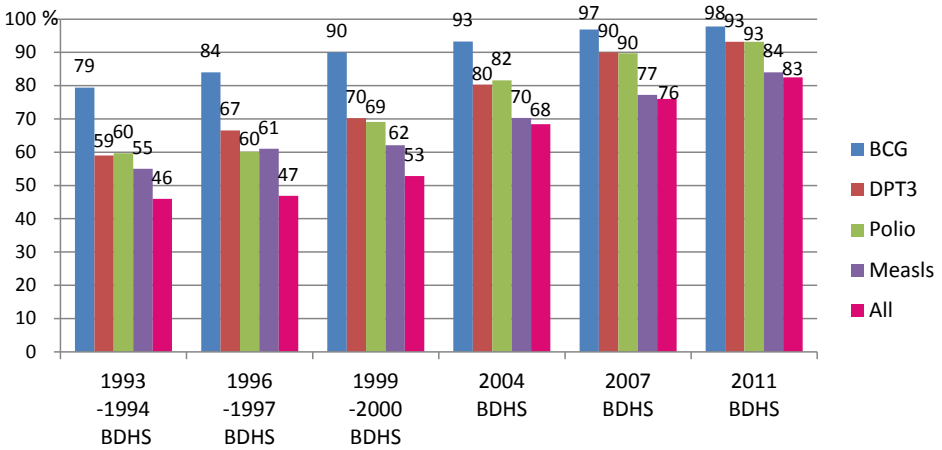


Source: NPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-4 Trend in Unmet Needs of Family Planning Among Married Women (%)

4.2.3 Child Health

As mentioned earlier in Chapter 3, the infant mortality rate improved a lot and the chance to achieve the MDG is considered high. The control of communicable diseases such as malaria and diarrhea has been effectively implemented and coverage of immunization services has increased. According to BDHS 2011, the percentage of children who are fully immunized increased up to 83% and in regards to BCG, DPT3 and Polio immunization, the rates exceed 90%. Measles vaccinations cover 84% (Figure 4-5). The rate of vitamin A supplement was 88% in DHS 2006, but decreased to 62% in DHS 2011. The decrease has been contributed to the fact that the DHS survey target period did not match the campaign period of vitamin A supplement as well as the low quality of the campaign [20].



Source: NIPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-5 Trends in Vaccination Coverage Among Children Age 12-23 Months (%)

4.3 Communicable Disease Control

4.3.1 HIV/AIDs Control

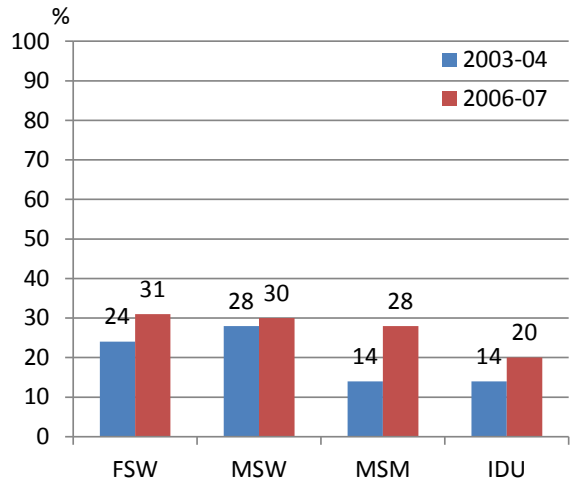
(1) Implementation structure and strategy

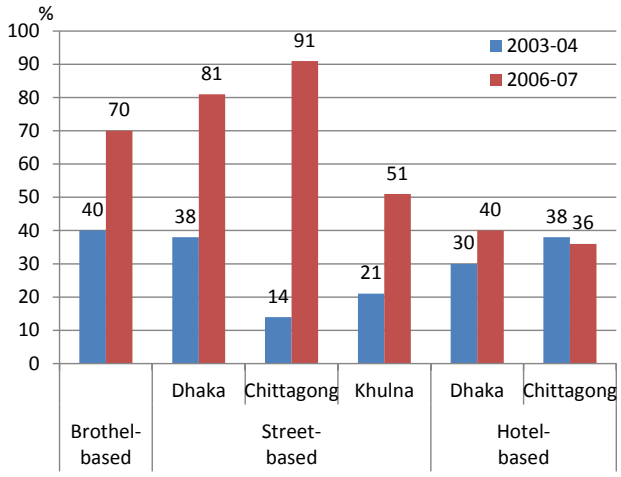
Since 2001, prevention and control measures have been implemented under the National AIDS/STD Program (NASP) under HNPSDP (earlier under HNPSP),. The 3rd National Strategic Plan for HIV and AIDS response 2011-2015, with the goal "to minimize the spread of HIV and minimize the impact of AIDS on the individual, family, community, and society by 2015", set objectives to ensure universal access to preventive services, treatment, care and support services, to strengthen the coordination mechanism and management capacity, and to strengthen the strategic information system and research [40]. NASP under DGHS acts as the national level coordination body and plays a role in program formulation, planning, promotion of implementation, monitoring and evaluation, resource mobilization, and overall management. NASP also as acts as the secretariat for the National AIDs Commission and Technical Committee [23].

(2) Implementation and achievement

As a surveillance system, the HIV Sentinel Surveillance (HSS) has been carried out every 1-2 years from 1998 onwards. HSS targets the most-at-risk populations (MARPs) and other high-risk groups (such as clients of sex workers, track drivers and rickshaw drivers). Apart from HSS, the Behavioral Surveillance Survey (BSS) is also carried among the same groups [22].

HIV/AIDS prevalence has remained a "concentrated epidemic" in MARPs. HIV prevalence among MARPs except among Injecting Drug Users (IDUs) is less than 1%. Early response to HIV and service expansion to MARPs and other high-risk groups before establishing the epidemic is said to have contributed to the low prevalence [22]. 146 drop-in centers (DICs) for MARPs and high-risk groups established in 44 districts, provide various services including treatment of sexually transmitted infections, management of other health problems, peer education, counseling, health education, referral service and outreach services. The centers also serve also as recreational facilities and shelters for criminal cases [22]. The proportion of MARPs with comprehensive correct knowledge of HIV/AIDS and condom use is increased. The figures however remain relatively low due to high risk behavior (Figure 4-6 and 4-7).





Source: HIV and AIDS Data Hub for Asia Pacific: Evidence to Action, Bangladesh Country Review September 2011 [22]

Figure 4-6 MARPs with Comprehensive Correct knowledge of HIV/AIDS

Figure 4-7 FWSs' Condom Use at Last Sexual Relations with a New Client by Areas (%)

Bangladesh has formulated various guidelines including National Anti-retroviral Therapy (ART) Guidelines (established in 2006, revised in 2011), National Sexual Transmitted Infection (STI) Management Guidelines (2006), Training Modules for Health Managers on HIV/AIDS (2006), National Standards for Youth Friendly Health Services (2007), Standard Operating Procedure for Services to people living with HIV and AIDS (2009), etc. In addition, HIV/AIDS awareness-raising and extension on how to use condoms among youth has been implemented. Nevertheless, high risk sexual behavior is being observed.

Condom use in Bangladesh is the lowest in Asia. In addition to high risk behavior, there are other structural factors to heighten vulnerability to HIV/AIDS epidemic. These factors include high population living in poverty, poor development indicators, low adult literacy rate, low social status of women and the trafficking of women into the commercial sex industry and high population mobility (especially across its porous borders with India and Myanmar, both of which are experiencing generalized epidemics). Though the current prevalence rate is low, Bangladesh is still at risk of a further epidemic in the future. It is considered particularly important to focus efforts on youth.

4.3.2 Malaria Control

(1) Implementation structure and strategies

Since 2011 the National Malaria Control Program (NMCP) has been implemented as a part of a communicable disease control program under the Director for Disease Control of GDHS (and also under the director for Communicable Disease Control of HNPSDP). According to the NMCP Strategic Plan 2008-2015, the long term goal of the program is "to reduce malaria morbidity and mortality until the disease is no longer a public health problem in the country" and its objectives are to reduce malaria morbidity and mortality by 60% from those in 2005 by 2015 and to promote community empowerment and partnership with NGOs and private sector. The responsible section for NMCP is the Malaria and Parasitic Disease Control (M&PDC) Unit and services are delivered through the district health system. An NGO consortium led by Bangladesh Rural Advancement Committee (BRAC) has also been implementing community-based activities (support

for access to malaria prevention and treatment and awareness-raising through BCC) under a partnership agreement with the government [41].This partnership is evaluated as a good practice [25].

(2) Achievements and challenges

Since 2007, with the help of the Global Fund to fight AIDS, Tuberculosis and Malaria (the Global Fund), the malaria laboratory testing system has been enhanced by the introduction of rapid diagnostic tests (RDT) and improvement of microscopic testing. Malaria treatment through artemisinin-based combination therapy (ACT) and distribution and use of long-lasting insecticide-treated nets (LLINs) have also increased (Table 4-3 and 4-4). These efforts resulted in an increase of lab confirmed cases according to the Annual Parasite Incidence (API), as well as a significant decrease in malaria death (Figure 3-9). The Malaria Treatment Regimen was revised in 2009.

Table 4-3 Estimated and Confirmed Malaria Cases

Year	Probable and confirmed	Microscopy examined	Confirmed with microscopy	Examined with RDT	Confirmed with RDT
2005	290,418	220,025	48,121	---	---
2006	164,159	209,991	32,857	---	---
2007	59,866	266,938	58,659	3,199	1,207
2008	168,885	336,505	50,004	106,001	34,686
2009	79,853	397,148	25,203	156,639	38,670
2010	55,873	461,262	55,873	152,936	35,354

Source: WHO (2011) World Malaria Report 2011 [42]

Table 4-4 Achievement in Malaria Control Program

Year	Total number of distributed ITNs+LLINs（,000）	Proportion of children under-5 years sleeping under ITNs/LLINs (%)*	Total number of delivered ACT
2005	311	---	37,754
2006	11	---	35,448
2007	199	81	114,990
2008	1,947	81	110,280
2009	1,650	81	---
2010	2,897	90	58,135

Note: *The rate from 13 malaria high endemic districts.

Sources: 1. WHO, Malaria Situation in SEAR Countries - Bangladesh [25]
2. GED (General Economics Commission) , Bangladesh Planning Commission, The Millennium Development Goals: Bangladesh Progress Report 2011 [15]

Bangladesh still faces challenges in the area of malaria control including inadequate access to facilities for diagnosis and treatment especially in remote areas, inadequate program management capacity and insufficient treatment of severe malaria cases at hospitals and referral system, and limited pre-referral treatment [25].

4.3.3 Tuberculosis Control

(1) Implementation structure and strategies

The National Tuberculosis Control Program (NTP) has been implemented with the objective "to sustain the global targets of achieving at least 70% case detection and 85% treatment success among tuberculosis (TB) cases under DOTS, in order to then reach the interim target of halving TB deaths and prevalence and

achieving the related MDGs by 2015." The Strategic Plan for TB Control 2011-2015 lists the following 6 groups of interventions[26] for achieving the objective: 1) Pursue quality DOTS expansion and enhancement, 2) Establish interventions to address HIV-associated TB and drug resistant TB, 3) Contribute to health systems strengthening, 4) Forge partnerships to ensure equitable access to an essential standard of care for all TB patients, 5) Engage people with TB and affected communities, and 6) Promote Operation Research.

The Director of Mycobacterial Disease Control (MBDC) and Line Director (TB-leprosy) are the responsible persons for the program implementation. The diagnosis and treatment services are free of charge at all public and private service facilities (including all UHCs, 44 chest disease clinics, 8 chest disease hospitals, 4 divisional chest disease hospitals and the National Institute of Diseases of Chest and Hospital (NIDCH), urban health center, etc.). The program adopts the Public-Private Mix (PPM) strategy, coordinating among different levels of stakeholders from central government to communities for case detection, diagnosis/treatment services, and advocacy, communication and social mobilization [43]. Furthermore, a National Guidelines and Operational Manual for Tuberculosis Control, fourth edition is formulated, which includes the treatment regimen for multi-drug resistant TB.

(2) Implementation and achievement

The Fifth Joint Monitoring Report (2010) by WHO and NTP appreciates the improved situations of TB and their prospect for maintenance. The improvements are attributed to the following: 1) Overall capacity and quality of DOTS implementation at field level was good, 2) substantial external funding been secured, 3) new guidelines were adapted and plans prepared on infection control, multi-drug resistant TB and PPM, and 4) the national laboratory network and routine surveillance system has been strengthened. Table 4-5 shows DOTS coverage and outcome of treatment of smear positive cases. DOTS has already covered 100% of the population and the country achieved the global NTP targets such as over 70% case detection rate and over 85% treatment success rate. The 86% detected and cured rate of MDGs targets has been reached too. As for MDR-TB control, "DOTS-plus" was piloted for 5 years since 2006, DOTS-plus coordination committee was established, and a national guideline was formulated. Nevertheless, according to WHO estimates, TB incidence has not been improved since 1990s and the case detection rate (for all TB cases) is very low among TB high burden countries (The average of case detection rate is 65% among 22 TB high burden countries) [44].

Table 4-5 Trends in DOTS Coverage and Treatment of New Smear Positive Cases

	2000	2005	2006	2007	2008	2009	2010
DOTS coverage (%) [1]	92	99	99	100	100	100	100
Case detection rate (%) [1]	81	89	91	92	92	92	92
Treatment success rate (%) [2]	81	92	92	92	92	92	---
Cured (%) [2]	77	91	---	91	90	91	---
Death (%) [2]	4	4	---	3	4	4	---
Failure (%) [2]	1	1	---	1	1	1	---

Sources: 1. MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011 [14]
2. WHO, WHO Report: Global Tuberculosis Control 2011 [44]

[26] These are the same strategic items as the ones of the worldwide "Stop TB Strategy".

Table 4-6 Trends in TB Case detection Rate, Incidence, Prevalence and Mortality

	2000	2005	2008	2009	2010
Case detection rate (All cases)	26	39	---	---	47
Incidence (including HIV) (/100,000)	225	225	225	225	225
Prevalence (including HIV) (/100,000)	479	440	414	412	411
Mortality (excluding HIV) (/100,000)	56	49	44	44	43

Source: WHO, WHO Report: Global Tuberculosis Control 2011[44]

In the above mentioned joint monitoring mission report and MDGs progress report, the following issues were raised: technical expertise in the management process (planning, implementation and monitoring) of NTP is limited, management capacity lacks emphasis and a strategic information management system based on the principle of "one agreed national level monitoring and evaluation system" is not fully functioning. All levels of facilities have vacancies in health personnel, particularly personnel responsible for TB control. This is one of major bottlenecks in program implementation. Other issues include the limited capacity of surveillance on prevalence rate, mortality rate and drug resistance and weak collaboration or cooperation between NTP and NASP.

4.4 Noncommunicable Diseases (NCDs)

As described in Chapter 3, the double burden of communicable diseases and noncommunicable diseases is becoming a major issue for the health sector. In HNPSP (former sector program), cancer, cardiovascular disease, diabetes were identified as major public health issues and work on prevention and control was commenced. However, as the public sector was involved in prevention, the tertiary medical services were entrusted to the private sector. The priority of NCDs and focus on attainment of MDGs are relatively low. Bangladesh' main cities have specialized hospitals and centers that provide diagnosis and treatment service in NCDs.

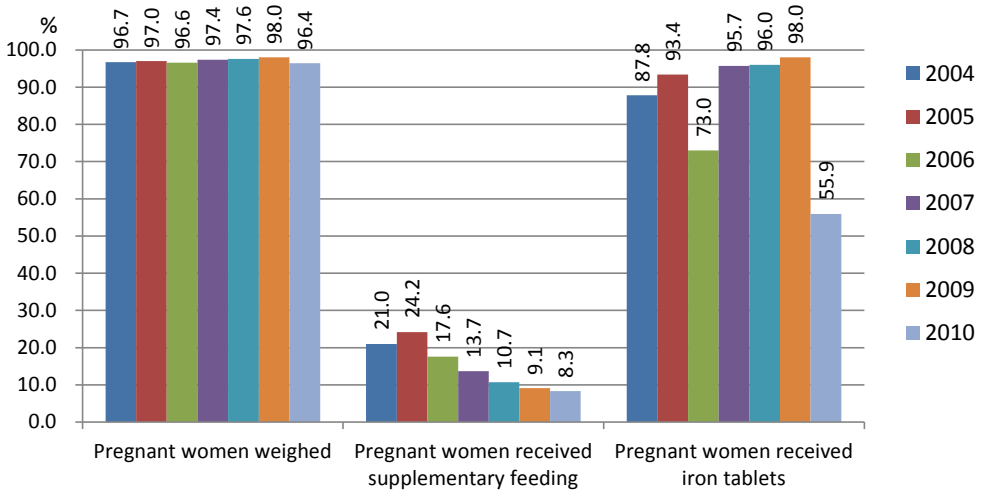
The "Strategic Plan for Surveillance and Prevention of Non Communicable Diseases 2011-2015" was formulated and an Operation Plan (OP) of NCD control has been developed as one of 32 OPs under HPNSDP. The main targets are arsenic poisoning, cardiovascular disease, cerebrovascular disease, cancer, diabetes, eye diseases, mental health, hearing impairment, oral health, traffic accidents and injuries, violence against women, preparation and response of emergencies, occupational health and safety, as well as Tobacco control and substance abuse.

4.5 Nutrition

Improving the nutritional status of children has been a challenge for Bangladesh for many years; also it is expected that the achievement of MDG1 (reduction of underweight children) will be difficult. In response to this, the new sector program (HPNSDP) integrates the nutritious program implemented through the Institute of Public Health Nutrition (IPHN) with two other nutritious programs under the previous sector program (Micronutrient Supplementation and National Nutrition Program - NNP). The programs are now implemented as National Nutrition Service (NNS) under a single operational plan (OP). NNS includes the following services and activities: weight monitoring and vitamin A supplement in pregnant women, exclusive breast feeding, child growth monitoring, complementary/supplementary feeding and micronutrient

supplement[27] in children,' deworming in children, supplement of zinc to oral rehydration salt, immunization, therapeutic management of severe acute malnutrition, BCC, school health and nutrition, food fortification[28], food hygiene and safety, and dietary guideline.

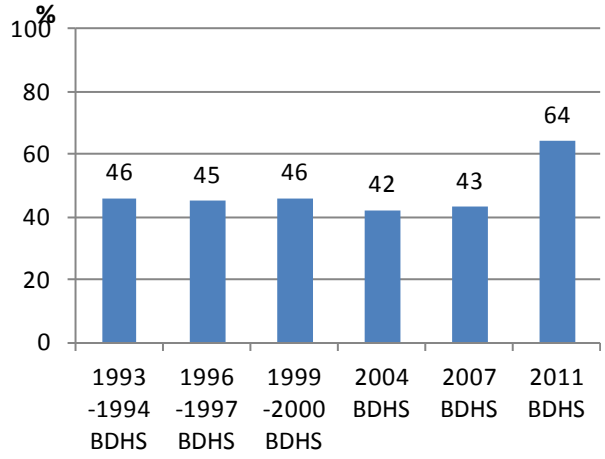
The trends in services and activities are shown in Figures 4-8, 4-9 and 4-10.



Source: MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011 [14]

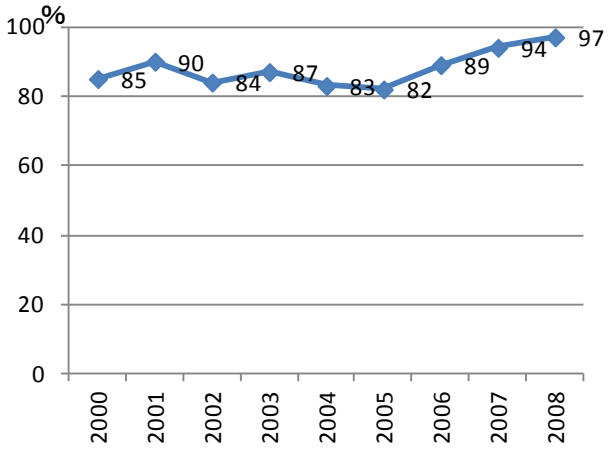
Figure 4-8 Trends in Nutrition Related Service Coverage for Pregnant Women in 109 National Nutrition Program Upazilas (2004-2010)

The exclusive breast feeding rate for 6 months after birth had not increased till BDHS 2007 but improved up to 64% in BDHS 2011. However, 6-23 month old children with proper food intake remains at 21% which is why Infant and Young Child Feeding (IYCF) needs strengthening.



Source: NIPORT/Mitra and Associates/MEASURE DHS, ICF International, Bangladesh Demographic and Health Survey 2011: Preliminary Report [20]

Figure 4-9 Ratio of Exclusive Breast Feeding Among Under 6 Month Children (%)



Source: UNICEF, Tracking Progress on Child and Maternal Nutrition: A survival and development priority [45]

Figure 4-10 Ratio of Vitamin A Supplement Among 6-59 Month Children (%)

[27] Vitamin A, iron, vitamin D, calcium, etc.
[28] Iodine, foods with vitamin A

Chapter 5 Health System

5.1 Human Resources for Health (HRH)

5.1.1 Current Situation of Human Resources for Health

Table 5-1 shows the qualifications and roles of health care providers and their distribution within the primary health care (PHC) service delivery system of the Ministry of Health and Family Welfare (MOH&FW).

Table 5-1 Major Health Personnel in PHC Service Delivery System in Public Sector

Cadre	Training institute and period of training	Health facilities of MOH&FW	Remarks
General physician	Medical university, 5 years + intern 1 year	• Upazila Health Complex (UHC) • Maternal Health and Family Planning Unit • Union Health and Family Welfare Center (UHFWC)	38% of general physicians are working in public sector, and 58% in private sector
Nurse/Midwife	Nursing university, 4 years	• UHC • UHFWC • Union sub-center	The post "Junior nurse" was established in 2009 to address insufficiency of midwives
Nurse/Midwife (diploma)	Nursing school, 3 years		
Nurse/Midwife (junior)	Nursing school, 2 years		
Medical Assistant (MA)	MA Training School (MATS), 3 years	• UHC • UHFWC	Employed by Directorate General of Health Services (DGHS)
Health Inspector (HI) Assistant Health Inspector (AHI)		• UHC • UHFWC • Union sub-center	Employed by DGHS
Health Assistant (HA)	Training by district training team, 6 months	(working at community level)	Community members are trained and employed as HAs by DGHS
Sub-Assistant Community Medical Officer (SACMO)	MA Training School (MATS), 3 years	• UHFWC • Maternal Child Welfare Center (MCWC)	Employed by Directorate General of Family Planning (DGFP)
Female Welfare Visitor (FWV)	FWV training center, 18 month	• Maternal Child Health and Family Planning Unit • UHFWC • MCWC	Employed by DGFP *after 1997, no training and no hiring
Family Planning Inspector (FPI)		• UHFWC • MCWC	Employed by DGFP
Female Welfare Assistant (FWA)	FWV training center/ community training center, 6 months	(working at community level)	Community members are trained and employed as FWAs by DGFP
Community-based Skilled Birth Attendant (CSBA)	CSBA training center, 6 month obstetric training + 9 month OJT + 3 months follow up	(working at community level: care for normal delivery and refer of pregnant women with complication)	FWAs and female HAs become CSBAs after training and OJT
Community Health Care Provider (CHCP)	Training at UHC level, 3 months	• Community Clinic (CC)	Trained and employed through the CC revitalization project under Awami administration

Source: 1. UNSW (Human Resources for Health Knowledge Hub), Human Resources for Health in Maternal, Neonatal and Reproductive Health at Community Level: A Profile of Bangladesh. 2011 [46]
2. MOH&FW, Community Clinic (Online) http://www.communityclinic.gov.bd/index.php [47]

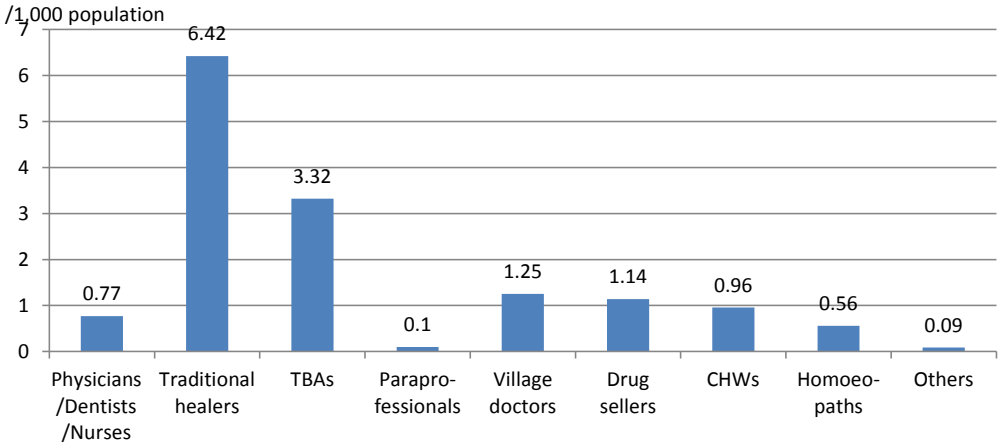
According to WHO's Global Health Observatory (GHO), the ratios of high level health personnel per 1,000 population are very low compared to those in other countries (Table 5-2). The total number of doctors,

dentist and nurse is the lowest level among 18 Asia-Pacific countries [48]. In 2007, WHO recommended skill mix ratios (physician : nurse : medical technologist = 1 : 3 : 5) to address human resource shortages. In Bangladesh the ratio is 60,000 physicians: 280,000 nurses: 483,000 medical technologist [49]. In an estimation based on a sample survey conducted in 2007, the ratio of certified modern health medical employees (physician, dentist, nurse, etc.) was only 5.3% of the total while so called service providers in the informal sector occupy 43.9% (Figure 5-1). Many of these village doctors, homeopathy doctors and drug sales persons are neither certified nor trained. As a result the quality of care by those service providers is often substandard.

Table 5-2 Major Health Workforce Ratios per 1,000 Population in Comparison with Neighboring Countries

Country	Year	Doctor	Nurses/midwives	Dentists	Laboratory workers	CHWs
Bangladesh	2007	0.295	0.272	0.019	0.026	0.331
Sri Lanka	2007		1.930	0.083	0.075	
	2006	0.492				
Myanmar	2008	0.457	0.798	0.049		
	2004					0.081
Pakistan	2009	0.813	0.557	0.057		0.063
	2004				0.060	

Source: WHO- Global Health Observatory. Global Health Observatory (Online) http://www.who.int/gho/database/en/ [50]



Note: Para professional includes MAs, SACMs, FWVs and laboratory technicians
Most village doctors prescribe drugs used in Western medicine. Some village doctors have taken semi-formal training.
Source: Bangladesh Health Watch, The State of Health in Bangladesh 2007: Health Workforce in Bangladesh - Who Constitutes the Healthcare System?, 2007 [49]

Figure 5-1 Density of Healthcare Providers per 1,000 Population (2007)

The vacancies in MOH&FW are shown in Table 5-3 and 5-4. On average, around 20% of positions are vacant excluding posts in alternative medicine. Among certain levels in some Divisions more than 50% of positions are vacant. The situation is most serious in the Directorate General of Drug Administration (DGDA) (where the vacancy rate is 52-77%) and the Directorate of Nursing Services (13-99% vacancies) which are key supporting agencies for the delivery of health services.

Table 5-3 Number of Sanctioned Posts and Vacancy Rate (%) in DGHS by Divisions and DGFP

(As of June 2011)

	DGHS							DGFP
Divisions	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Sylhet	Total	Total
Number of posts	8,604	20,241	39,828	12,172	26,810	8,055	115,710	52,376
Vacancy rate (%)	21	23	16	21	21	22	20	23

Source: MIS (Management Information System), DGHS, MOH&FW. Health Bulletin 2011, 2012 [14]

Table 5-4 Number of Sanctioned Posts and Vacancy Rate (%) in DGHS by Discipline

(As of June 2011)

Medical technologists							
	Pharmacy	Laboratory	Radiography	Radiotherapy	Physiotherapy	Dental	Total
Number of posts	2,903	1,779	715	56	199	525	6,177
Vacancy rate (%)	27	24	11	45	84	6	24

Care providers					
	Medical Assistant (MA)	Health Inspector (HI)	Assistant HI	Health Assistant	Total
Number of posts	5,411	1,399	4,198	20,815	26,412
Vacancy rate (%)	22	20	13	7	9

Alternative medicines						
	Medical Officer			Compounder	Herbal assistant	Total
	Unani medicine	Ayurvedic medicine	Homeopathy medicine			
Number of posts	66	66	66	64	467	729
Vacancy rate (%)	77	77	77	0	0	21

Source: MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011, 2012 [14]

A sample survey conducted in 2007 clarified that the availability of human resource for health (HRH) is high in Dhaka and Chittagong Divisions, as well as in urban areas. The number of nurses per physician is 0.1 - 0.7 except in Khulna Division (Table 5-5). The national average is 0.4, which is less than one nurse per two physicians. The ratio of nurse to physician in Bangladesh is the lowest in the world. The gaps among Divisions and between urban-rural areas are also found in other health cadres (not shown in Table 5-5).

Table 5-5 Distribution of Major Human Resources for Health (per 1,000 population) by Divisions and Urban-rural Areas

Cadre	Division						Area	
	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Sylhet	Urban	Rural
Physician	1.7	4.8	10.8	1.3	2.1	2.2	18.2	1.1
Nurse	0.9	3.6	2.8	1.9	1.1	0.4	5.8	0.8
Dentist	0.3	0.3	0.5	0.05	0.0	0.0	0.08	0.8
Nurse/physician	0.5	0.7	0.2	1.4	0.5	0.1	0.7	0.3

Source: Bangladesh Health Watch, The State of Health in Bangladesh 2007: Health Workforce in Bangladesh - Who Constitutes the Healthcare System?, 2007 [49]

Thus, in regards to HRH, there are various problems such as shortage of absolute numbers, absenteeism of staff, inappropriate distribution, insufficient quality control, imbalanced skill mix[29], and so on. The problems within HRH have been repeatedly pointed out but no integrated measures have been implemented. Although the issue was addressed in the previous sector program (Health, Nutrition and Population Sector Program: HNPSP), MOH&FW could not address the issue sufficiently. In the end-point evaluation of HNPSP, The HRH issue was pointed out as one of the main bottlenecks in health sector development. The current Health,

[29] A mixture of various occupations (or collaboration). It aims at effective and efficient care provision through wider mixture of various occupations and delegation of authority and replacement between occupations.

Population and Nutrition Sector Development Program (HPNSDP) aims to formulate an HRH development plan[30], establish a functional HRH information system, train and employ HRH (particularly nurses), introduce incentive package for those who are working in remote and rural areas, and so on.

5.1.2 Human Resource Production System

The main education/training institutes of HRH and their production capacity are shown in Table 5-6. In 2010, 1,763 graduates established themselves as physicians and dentists [14]. For other HRH categories it was not possible to obtain information on the number of newly registered or graduates.

Table 5-6 Education/Training Institutes of Different Categories of HRH and their Production Capacity

Cadre	Institute/Center	No. of institute			No. of student		
		Public	Private	Total	Public	Private	Total
Post graduate education (above Bachelor)	University/Research institute/Special hospital	23	10	33	2,053	169	2,222
Physician (general practitioner)	Medical college	19*	44	63	2,555	3,345	5,900
Dentist	Dentistry university	3	13	16	210	770	980
Alternative medical employees**	University (physician)	2			100		100
	School (diploma)	1	61	61			NA
Nurse midwife	Nurse university (bachelor)	4		4	500		500
	Nurse college (diploma)	8*	9*	17	725	255	980
	Nurse school (diploma)	29	31	60	1,700	1,200	2,900
	Midwife (junior) training school		10	10			280
MA	MA training school (MART)	8	40	48	700	2,975	3,675
CSBA	CSBA training school	39	2	41			NA
Medical technologist	Bachelor	3	15	18	145	1,275	1,420
	Medical Technology School	6	56	62	1,991	6,706	8,697
	(content of student number) Laboratory examination				315	2,479	
	Radiation				305	520	
	Physiotherapy				300	455	
	Sanitation inspection				300	---	
	Dentistry				305	1,486	
	Medicine				305	1,641	
	Radio therapy				120	---	
	Others				41	125	
FWV	Regional training center	20		20			NA
	FWV training center	12		12			NA

Note: * Including a college under the military jurisdiction
** Alternative medical physician's qualification requires a 5-year academic study and one year internship, Diploma qualification requires a four-year academic study and 6-month internship.
Source: MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011, 2012 [14]

5.1.3 Information System on Human Resource for Health

Each directorate/division and program keeps a personnel management information system; however, they do not cover all cadres or information needed. Integrated and comprehensive information on HRH has not been compiled so it is difficult to obtain a complete picture of human resources in the health sector. HRH management and development of functional HRH information system is on the agenda of HPNSDP [51].

[30] Health Resource Master Plan 2010-2040 is supposedly formulated but not yet available online

5.2 Facilities and Medical Equipment

5.2.1 Health Facilities

An outline of the health service delivery system is shown in Chapter 4 (Table 4-1). The outline of MOH&FW facilities for health service delivery is shown in Table 5-7. Besides public facilities, there are many private hospitals/clinics and diagnosis centers (Table 5-8).

Table 5-7 Health Facilities under MOH&FW

Medical level	Administrative level	Type of facility *	No. of facilities	No. of bed per institutes	Total no. of bed **	Population Converge (,000)
Tertiary Secondary	Central/ Division (7)	National post-graduate institute, research institute, and specialized hospital attached to university	7	100～660	2,174	
		Hospital attached to medical/dental university, etc. ***	21	20～1,700	10,480	
		Specialized centers and hospital	5	0～500	950	
		Communicable disease hospital	5	20～100	180	
Secondary	District (64)	District level hospital (53 district hospitals and 9 general hospitals)	53	100～250	9,050	2,3,000
		Chest disease/ tuberculosis hospitals and leprosy hospital	15	20～150	676	
		Other hospital	6	50～100	305	
		# Maternal Child Health-Family Planning (MCH-FP) clinic (in the district hospital mentioned above)	64		---	
		# Maternal Child Welfare Center (MCWC)	62		---	
Primary /PHC	Upazila (483)	Upazila Health Complex (UHC))	418	10～50	15,684	270
		Other public hospital	45	10～3	890	
		# MCH-FP unit (in UHC)	407			
		# Maternal Child Welfare Center (MCWC)	12			
	Union (4,501)	Union Sub-Center (USC)	1,275			30
		Union Health & Family Welfare Center (UH&FWC)	87			
		# Union Health & Family Welfare Center (UH&FWC)	3,719			
		# Dispensary	1,275			
		# Maternal Child Welfare Center (MCWC)	23			
	Ward (40,509)	Community Clinic (CC)	10,323			6
Total number of hospital (with hospitalization facility) and bed number			584		40,389	

Note: * Institutes with # is under DGFP. Others are under DGHS.
** Number of beds in operation
*** As of March 2011. Newly established four schools are not in operation.

Source: 1. MIS (Management Information System), DGHS, MOH&FW, Health Bulletin 2011, 2012 [14]
2. DGFP, MOH&FW, Countrywide FP Service Outlets and Institutions. DGFP. (online) DGFP. http://www.dgfp.gov.bd/index.php?option=com_content&view=article&id=7&Itemid=118. [52]

Table 5-8 Area Wise Registration Number of Private Health Institutes

Jurisdiction	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Total
Hospital/clinic	64	359	1,089	502	353	175	96	2,638
Diagnosis center	147	1016	2,057	378	414	247	199	4,458

Note: The numbers are those registered in the Hospital Division of DGHS.
Source: Hospital Service Management, DGHS, Hospital Service Management. (online) Hospital Service Management,DGHS. http://www.hsmdghs-bd.org/index.htm [53]

5.2.2 Maintenance Management of Medical Equipment and Facilities

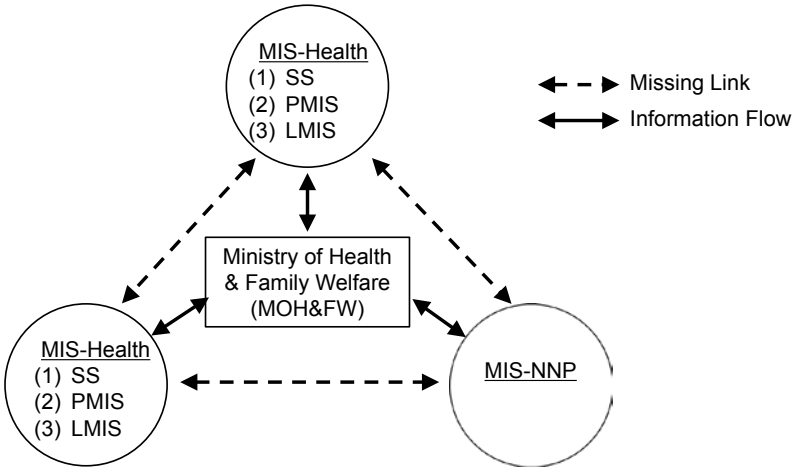
A list of standard equipment has been developed according to the facility level from CC to district hospital [54]. Many agencies are involved in the maintenance of health facilities and medical equipment including administrative offices in charge for health at district/upazila level (civil surgeon/UHC in charge), Construction Management and Maintenance Unit (CMMU), National Electro-Medical Equipment Workshop (NENEW), Central Medical Stores Depot (CMSD) and Transportation and Equipment Maintenance Organization (TEMO) under MOH&FW, and Public Works Department (PWD) under the Ministry of Housing and Public Works.

A Medical Equipment Survey (2008) conducted nationwide in 50 secondary and tertiary medical facilities found that only 34% of medical equipment was in use regularly, 30% was delivered but not installed, 13% was out of order and 14% was workable but not utilized. According to the Health Facility Survey in 2009, on average more than 30% of basic equipment was missing from health facilities of DGHS at Upazila and below. The operating rate of ambulance, X-ray machine and generator were respectively 38%, 43% and 31%. Among district hospitals and UHCs, only 18 of facilities had over 75% of basic laboratory equipment and supplies [35] [12]. The causes of these appearances lie in the procurement system (needs assessment, shorten warranty period due to delay in arrival and procurement, impossibility of selection of equipment type and specification at local level to meet local needs, etc.) and maintenance management system (lack of budget, lack of prompt action due to centrally management system, lack of explanation and training on how to use and maintain water installation, etc.).

5.3 Health Management Information System

Bangladesh' main Management Information Systems (MISs) under MOH&FP are MIS-Health of DGHS and MIS-FP of DGFP. Each of them has three main components: service statistics (SS), personnel management information system (PMIS) and logistics management information system. Furthermore, there is a MIS of national nutrition program (MIS-NNP).[31] There is also an information system for each disease control/program, for DGDA and Directorate of Nursing Service, for maintenance management of facilities and equipment, etc. Information of PHC services in urban areas is under the control of Ministry of Local Government, Rural Development and Co-operatives (MOLGRD).

[31] In the current health sector program (NPNSDP), which started in 2011, all nutrition services are integrated and mainstreamed in the service delivery system of DGHS and DGFP. As a result, it is highly possible that MIS on nutrition services have changed.



Source: Health Metrics Network Secretariat, MOH&FW. Health Information System Assessment: Bangladesh Country Report, Health Metrics Network Secretariat, MOH&FW, 2009 [54]

Figure 5-2 Major MIS under MOH&FW

SS are compiled and send by field workers at the lowest level and facilities at various level to administrative officer, who in turn report to higher level officers. Final information is compiled by DGHS and DGFP. The end-point evaluation of HNPSP pointed out that the information was produced but utilization and management of the information was insufficient, particularly in monitoring and evaluation, and planning at local levels (district level and below).

In HPNSDP, a management and monitoring unit has been newly established by MOH&FW to monitor the program. The Program Implementation Plan (PIP) aims to design a health information system which integrates necessary data.

In addition, "e-Health" was cited as a strategy for HPNDSP. In recent years internet access is established above district level and MOH&FW plans to promote data transfer online. DGHS will proceed with the digitalization and plans to cover all its facilities including CC by internet.

5.4 Procurement and Supply of Drugs

5.4.1 Current Situation

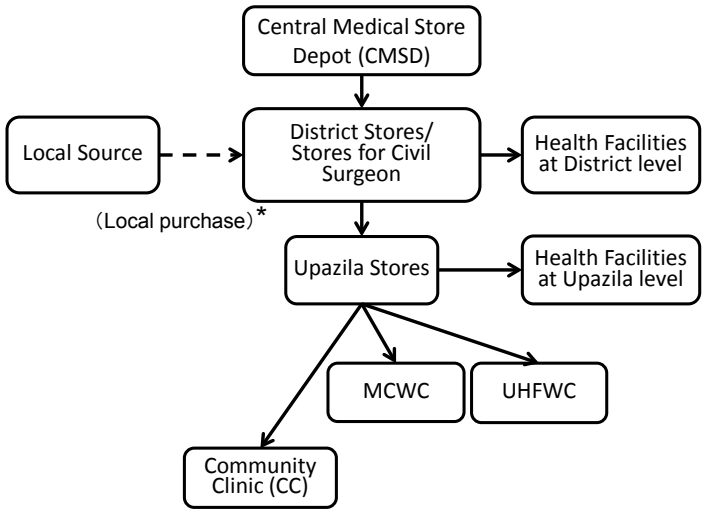
Based on the National Drug Policy (2005), DGDA as a management agency legally manages drug manufacturing and quality control, registration, marketing, import, etc. Drug prices are controlled by the government. Essential drug list and PHC drug list are formulated, and health service providers are supposed to prescribe drugs from these lists in principle [12].

The availability of essential drugs in PHC facilities is low and their stock position is not stable. In the Health Facility Survey in 2009 it was found that only 9% of facilities which keep stocks more than 75% of 19 essential items. On average only 58% of essential drugs were kept at the facilities. This was believed to be due to factors such as delays in the release of donor resources, time consuming procurement procedures, budget insufficiency, etc. [12].

5.4.2 Procurement and Supply System of Drugs and Medical Equipment

In the public sector, procurement of medical equipment, drugs and medical supplies is mainly done by the Central Medical Stores Depot (CMSD) while procurement of contraceptives for family planning is carried out by the Director General Family Planning (DGFP). The supply systems run in parallel, along with two service supply lines: one in CMSD (under DGHS) and one in DGFP. Procurement and supply of the goods are centrally controlled and managed by these agencies with the exception of some drugs and medical supplies[32]. As for medical schools and specialized hospitals, procurement is done by CMSD, but there is separate logistic management system for their supply [12]. The goods are first supplied to stores throughout the country and then distributed to health facilities (Figure 5-3). The previous sector program found that the procedures are lengthy and complicated. In order to improve the situation, the establishment of a computer management system and a Procurement and Logistics Management Cell (PLMC) is being promoted under MOH&FW.

Both DGHS and DGFP have LMIS as a sub-system of each MIS for logistic management and are promoting digitalization.



* Procurement of some drugs has been decentralized to the civil surgeon.

Source: The World Bank. Bangladesh Health Sector Profile 2010, Final Version. 2010 [12]

Figure 5-3 Drug Supply Chain of DGHS

5.5 Health Financing

According to The World Bank, the total health expenditure in Bangladesh is US$ 57.3 per capita (purchasing power parity: PPP), the lowest among neighboring countries (except Afghanistan). The percentages of GDP of total health expenditure and public health expenditure are respectively 3.5% (2010) and 1.2% (2009), both low in comparison with surrounding countries. In spite of being a low income country, Bangladesh has a high ratio of out-of-pocket health expenditure: per capita US$ 36.7 (PPP).

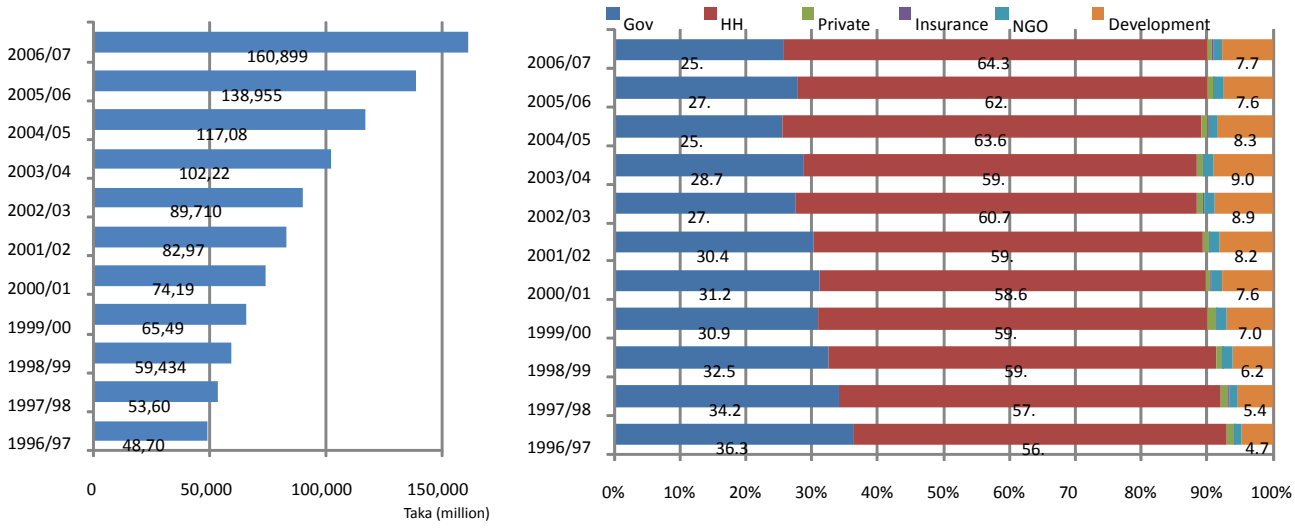
[32] For example, a standard package of drugs is procured directly by the local administrative office.

Table 5-9 Data on Health Expenditure: Comparison with Neighboring Countries

	Bangladesh	Afghanistan	India	Nepal	Pakistan	Sri Lanka
Health expenditure, per capita (PPP US$)	57.3	44.5	132.2	66.3	58.7	148.4
Health expenditure, total (% of GDP)	3.5	7.6	4.1	5.5	2.2	2.9
Health expenditure, public (% of GDP)*	1.1	1.6	1.4	2.1	0.9	1.8
Out-of-pocket health expenditure (% of total health expenditure)	64.1	83.0	61.2	48.3	50.5	44.9

Note * Data of 2009, others are of 2010
Source: The World Bank, World Development Indictors (online) The World Bank, 2011. http://databank.worldbank.org/ [5]

According to the Bangladesh National Health Account 1997-2007 (BNHA), the total health expenditure actually has been increasing with 4-12% every year. The expenditure nearly doubled in the period 1997/98 (US$ 9.2 per capita) to 2006/07 (US$ 16.2 per capita). Public expenditure (including funds from developing partners) has been increasing in terms of amount, but the total ratio has been decreasing. The ratio of out-of-pocket (household) health expenditure among total health expenditure has been increasing (Figure 5-4). The percentage of health expenditure in household expenditure is larger among the poor and it is pointed out that 12% of the population possibly face problems due to increasing health expenditure [12].



Source: MIS (Management Information System), DGHS, MOH&FW. Health Bulletin 2011. 2012 [14]

Figure 5-4 Trends in Total Health Expenditure and Proportion of Funding Source

The assistance by developing partners in the health sector is provided through a pool fund under Sector Wide Approach (SWAps). According to BNHA, in the period 2003/04 to 2006/07, the releasing ratio by major donors into the pool fund increased from 12.3% to 70%. However, the ratio of releasing parallel funding to OP and others besides OP has decreased [56].

According to the PIP of HPNSDP (current sector program), the total budget in the period 2011-2016 is 569,935.4 million Taka (about $7.7 billion[33]) of which 39% is development expenditure budget. The fund resource is shown in the table below and the support by developing partners accounts for 24%.

[33] The currency rate at that time was fixed at US$1.00＝Bangladesh Taka 74

Table 5-10 HPNSDP Financing Pattern

	Content	(million Taka)	%
Government	Non-development (Revenue)	348,168.80	61
	Development budget	86,035.00	15
	Sub total	434,203.80	76
Development partners	Pool fund	86,979.10	15
	Others	48,752.50	9
	Sub total	221,766.60	24
	Grand total	569,935.40	100

Source: Planning Wing, MOHFW. HPNSDP Program Implementation Plan Volume I. July 2011 [38]

5.6 Health Administration

The Health administration has been centralized and all staff up to community level are employees of MOH&FW. The central administrative authority MOH&FW develops national policies and plans, takes decisions, finances the health sector and maintains/controls budgets. The implementing departments of policies and plans are DGHS, DGFP, DGDA and the Directorate of Nursing Services. The supporting organizations are Health Engineering Directorate (HED), Transportation and Equipment Maintenance Organization (TEMO), NENEW and Essential Drug Association. As shown in Table 4-1, there are two lines in the service delivery system and both DGHS and DGFP post administrative staff at each administrative level (division, district and Upazila levels). The evaluation of HNPSP has pointed out that inefficiency could be caused by uneven distribution and duplication of services and human resources. Although the functional integration of activities of both directorates has been planned in the National Health Policy and the first sector program in 2000, this has not yet taken place.

There is a tendency to allocate budgets to the districts and Upazila according to the number of heads of facility staff, which is not necessarily in proportion with the population size of the facility's coverage The drugs are ostensibly supplied by pull system, however, it has been pointed out that it in reality it is a push system [12]. The planning, monitoring and evaluation of projects and programs, is carried out by the central government. Problems include the fact that the needs of facilities at union and Upazila levels have not been reflected and the fact that local facilities are not conducting evaluation and monitoring. However, it is obvious that a huge burden lies on the central government in regards to the management of 32 OPs (38 in the previous program), monitoring and evaluation, information management, complicated procurement and supply management, etc. It is obvious that the central management system is overburdened [12] [35].

Continuing from the previous sector program, the current sector program is promoting local level planning (LLP) to improve conditions solutions. The program, after finalizing a pilot project, plans to expand LLP nationwide. Through the "Maternal Support Service Strengthening Project", implemented by JICA, strengthening administrative capacity at Upazila and union levels has been proceeded. It is believed that local level facilities are capable to implement LLP in the area where the JICA supported project was implemented [35].

Chapter 6 Development Assistance and Partnership

6.1 Framework for Donor Coordination

6.1.1 Current Situation

Bangladesh introduced SWAps for the first time in the health sector in the 90's and is currently implementing its third sector program. 62.5% of development partners' contribution for the program is provided through pool funding, managed by The World Bank. Dialogue and coordination among governments and donors is done through various meetings. In addition, the "Bangladesh Development Forum" is held every year[34].

6.1.2 Coordination Meeting

Cooperation coordination is carried out by the Health Group Meeting of Local Consultative Group (LCG-Health) and sub-groups under LCG. The LCG-Health, a policy dialogue and coordination mechanism among governments and development partners, has been held quarterly. The sub-group meeting with specific focuses such as maternal child health and health human resources has been held on needs basis. The LCG-Health is chaired by the minister of MOH&FW and includes members from each department of MOH&FW, from related departments of the Ministry of Women and Child, Ministry of Planning, and Ministry of Finance, and from development partners. The Health, Population and Nutrition Sector Development program (HPNSDP) started in July 2011 and as of July 2012, nine task-groups and six working-groups have been established.[35] Acting as a coordination system among development partners, a "Health Consortium Meeting" is held monthly[36].

6.2 Activities of Major Development Partners

Fourteen major development partners such as The World Bank are supporting HPNSDP. The program further receives financial assistance from the Global Fund and GAVI-HSS. The funding for the sector program (as of PIP in July 2011) are shown in Table 6-1.

Table 6-1 Development Partners' Contribution for HPNSDP

Development Partner (multi)	Assistant Amount (million US$)	Development Partner (bilateral)	Assistant Amount (million US$)
IDA	358.90	USAID	285.00
UNICEF	130.00	DFID	191.00
WHO	75.00	CIDA	106.76
GFATM	71.85	SIDA	80.00
UNFPA	46.00	JICA	70.00
GAVI-HSS	37.67	AusAID	36.64
EC	27.00	GIZ	3.60
UNAIDS	6.00		
		Total	1,556.13

Source: Planning Wing, MOH&FW, HPNSDP Program Implementation Plan Volume I. July 2011 [38]

[34] Information obtained from JICA Bangladesh Office

[35] Nine task-groups are (1) M&E TG, (2) Financial Management TG, (3) Procurement TG, (4) Nutrition TG, (5) Human Resource TG, (6) Gender, Equity, Voice and Accountability TG, (7) Health Financing Resource TG, (8) MNCH&FP TG and (9) Sector Management TG. There are 6 working-groups under these task-groups: Alternative Source of Health Care Financing WG and Budgeting WG under (7), MNCAH WG and DSF WG under (8), Urban Health WG and Sector Coordination WG under (9).

[36] Members are AusAID, DFID, CIDA, EC, GDC, JICA, SIDA, USAID, UNAIDS, UNDP, DNFPA, UNICEF, WFP, WHO, FAO, ADB and WB. The chairman is decided by a mutual election.

An overview of the areas of development partners' support can be found in Table 6-2 and below.

Table 6-2 Overview of the Supported Areas by Major Development Partners

	Period	Child health	Maternal health	HIV/ AIDS	TB	Malaria	Health system
WHO	2008-2013						X
World Bank	2011-2014	X	X				X
UNICEF		X	X	X			
Global Fund				X	X	X	
USAID	2011-2016		X				X
DFID	2011-2015	X					X

Source: Information on website of each donor (see below)

(1) World Health organization (WHO)

According to Country Assistance Strategy 2008-2013 the essential focus of the WHO's work is to provide technical assistance to the government. This includes the formulation of health-related policies, norms and standards, service guidelines, capacity building and advisory support to the government. The WHO provides supports for attaining of universal coverage through effective interventions into public health services, strengthening disease control beyond national borders, coordination with other social, economic and environment sectors which have influence on populace health, and improvement of MOH&FW governance [57].

(2) The World Bank

In the Country Assistance Strategy 2011-2014, the World Bank emphasizes financial support for implementation of HPNSDP and improvement of service delivery in rural areas, particularly improvement of access to maternal and child health care by the poor [58].

(3) United Nations Children's Fund (UNICEF)

The key areas of UNICEF cooperation are neonatal care, child health, nutrition and HIV/AIDS. The UNICEF supports improvements to antenatal and emergency obstetric in 191 public health facilities. These include facility upgrading, provision of new equipment and staff training. This program is a joint program with WHO and UNFPA. Regarding child survival, it supports immunization, child illness management and injury-prevention and disaster-preparedness programs at school. Vitamin A supplement, deworming, salt-iodization, prevention of anemia, and emergency food supplements to women and children during floods and other emergencies are also supported by UNICEF. In HIV/AIDS prevention UNICEF focuses on education and raising public awareness of HIV/AIDS including children in adolescent centers and learning centers for working children. Supports for prevention of parent to child transmission and 146 drop-in centers in 44 districts are also provided [59].

(4) The Global Fund to Fight for AIDS, Tuberculosis and Malaria (the Global Fund)

Supports by the Global Fund are shown in Table 6-3.

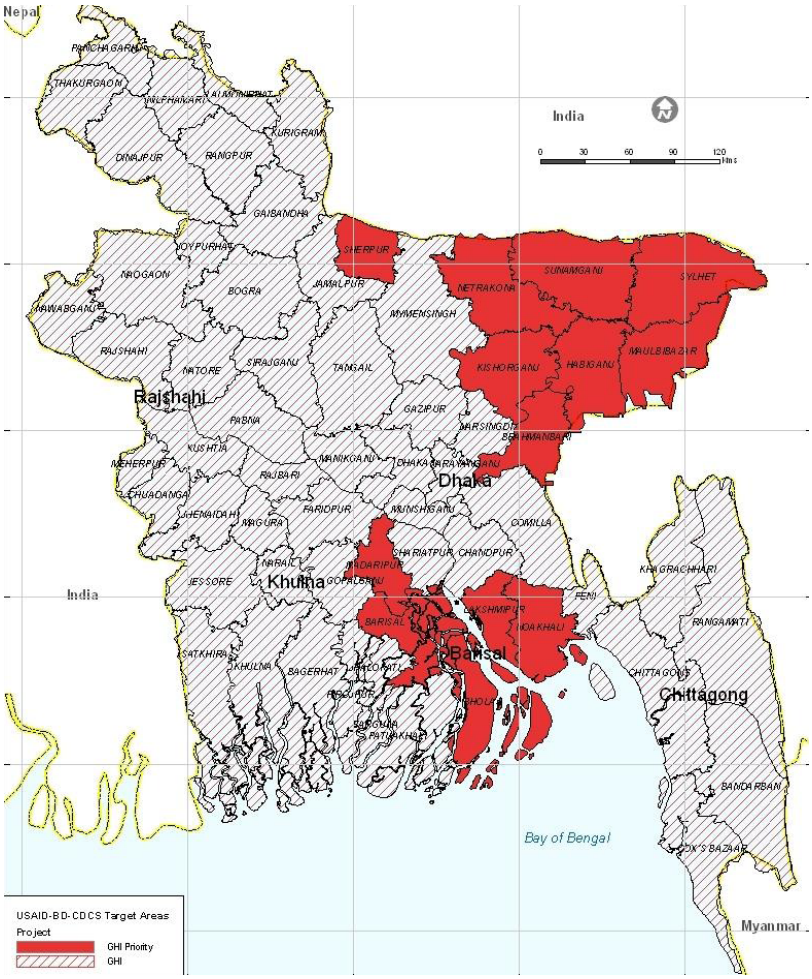
Table 6-3 The Global Fund to Fight for AIDS, Tuberculosis and Malaria: Grant portfolio

Grant Type	Round	Grant Title	Principal Recipient	Total signed amount (US$)	Phase and Status
HIV/ AID	2	Expanding HIV/AIDS Prevention in Bangladesh	Ministry of Health and Family Welfare of Bangladesh	3,354,432	RCC I - In Progress
	2	Expanding HIV/AIDS Prevention in Bangladesh	Save the Children Federation, Inc.	26,759,601	RCC I - In Progress
	2	Expanding HIV/AIDS Prevention in Bangladesh	International Centre for Diarrheal Disease Research	12,227,401	RCC I - In Progress
	6	HIV Prevention and Control among High-Risk Population and vulnerable Young People in Bangladesh	Ministry of Finance of Bangladesh	20,216,223	Phase II - Closed
Tuber-culosis	8	CCM Bangladesh Round 8 Tuberculosis Proposal with Health Systems Strengthening Cross-cutting Interventions	Ministry of Finance of Bangladesh	1,903,392	Phase I - In Progress
	Single Stream of Funding Grant	No Title	Bangladesh Rural Advancement Committee (BRAC), Bangladesh	13,608,944	Phase I - In Progress
	Single Stream of Funding Grant	Round 10 Tuberculosis proposal consolidated with Round 8	Ministry of Finance of Bangladesh	8,803,385	Phase I - In Progress
Malaria	6	Bangladesh Malaria Proposal to GFATM	Ministry of Finance of Bangladesh	14,102,704	Phase II - Closed
	Single Stream of Funding Grant	Expanding Coverage of Malaria Prevention and Control in Bangladesh	Bangladesh Rural Advancement Committee, Bangladesh	5,389,849	Phase I - In Progress
	Single Stream of Funding Grant	Expanding coverage of malaria prevention and control in Bangladesh	Ministry of Finance of Bangladesh	12,382,922	Phase I - In Progress

Source: The Global Fund, Country Grant Portfolio, 2012 [60]

(5) United States Agency for International Development (USAID)

In its Country Development Cooperation Strategy 2011-2016 USAID indicates strategic programming for health sector. This consists of three intermediate results: (i) increased use of effective family planning and reproductive health srvices, (ii) increased use of integrated essential family planning, health and nutrition services, and (iii) strengthened health systems and governance at the national, local, and community levels through capacity building in monitoring and evaluation, etc. Efforts will be country-wide but focused primarily on low performing areas indicated in Figure 6-1 [61].



Source: Bangladesh Country Development Cooperation Strategies FY2011-FY2016, USAID, 2011 [60]

Figure 6-1 USAID Priority Areas in Development Cooperation Strategy 2011-2016

6.3 Outline of Japanese Cooperation

Japan has provided support in the areas of polio eradication, hospital construction, medical equipment provision, human resource development for reproductive health and maternal and child health. In addition, the areas of arsenic control and neglected tropical diseases control have been supported as well. In the past ten years, Japan has focused its support mainly on maternal and child health. Based on achievements obtained through cooperation in this area, a technical cooperation project called "Safe Motherhood Promotion Project (Phase II)" was commenced in 2011. At the same time, a yen-loan financed project called "Maternal, Neonatal and Child Health Improvement Project (Phase 1) (Health, Population and Nutrition Sector Development Program)" was also launched for the first time in the health sector by the Japanese government. The project aims not only to improve maternal health services but also to build capacity of local governments and to strengthen district and Upazila Health Systems through project activities.

Table 6-4 Japanese Assistance for Bangladesh Health Sector in Recent Years

Scheme	Cooperation period (fiscal year)	Name of project
Technical cooperation projects	1988 - 1992	Rheumatic Fever/ Rheumatic Heart Disease Control Pilot Project
	1999 - 2004	Bangladesh Reproductive Health Human Resource Development
	2005 - 2008	Project for Sustainable Mitigation of Arsenic Contamination under the Integrated Local Government System
	2006 - 2011	Safe Motherhood Promotion Project
	2011 - 2016	(Science technology) Project for Research and Development of Prevention and Diagnosis for Neglected Tropical Diseases, especially Kala-Azar
	2011 - 2016	Safe Motherhood Promotion Project (Phase II)
	2008 - 2010	Arsenic Mitigation Policy Advisor
	2010	Arsenic Mitigation Policy Advisor
	2009 - 2011	Health and Human Resource Development Advisor
	2011 - 2013	Health Advisor
Loan project	2011 - 2016	Maternal Child Health Improvement Project (Health, Nutrition and Population Sector Program) (Phase 1)
Grant aid project	2000	The 4th Polio Eradication Project (through UNICEF)
	2000	Project for Improvement of Maternal and Child Health Training Institute
	2001	The 5th Polio Eradication Project (through UNICEF)
	2001	Project for Support to Strengthening of Emergency Obstetric Care Service
	2002	Polio Eradication Project (through UNICEF)
	2002	Project for Support to Strengthening of Emergency Obstetric Care Service
	2003	Project for Mitigation of Arsenic Contamination in the People's Republic of Bangladesh
	2003	Project for Support to Strengthening of Emergency Obstetric Care Service
	2004	Project for Infectious Diseases Prevention for Children
Grass-roots grant aid project	2007	Project for Strengthening of Services in Ruslan Hospital
	2007	Project for Construction of BEDO Health Center
	2007	Project for Construction of BRIDGE MCH Clinic
	2007	Project for Extension of Dhaka Lions Eye Hospital
	2008	Project for Extension of Rural Clinic and Training Center of Tatibondo Village
	2008	Project for Construction of Rural Clinics in Chittagong District
	2008	Project for Extension of Filariasis Hospital
	2008	Project for Construction of Rural Clinic of Rowayl Village
	2009	Project for Construction of Community Clinics in Magura District
	2009	Project for Construction of Northern Dhaka Rotary Club Eye Hospital
	2009	Project for Renovation of Chandraghona Christ Church Hospital
	2010	Project for Extension of MCH Care Clinic in Barisal
	2010	Project for Construction of Training Center of Cox's Bazar Hospital for Women and Children
	2010	Project for Improvement of Service in Marium Eye Hospital
Grass-roots technical cooperation project	2008 – 2012	Model project for an improvement on oral health care in rural area in Bangladesh
	2009 – 2011	Model Project for Community-Health Improvement through Total Sanitary and Hygiene Education at Primary School
	2009 - 2011	Project on the Improvement of Health Damage and Poverty by Arsenic Contamination in Abhaynagar Upazila, Jessore District, Bangladesh
Follow-up project	2003	Follow-up Cooperation for Dhaka Shishu Hospital
	2003	Follow-up Cooperation of the Project for Improvement of Maternal and Child Health Training Institute (follow-up study)
	2004	Follow-up Cooperation of the Project for Improvement of Maternal and Child Health Training Institute (construction of facilities 1)
	2004	Washing Follow-up Cooperation for Dhaka Shishu Hospital
	2004 - 2005	Follow-up Cooperation for the Project for Improvement of Maternal and Child Health Training Institute (construction of facilities 2)

Source: Ministry of Foreign Affair, Official Development Assistant, County Data Book 2011 [1]
Ministry of Foreign Affair, Japan's ODA: Rolling Plan for the People's Republic of Bangladesh (April 2012) [62]
JICA Knowledge Site [63]

Chapter 7 Priority Health Issues and Recommendations

7.1 Priority Health Issues

7.1.1 Priority Issues and Their Background

The health indicators of Bangladesh as a whole are satisfactorily improving towards achieving Millennium Development Goals (MDGs). Improvement in the health sector has become the center of international attention. The positive developments are the result of the efforts of the health sector and the government of Bangladesh as well as poverty reduction impact, improved education level of women, improvement in other social sectors and support from many NGOs and private institutions [64]. However, there are still many issues to be addressed, including the following:

- High neonatal mortality rate and low service coverage of post-natal care
- Low utilization of services related to childbirths, particularly births attended by skilled birth attendants and births at health institutions
- Low degree of improvement in nutrition status of children
- Large gap between the rich and the poor (though indicators of the poor are improving they are not satisfactory and there are still large gaps between the lowest and highest wealth quintiles)
- Service utilization gap between geographical areas (i.e. between divisions, districts, urban-rural, and remote areas)
- Inadequate systems (surveillance system, service delivery system and human resources) to deal with the double burden of diseases in the health sector, in which communicable diseases and chronic diseases coexist

One of the causes of the weak health system in Bangladesh is a serious shortage and mal-distribution of human resources. Health service delivery by centralized health administrative system is also weakening the health system. Improvement of services through strengthening Upazila health services by local level planning (LLP) and establishment of Upazila Health System (UHS) is an issue to be implemented. Rapid expansion of the private sector and stewardship of the Ministry of Health and Family Welfare (MOH&FW) are also problems to be solved.

7.1.2 Efforts by the Government and Development Partners to Priority Issues

The Government of Bangladesh is now carrying out the third sector program (Health, Population and Nutrition Sector Development Program, HPNSDP), which is supported by over fifteen development partners. Dialogues and coordination between the Government of Bangladesh and development partners have been arranged through various policy dialogues and assistance coordination meetings.

7.2 Recommendations

A detailed study and examination of Japanese assistance have been carried out in the area of maternal and child health, As a result, a technical cooperation project ("Safe Motherhood Promotion Project, Phase II") and the yen-loan project ("Maternal, Neonatal and Child Health Improvement Project, Phase 1 (Health,

Population and Nutrition Sector Development Program") were commenced in 2011. It can therefore be assumed that sufficient support is provided in the area of maternal and child health.

7.2.1 Human Resource Development Support

An important priority area for support is human resource development as this is a requirement for improvements in health services and strengthening health system. It will take time to resolve the shortage of health personnel. The issue can be addressed by providing support for ensuring and improving quality in the current health workforce through preparation and improvement of curricula/standards/guidelines, establishment of a quality management system and in-service training system (both for public and private sectors). Those are the areas of support which can be developed or expanded based on experiences and achievements of Japan's cooperation in maternal and child health. Support for the establishment of a management information system of human resources for health which is linked with a personnel information system is also considered useful.

7.2.2 Specialized Services for the Poor and People in Remote Areas

In order to improve various health indicators in the future, it is essential to improve the delivery of services to people living in poverty and in remote areas, for whom it has been difficult to access those services. The government is considering to assign health personnel to the poor areas and remote areas and to develop an incentive package. However, it is assumed that flexible assistance consisting of various programs is important, including education activities for the poor, improvement of access to health services, training and utilization of informal sector service providers in the community, financial support for the poor related to receiving health service (transportation expenses, opportunity costs, medicine expenses, consultation charges, etc.), partnership with NGOs, and cooperation with community organizations.

7.2.3 Other assistance

Other than the above, support in the following areas need to be considered, as they will be important health sector issues in the future. These are areas in which Japan's knowledge and experiences can be utilized. It is however important to continue to collect information and explore specific areas of assistance within these areas.

- Assistance for noncommunicable disease control
- Assistance for establishment of a health insurance system

ATTACHMENTS

Attachment 1: Major Health Indicators

Attachment 2: References

Attachment 1: Major Health Indicators (People's Republic of Bangladesh)

People's Republic of Bangladesh				MDGs	Sources	1990	2000	Latest	Latest year	Latest in Region	(Latest year)	Region
0 General Information	0.1 Demography	0.1.01	Population, total		WDI	105,256,026	129,592,275	148,692,000	2010	1,633,146,000	(2010)	South Asia
		0.1.02	Population growth (annual %)		WDI	2.5	1.9	1.1	2010	1.4	(2010)	South Asia
		0.1.03	Life expectancy at birth, total (years)		WDI	59.5	64.7	68.6	2010	65.3	(2010)	South Asia
		0.1.04	Birth rate, crude (per 1,000 people)		WDI	35.7	27.2	20.3	2010	23.0	(2010)	South Asia
		0.1.05	Death rate, crude (per 1,000 people)		WDI	10.3	7.4	6.1	2010	7.9	(2010)	South Asia
		0.1.06	Urban population (% of total)		WDI	19.8	23.6	28.1	2010	30.1	(2010)	South Asia
	0.2 Economic・Development Condition	0.2.01	GNI per capita, Atlas method (current US$)		WDI	290	380	700	2010	1,175.9	(2010)	South Asia
		0.2.02	GNI growth (annual %)		WDI	5.7	6.2	6.3	2010	8.0	(2010)	South Asia
		0.2.03	Total enrollment, primary (% net)	2.1	WDI	64.4		95.5	2009	90.7	(2009)	South Asia
		0.2.04	Ratio of female to male primary enrollment (%)	3.1	WDI	83.9		105.5	2009	95.0	(2008)	South Asia
		0.2.05	Literacy rate, adult total (% of people ages 15 and above)		WDI			55.9	2009	61.1	(2009)	South Asia
		0.2.06	Human Development Index		HDR	0.19	0.48	0.50	2011	0.55	(2011)	South Asia
		0.2.07	Human Development Index (rank)		HDR	135 / 160	145 / 173	146 / 187	2011			
		0.2.08	Poverty gap at $1.25 a day (PPP) (%)		WDI		18.6	11.2	2010	8.6	(2008)	South Asia
	0.3 Water and Sanitation	0.3.01	Improved water source (% of population with access)	7.8	HNP Stats	77	79	81	2010	90.0	(2010)	South Asia
		0.3.02	Improved sanitation facilities (% of population with access)	7.9	HNP Stats	39	47	56	2010	38.3	(2010)	South Asia
1 Health Status of People	1.1 Mortality and Morbidity	1.1.01	Age-standardized mortality rate by cause (per 100,000 population) - Communicable		GHO			344	2008	334	(2008)	South-East Asia
		1.1.02	Age-standardized mortality rate by cause (per 100,000 population) - Noncommunicable		GHO			702	2008	676	(2008)	South-East Asia
		1.1.03	Age-standardized mortality rate by cause (per 100,000 population) - Injuries		GHO			91	2008	101	(2008)	South-East Asia
		1.1.04	Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)		HNP Stats			37.7	2008	38.6	(2008)	South Asia
		1.1.05	Cause of death, by non-communicable diseases (% of total)		HNP Stats			52.0	2008	51.5	(2008)	South Asia
		1.1.06	Cause of death, by injury (% of total)		HNP Stats			10.2	2008	9.9	(2008)	South Asia
		1.1.07	Distribution of years of life lost by broader causes (%) - Communicable		GHO			52	2008	49	(2008)	South-East Asia
		1.1.08	Distribution of years of life lost by broader causes (%) - Noncommunicable		GHO			34	2008	36	(2008)	South-East Asia
		1.1.09	Distribution of years of life lost by broader causes (%) - Injuries		GHO			14	2008	15	(2008)	South-East Asia
	1.2 Maternal and Child Health	1.2.01	Maternal mortality ratio (modeled estimate, per 100,000 live births)	5.1	MDGs	870	500	340	2008	290	(2008)	South Asia
		1.2.02	Adolescent fertility rate (births per 1,000 women ages 15-19)	5.4	MDGs		115.7	72.5	2010	72.8	(2010)	South Asia
		1.2.03	Mortality rate, under-5 (per 1,000)	4.1	MDGs	143.4	85.7	47.8	2010	67.0	(2010)	South Asia
		1.2.04	Mortality rate, infant (per 1,000 live births)	4.2	MDGs	99.4	62.9	38.0	2010	51.6	(2010)	South Asia
		1.2.05	Low-birthweight babies (% of births)		HNP Stats			21.6	2006	27.4	(2010)	South Asia
		1.2.06	Fertility rate, total (birth per woman)		HNP Stats	4.5	3.1	2.2	2010	2.7	(2010)	South Asia
	1.3 Infectious Diseases	1.3.01	a) Prevalence of HIV, male (% ages 15-24)	6.1	MDGs			0.1	2009	0.1	(2009)	South Asia
			b) Prevalence of HIV, female (% ages 15-24)	6.1	MDGs			0.1	2009	0.1	(2009)	South Asia
		1.3.02	Notified cases of malaria per 100,000 population	6.6	MDGs Database			1,510	2008			
		1.3.03	a) Malaria death rate per 100,000 population, all ages	6.6	MDGs Database			3	2008	2	(2009)	Southern Asia
			b) Malaria death rate per 100,000 population, ages 0-4	6.6	MDGs Database			2	2008	8	(2009)	Southern Asia
		1.3.04	Tuberculosis prevalence rate per 100,000 population (mid-point)	6.9	MDGs Database	493	479	411	2010	267	(2009)	Southern Asia
		1.3.05	Incidence of tuberculosis (per 100,000 people)	6.9	MDGs	225	225	225	2010	192	(2010)	South Asia
		1.3.06	Tuberculosis death rate (per 100,000 people)	6.9	MDGs	58	56	43	2010	29	(2010)	South Asia
		1.3.07	Prevalence of HIV, total (% of population ages 15-49)		HNP Stats	0.1	0.1	0.1	2009	0.3	(2009)	South Asia
		1.3.08	AIDS estimated deaths (UNAIDS estimates)		HNP Stats	100	100	200	2009			
		1.3.09	HIV incidence rate, 15-49 years old, percentage (mid-point)		MDGs Database							
		1.3.10	Paritial Prioritization Score by the Global Fund (HIV)		GF			5	2012			
			Paritial Prioritization Score by the Global Fund (Malaria)		GF			8	2012			
			Paritial Prioritization Score by the Global Fund (TB)		GF			10	2012			
	1.4 Nutrition	1.4.01	Prevalence of wasting (% of children under 5)		HNP Stats	17.5	15	17.5	2007			
2 Service Delivery	2.1 Maternal and Child Health	2.1.01	Births attended by skilled health personnel, percentage	5.2	MDGs Database		12.1	24.4	2009	50.0	(2009)	Southern Asia
		2.1.02	Birth by caesarian section		GHO			7.5	2007	8.9	(2011)	South Asia
		2.1.03	Contraceptive prevalence (% of women ages 15-49)	5.3	MDGs		53.8	52.6	2008	50.5	(2010)	South Asia
		2.1.04	Pregnant women receiving prenatal care (%)	5.5	HNP Stats		33.3	52.8	2010	70.6	(2010)	South Asia
		2.1.05	Pregnant women receiving prenatal care of at least four visits (% of pregnant women)	5.5	HNP Stats		10.5	23.4	2010	46.1	(2010)	South Asia
		2.1.06	Unmet need for family planning, total, percentage	5.6	MDGs Database		15	16.8	2007	14.7	(2008)	Southern Asia
		2.1.07	1-year-old children immunized against: Measles	4.3	Childinfo	65	72	94	2010	77	(2010)	South Asia
		2.1.08	1-year-old children immunized against: Tuberculosis		Childinfo	86	95	94	2010	88	(2010)	South Asia
		2.1.09	a) 1-year-old children immunized against: DPT (percentage of infants who received their first dose of diphtheria, pertussis and tetanus vaccine)		Childinfo	86	88	98	2010	85	(2010)	South Asia
			b) 1-year-old children immunized against: DPT (percentage of infants who received three doses of diphtheria, pertussis and tetanus vaccine)		Childinfo	69	83	95	2010	76	(2010)	South Asia
		2.1.10	1-year-old children immunized against: Polio		Childinfo	69	84	95	2010	75	(2010)	South Asia
		2.1.11	Percentage of infants who received three doses of hepatitis B vaccine		Childinfo			95	2010	51	(2010)	South Asia
	2.2 Infectious Diseases	2.2.01	Condom use with non regular partner, % adults (15-49), male	6.2	MDGs							

Attachment 1: Major Health Indicators (People's Republic of Bangladesh)

People's Republic of Bangladesh				MDGs	Sources	1990	2000	Latest	Latest year	Latest in Region	(Latest year)	Region
		2.2.02	Condom use with non regular partner, % adults (15-49), female	6.2	MDGs							
		2.2.03	Men 15-24 years old with comprehensive correct knowledge of HIV/AIDS, percentage	6.3	MDGs Database			17.9	2007	36	(2005-2010)	Southern Asia
		2.2.04	Women 15-24 years old with comprehensive correct knowledge of HIV/AIDS, percentage	6.3	MDGs Database			14.6	2009	17	(2005-2010)	Southern Asia
		2.2.05	Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years	6.4	MDGs Database			0.84	2006	0.73	(2005-2010)	Southern Asia
		2.2.06	Use of insecticide-treated bed nets (% of under-5 population)	6.7	HNP Stats							
		2.2.07	Children under 5 with fever being treated with anti-malarial drugs, percentage	6.8	MDGs Database							
		2.2.08	Tuberculosis treatment success rate under DOTS, percentage	6.10	MDGs Database		81	91	2008	88	(2008)	South Asia
		2.2.09	Antiretroviral therapy coverage (% of people with advanced HIV infection)	6.5	MDGs			23.0	2009			
		2.2.10	People aged 15 years and over who received HIV testing and counselling, estimated number per 1,000 adult population		GHOr			0.4	2010			
		2.2.11	Testing and counselling facilities, estimated number per 100,000 adult population		GHOr			0.1	2010			
		2.2.12	Pregnant women tested for HIV, estimated coverage (%)		GHOr			<1	2010			
		2.2.13	Percentage of HIV-infected pregnant women who received antiretroviral drugs to reduce the risk for mother-to-child transmission (Mid point)	6.5	MDGs Database							
		2.2.14	Tuberculosis case detection rate (all forms)		HNP Stats	21.0	26.0	46.0	2010	58	(2010)	South Asia
		2.2.15	Tuberculosis treatment success rate (% of registered cases)	6.10	MDGs		81.0	92.0	2009	88	(2009)	South Asia
	2.3 Nutrition	2.3.01	Vitamin A supplementation coverage rate (% of children ages 6-59 months)		HNP Stats			99.7	2010	49.8	(2010)	South Asia
		2.3.02	Consumption of iodized salt (% of households)		HNP Stats			84.3	2006	55.3	(2010)	South Asia
	2.4 Quality and Coverage	2.4.01	Estimate of health formal coverage		ILO			0.4		11.6		Countries of Very High Vulnerability
		2.4.02	Population not covered (%) due to financial resources deficit		ILO			91.3		85.8		Countries of Very High Vulnerability
		2.4.03	Population not covered (%) due to professional health staff dificit		ILO			86.8		74.6		Countries of Very High Vulnerability
3 Health System	3.1 Human Resources	3.1.01	Physicians (per 1,000 people)		HNP Stats	0.18		0.30	2007	0.6	(2010)	South Asia
		3.1.02	Midwives (per 1,000 people)		HNP Stats							
		3.1.03	Nurses (per 1,000 people)		HNP Stats			0.1	2004	0.68	(2004)	South Asia
		3.1.04	Dentistry personnel density (per 10,000 population)		GHO			0.19	2007	1	(2007)	South-East Asia
		3.1.05	Density of pharmaceutical personnel (per 10,000 population)		GHO			0.64	2007	4.0	(2007)	South-East Asia
	3.2 Health Financing	3.2.01	Health expenditure, total (% of GDP)		HNP Stats		2.8	3.5	2010	3.9	(2010)	South Asia
		3.2.02	Health expenditure, public (% of total health expenditure)		HNP Stats		39.0	33.6	2010	30.0	(2010)	South Asia
		3.2.03	Health expenditure, private (%) of total health expenditure)		HNP Stats		61.0	66.4	2010	70.0	(2010)	South Asia
		3.2.04	Out-of-pocket health expenditure (% of private expenditure on health)		HNP Stats		95.1	96.5	2010	79.3	(2010)	South Asia
		3.2.05	Health expenditure, public (% of government expenditure)		HNP Stats		7.6	7.4	2010	3.5	(2010)	South Asia
		3.2.06	External resources for health (% of total expenditure on health)		HNP Stats		6.9	8.0	2010	2.3	(2010)	South Asia
		3.2.07	Social security expenditure on health as a percentage of general government expenditure on health		GHO			0.0	2009	14.4	(2009)	South East Asia
		3.2.08	a) Health expenditure per capita (current US$)		HNP Stats		9.1	23.3	2010	47.5	(2010)	South Asia
			b) Per capita total expenditure on health (PPP int. $)		GHO		22	48	2009	120	(2009)	South Asia
		3.2.09	Per capita government expenditure on health at average exchange rate (US$)		GHO		4	6	2009	19	(2009)	South Asia
	3.3 Facilities, Equipments and Supplies	3.3.01	a) Median availability of selected generic medicines (%) - Public		GHO							
			b) Median availability of selected generic medicines (%) - Private		GHO							
		3.3.02	a) Median consumer price ratio of selected generic medicines - Public		GHO							
			b) Median consumer price ratio of selected generic medicines - Private		GHO							
		3.3.03	Hospital beds (per 1,000 population)		HNP Stats	0.3		0.3	2005	0.9	(2005)	South Asia

WDI: World Development Indicators & Global Development Finance (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
HDR: Human Development Reports (http://hdr.undp.org/) (Accessed 07/2012)
HNP Stats: Health Nutrition and Population Statistics (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
GF: Global Fund eligibility list for 2012 funding channels, the Global Fund to Fight AIDS, Tuberculosis and Malaria (http://www.theglobalfund.org/en/application/applying/ecfp/) (Accessed 07/2012)
GHO: Global Health Observatory Country Statistics (http://www.who.int/gho/countries/en/) (Accessed 07/2012)
GHOr: Global Health Observatory Repository (http://apps.who.int/ghodata/) (Accessed 07/2012)
MDGs: Millennium Development Goals (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
MDG database: Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/) (Accessed 07/2012). Regional data is available on The Millennium Development Goals Report Statistical Annex 2011 (United Nations).
Childinfo: Childinfo UNICEF (http://www.childinfo.org/) (Accessed 07/2012)
ILO: World Social Security Report 2010/11: Providing coverage in times of crisis and beyond. International Labour Office Geneva: ILO 2010.

1.3.10 Partial Prioritization Score is composed of the income level score for the country and the disease burden score for the particular disease in the country. The minimum score is 3 and the maximum score is 12.

2.4.01 Estimate of health formal coverage is indicated as percentage of population covered by state, social, private, company-based, trade union, mutual and other health insurance scheme.

2.4.02 Population not covered (%) due to financial resources deficit (based on median value in low-vulnerability group of countries) uses the relative difference between the national health expenditure in international $ PPP (excluding out-of-pocket) and the median density observed in the country group with low levels of vulnerability as a benchmark for developing countries. The rate can be calculated using the following formula:

Per capita health expenditure not financed by private households' out-of-pocket payments (PPP in int. $) [A]
Population (in thousands) total [B]
Total health expenditure not financed by out of pocket in int. $ PPP (thousands) [C = A x B]
Population covered by total health expenditure not financed by out-of pocket if applying Benchmark* (thousands) [D = C ÷ Benchmark]**
Percentage of the population not covered due to financial resources deficit (%) [F = (B - D) ÷ B x 100]
*Benchmark: Total health expenditure not financed by out-of-pocket per capita = 350 international $ PPP.
**This formula was partially modified from the original in the source to suit an actual calculation.

2.4.03 Population not covered (%) due to professional health staff dificit uses as a proxy the relative difference between the density of health professionals in a given countries and its median value in countries with a low level of vulnerability. The rate can be calculated using the following formula:

Total of health professional staff [A = B + C]
Number of nursing and midwifery personnel [B]
Number of physicians [C]
Total population (in thousands) [D]
Number of health professional per 10,000 persons [F = A ÷ D x 10]
Total population covered if applying Benchmark* (thousands) [E = A ÷ Benchmark x 10]
Percentage of total population not covered due to health professional staff deficit [G = (D - E) ÷ D x100]
Benchmark: 40 professional health staff per 10,000 persons.

Attachment 2：References (People's Republic of Bangladesh)

	TITLE	AUTHOR	URL	YEAR
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2	Third Party Evaluation 2009: Country Assistance Evaluation of Bangladesh -Summary- 【in Japanese】	Ministry of Foreign Affairs of Japan	http://www.mofa.go.jp/policy/oda/evaluation/FY2009/text-pdf/bangladesh.pdf	Mar. 2010
3	Human Development Report	UNDP	http://hdr.undp.org/en/	2011
4	The State of the World's Children 2012: Children in an Urban World	UNICEF	http://www.unicef.org/sowc2012/fullreport.php	2012
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8	Health Policy of Bangladesh. Ministry of Health & Family Welfare, Government of the People's Republic of Bangladesh	MOH&FW	http://nasmis.dghs.gov.bd/mohfw/index.php?option=com_content&task=view&id=388&Itemid=483	
9	Bangladesh Population Policy. Population Policy	MOH&FW	http://nasmis.dghs.gov.bd/mohfw/index.php?option=com_content&task=view&id=387&Itemid=484	
10	Final Report on End-line Evaluation of Health, Nutrition and Population Sector Programme (NHPSP)	Implementation Monitoring and Evaluation Division, Ministry of Planning		Sep 2011
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25	Malaria Situation in SEAR Countries - Bangladesh	WHO	http://www.searo.who.int/LinkFiles/Malaria_in_the_SEAR_mr-ban.pdf	
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31	Strategic Plan for Surveillance and Prevention of Non Communicable Diseases in Bangladesh 2011-2015	DGHS, MOH&FW	http://www.ban.searo.who.int/LinkFiles/Publication_NCD_Stratigic_Plan_2011__2015.pdf	2011
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