WHO Collaboration in Bangladesh

Biennial Report 2008–2009

World Health Organization
Country Office for Bangladesh

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WHO Library Cataloguing-in-Publication data

World Health Organization, Country Office for Bangladesh.
WHO Collaboration in Bangladesh: Biennial Report 2008–2009.

1. Regional Health Planning. 2. Communicable Disease Control.
3. Chronic disease - prevention and control. 4. Delivery of Health Care.
5. Family Health Services. 6. Environmental Health. 7. Health Resources - organization and administration. 8. Bangladesh.

ISBN 978-92-9022-371-9 (NLM classification: WA 540)

Printed in Bangladesh.

Table of contents

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BNC	Bangladesh Nursing Council
COPD	Chronic Obstructive Pulmonary Disease
CSBA	Community-based Skilled Birth Attendant
DNS	Directorate of Nursing Services
EPI	Expanded Programme on Immunization
FCTC	Framework Convention on Tobacco Control
GAVI	Global Alliance for Vaccines and Immunization
GFATM	Global Fund to Fight Aids, Tuberculosis and Malaria
HEU	Health Economics Unit
HIV	Human Immunodeficiency Virus
HNPSP	Health, Nutrition and Population Sector Programme
HPAI	Highly Pathogenic Avian Influenza
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
IDU	Injecting Drug User
IEDCR	Institute for Epidemiology, Disease Control and Research
IHR (2005)	International Health Regulations (2005)
IHTs	Institutes of Health Technology
IMCI	Integrated Management of Childhood Illnesses
MDA	Mass Drug Administration
MDG	Millennium Development Goal
MDR-TB	Multidrug-resistant Tuberculosis
MoHFW	Ministry of Health and Family Welfare
MR	Menstrual Regulation
NCD	Noncommunicable Disease
NGO	Nongovernmental Organization
NI	National Immunization Day
NIMHD	National Institute for Mental Health
NIPSOM	National Institute of Preventive and Social Medicine
NLEP	National Leprosy Elimination Programme
NTP	National Tuberculosis Control Programme
PHC	Primary Health Care
PHEIC	Public Health Emergency of International Concern
SEARO	South-East Asia Regional Office (of WHO)
SOP	Standard Operating Procedure
SSA	Special Services Agreement
STD	Sexually Transmitted Disease
TB	Tuberculosis
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
US$	United States Dollar
WHA	World Health Assembly
WHO	World Health Organization
WHO CC	WHO Collaborating Centres
WSP	Water Safety Plan

Preface

This report outlines and describes the work of the World Health Organization in Bangladesh during the biennium 2008–2009. It provides information on major activities carried out under the WHO Collaborative Programmes in Bangladesh.

WHO support is primarily aimed at strengthening the national public health system in the country. During the reporting period, increasing attention was paid to health promotion and prevention aspects. Special consideration was also given to aligning and harmonizing the work of WHO for the Health, Nutrition and Population Sector Programme in the country.

This report is an attempt to document the tangible contributions that the WHO Country Office for Bangladesh has made towards health and development in the country. These contributions would not have been possible without the commitment and support provided by Government counterparts, and other professionals within the public and private sectors, including those in academia, research institutes, professional organizations, the civil society and nongovernmental organizations. Their contribution to the work of WHO is greatly appreciated.

I trust that this document will provide useful information about the contributions made by the World Health Organization's collaborative work in Bangladesh. I welcome any suggestions and comments from readers on further improving the work of WHO.

Duangvadee Sungkhobol

Dr Duangvadee Sungkhobol
WHO Representative to Bangladesh

March 2010

1 Introduction

The World Health Organization (WHO) has been providing technical support to the Government of the People's Republic of Bangladesh since 1972. A Country Office was also established in the year 1972 to facilitate this support since the Organization's presence close to where the action is crucial to the success of any collaborative programme.

WHO is a three-tiered organization, with its headquarters in Geneva, six Regional Offices in its six Regions across the globe, and the many Country Offices in various countries. The WHO Country Office for Bangladesh reports to the Regional Office for South-East Asia (WHO SEARO), which is situated in New Delhi. The presence of WHO in Bangladesh comprises the Office of the WHO Representative in Dhaka and project offices. Several project offices, situated in various government office premises, further enhance the levels of collaboration with the respective government departments. The three tiers of the organization function in complementary fashion to each other with headquarters and the Regional Office primarily focusing on the normative and monitoring functions as well as back up technical support; while the Country Office provides day-to-day technical support. The Ministry of Health and Family Welfare (MoHFW) is the natural in-country partner of WHO from within the national Government, though the Ministry of Local Government, Rural Development and Cooperatives also participate in and oversee some health-related programmes. The Government-WHO Coordination Committee is the highest body at the policy level and coordinates the planning, implementation and monitoring of the collaborative workplan at the country level.

As the specialized agency for health in the United Nations system, WHO plays a leading role in shaping the global health agenda. The Organization is in the first place a technical agency and not a donor or funding agency. Six functions are core to the Organization to fulfil its mandate for health. These are enumerated in Box 1.

Box 1: WHO's Core Functions

1. Providing leadership on matters critical to health and engaging in partnerships where joint action is needed.
2. Shaping the research agenda and stimulating the generation, translation and dissemination of valuable knowledge.
3. Setting norms and standards, and promoting and monitoring their implementation.
4. Articulating ethical and evidence-based policy options.
5. Providing technical support, catalysing change, and building sustainable institutional capacity.
6. Monitoring the health situation and assessing health trends.

Programmatically, WHO follows different cycles. At the strategic level, there is the Eleventh General Programme of Work (2006–2015), and the Medium-term Strategic Plan (2008–2013). Based on these the Strategic Objectives (see annex) were formulated. These strategies and objectives are global mechanisms used across the Organization. Based on these and taking into consideration relevant regional and country factors, the second Country Cooperation Strategy (2008–2013) was formulated and this covered the same period as the Medium-term Strategic Plan. The second CCS describes the seven strategic directions that will form the basis of the collaborative programme of the WHO Country Office for Bangladesh.

Box 2: Strategic Directions of the WHO Country Cooperation Strategy 2008-2013 in Bangladesh

1. Promote access of vulnerable groups to health services ensuring continuum of care throughout the life course.
2. Enhance capacity for the prevention and control of major communicable diseases and diseases targeted for elimination/eradication, and strengthen integrated disease surveillance.
3. Promote healthy lifestyles and cost-effective interventions for the prevention and control of major NCDs and injuries, and for mental health promotion.
4. Enhance equitable and sustainable access to safe water and sanitation, reduce environmental and occupational health risks and promote food safety.
5. Strengthen multisectoral approaches for emergency preparedness, response and recovery.
6. Strengthen health systems focusing on health workforce development and equitable access to quality health care.
7. Foster partnerships and coordination for national health development.

Translating the scope of work into action requires the formulation and implementation of a biennium workplan which adheres to the principles of results-based management. Organization-wide, regional and office-specific expected results are first formulated and then followed by designing activities and tasks required to achieve the expected results. This entire operational planning is done every two years through an iterative process in consultation with government counterparts.

This Biennial Report summarises the achievements of the WHO collaborative programme in the different areas grouped according to disease or theme. It represents the first of three biennial reports that will consecutively inform on progress made in relation to the Country Cooperation Strategy 2008-2013. Important highlights include Pandemic (H1N1) 2009 preparedness and response, introduction of new vaccines, rebuilding health services in the aftermath of Cyclone *Sidr* of 2007 *and Aila* of 2009, the nationwide tuberculosis prevalence survey, community clinics, global adult tobacco survey, climate change, model wards for client-centred nursing care, training on newborn care, service availability mapping, health insurance schemes, etc.

The report covers the five main areas of public health that are addressed by the WHO collaborative programme. Individual sections on communicable diseases, noncommunicable diseases and mental health, family and community health, health

and environment, and health systems are included. Each of these sections provides key background information on the issues and challenges faced, and highlight some of the main contributions made by the WHO Country Office for Bangladesh during the biennium. The following section explains the situation and the successes achieved in resource mobilization and partnerships that are fundamental to holistic and continued improvements in the health sector. The final section provides an overview of the Country Office resources, including human and financial resources that have been utilized to implement the 2008–2009 biennium workplan.

2 Communicable diseases

The control of communicable diseases is fundamental to poverty reduction since repeated and often prolonged episodes place a considerable burden on limited household incomes as well as on health service resources. WHO support to this area of public health is focused on the control of diseases targeted for elimination (also referred to as Neglected Tropical Diseases or NTDs) and those with major public health impact, and the strengthening of disease surveillance.

In Bangladesh lymphatic filariasis, *kala azar* (visceral leishmaniasis) and leprosy are targeted for elimination. Considerable success has been made in eliminating leprosy with prevalence rates meeting the global target two years ahead of the scheduled date. WHO has concentrated its efforts on maintaining the necessary level of expertise for surveillance, diagnosis and patient management.

Diseases of major public health impact include tuberculosis (TB), malaria, dengue, soil-transmitted helminthiasis and HIV/AIDS. In addressing tuberculosis WHO has played a major role in supporting a nationwide TB prevalence survey and in developing a protocol for the first nationwide TB drug resistance survey.

Disease surveillance is a key component of effective disease control providing essential information for the delivery and planning of health-care interventions. WHO support has prioritized integrated disease surveillance, and epidemic preparedness and response. Following the declaration of the influenza pandemic in 2009 WHO along with other partners provided technical and logistical support to implement the national response plan and a major outbreak was successfully averted.

2.1 Diseases targeted for elimination

Lymphatic filariasis

Lymphatic filariasis is endemic in 32 districts and an estimated 70 million people are at risk. The main strategies for reducing morbidity and ultimately to eliminate the disease are mass drug administration (MDA) and community-based morbidity control interventions. During the period 2008–2009 the MDA programme was rolled out to 20 districts with a various number of campaign rounds completed in the respective endemic districts. Though the aim is to cover at least 80% of the total population, this figure may not have been reached in all the 20 districts. The district-wise breakdown is shown in Table 1.

WHO supported the MDA campaign, in particular community awareness and capacity-building for adequate MDA coverage. Support was provided for training of volunteers for MDA; monitoring of MDA coverage and programme performance evaluation in the test sites and sentinel sites; training of doctors and nurses for hydrocele operations and promoting community-based morbidity control activities.

The programme also received support from Tropical Diseases Research, the Centre for Neglected Tropical Diseases of the Liverpool School of Tropical Medicine (United Kingdom) and the Research Triangle Institute (North Carolina, United States). In addition di-ethyl carbamazine and albendazol were donated with support from the Japan International Cooperation Agency, Glaxo Smith-Kline and the Global Alliance for the Elimination of Lymphatic Filariasis. These activities were coordinated by WHO.

Table 1: Mass drug administration coverage

Division	District	District population (millions)	No. of MDA rounds completed
Rajshahi	Panchagar	1.0	8
	Thakurgaon	1.3	7
	Nilphamari	1.8	7
	Lalmonirhat	1.3	7
	Nawabganj	1.5	5
	Kurigram	1.9	5
	Dinajpur	2.9	4
	Rangpur	2.7	4
	Rajshahi	2.6	4
	Sirajganj	3.0	3
	Pabna	2.4	2
Khulna	Meherpur	0.7	5
	Kushtia	1.9	2
	Chuadanga	1.1	2
Barisal	Barguna	1.0	4
	Patuakhali	1.7	4
	Barisal	2.5	1
	Pirojpur	1.2	2
	Jhalokati	0.8	1
Dhaka	Dhaka (slum areas)	8.7	1
Total		42.0	

Kala azar (visceral leishmaniasis)

With an estimated number of 45 000 cases, *kala azar* is considered a major public health problem in Bangladesh. Nearly 10 000 new cases are diagnosed every year. There is significant under reporting, as reports from the private health service providers are not incorporated into the kala-azar surveillance system. The disease appears to be clustered in 139 sub-districts *(upazilas)* in 45 districts of the country.

A Memorandum of Understanding (MoU) was signed by the Health Ministers of Bangladesh, India and Nepal in 2005 with a view to eliminating *kala azar* from the three endemic countries. The elimination target was defined as less than one new case per 10 000 population per year. In the case of Bangladesh, the target is to be achieved in all endemic *upazilas* by the year 2015. Five elements underpin the main strategy: (i) early diagnosis and complete treatment; (ii) integrated vector management and vector surveillance; (iii) effective disease surveillance through passive and active case detection; (iv) social mobilization and building partnerships; and (v) clinical and operational research.

WHO provided technical support to the elimination programme through the revision of tools and guidelines for surveillance, monitoring and evaluation; the development of standard operating procedures (SOPs) and the training of Master Trainers for indoor residual spraying; and the overall scale-up of the elimination activities. Support was also provided in ensuring quality drug supply, insecticides and spraying equipment.

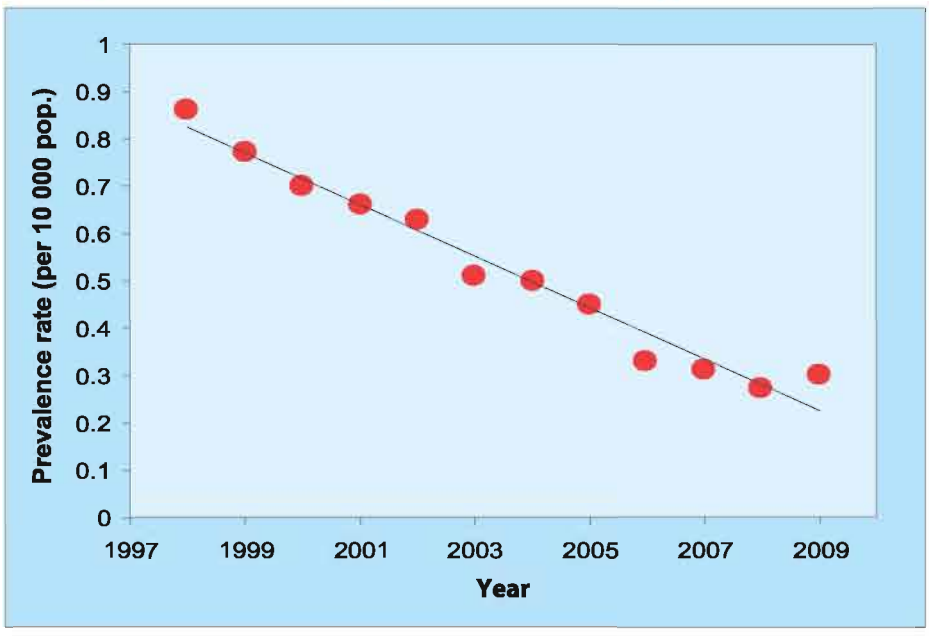
The third meeting of the Regional Technical Advisory Group on *kala azar* was hosted by Bangladesh in 2009. Together with the High-Level Consultation held in 2008, these efforts have strengthened programme implementation and boosted overall commitment for *kala azar* elimination.

Leprosy

Leprosy elimination, i.e. the achievement of a case rate of less than one case per 10000 population, was achieved in the country as a whole in 1998, two years ahead of the global target. In absolute numbers, Bangladesh ranks fifth in the world on leprosy cases with over 5000 new cases diagnosed annually.

The National Leprosy Elimination Programme (NLEP) has continued its efforts to further reduce the prevalence of leprosy. At the end of the biennium only four districts representing less than 2% of the country's population reported a prevalence exceeding the elimination target.

Figure1: Trends in leprosy registered prevalence rate, Bangladesh, 1998–2009



The core support of WHO to NLEP is prioritized towards maintaining the minimum expertise in matters related to suspecting, diagnosing and managing leprosy. Leprosy is increasingly becoming a rare disease in many parts of the country. This is due to the

sustained efforts over the years, but serious challenges persist. The control strategy needs to be realigned to providing basic services in integrated primary health-care (PHC) settings and more advanced specialist services in referral centres or through specialist teams. The WHO Basic Manual on Leprosy was translated in the Bangla language in 2009. This is expected to lead to a more wide use of the document by peripheral health workers. Relevant training modules were also developed or adapted and translated into Bangla.

Special efforts were made to target the leprosy-endemic areas. Over 20 skin camps were supported, especially in settings with a perceived high level of leprosy. These contributed to 38% of the local case detection. Training and supervisory activities were intensified, particularly in the endemic districts of the Chittagong Hill Tracts and the northern part of the country.

Parallel to the disease-control activities the annual schemes for vocational training and community-based rehabilitation of cured and deformed leprosy patients was continued. An assessment of these programmes conducted over the past 12 years indicated a lasting positive impact in more than 75% of the beneficiaries.

Operational research was also supported. Various studies were undertaken in collaboration with NLEP partners, including The Leprosy Mission International, Damien Foundation and the British Leprosy Relief Association. A small-scale research project, conducted by NLEP, showed that extended contact survey yields 8.5 times more cases than conventional contact survey and is preferable over family contact survey in settings where such surveys are conducted.

The WHO Country Office and NLEP also contributed to leprosy control in the South-East Asia Region by hosting the Regional Workshop on Leprosy Programme Management for Low-Endemic Countries on 8-11 June 2009 in Dhaka. Moreover, four NLEP staff were supported to attend the 17th (five-yearly) International Leprosy Congress held in Hyderabad, India, in January 2008.

The major challenge now is to sustain leprosy control efforts in order to further reduce the annual new case detection with a maximum of 1000 cases being next benchmark. Further reducing the diagnostic and treatment delays is another challenge. Both challenges require increased vigilance and integration for early recognition of leprosy and prompt treatment. Though the country has passed the peak of the epidemic several years ago, leprosy still carries a fairly high stigma and a significant number of cured patients have to cope with visible deformities and recurrent ulcers. The call for eliminating all forms of discrimination against persons affected by leprosy is yet to be universally answered.

2.2 Diseases with major public health impact

Tuberculosis

Bangladesh is categorized to be among the 22 high-burden countries in the world for tuberculosis (TB) prevalence and among the 28 countries with a high burden for multidrug-resistant tuberculosis (MDR-TB). Few cases of extremely drug-resistant TB (XDR-TB) have also been documented. The size of the National Tuberculosis Control Programme (NTP), both in terms of human resources and budget, reflects the political

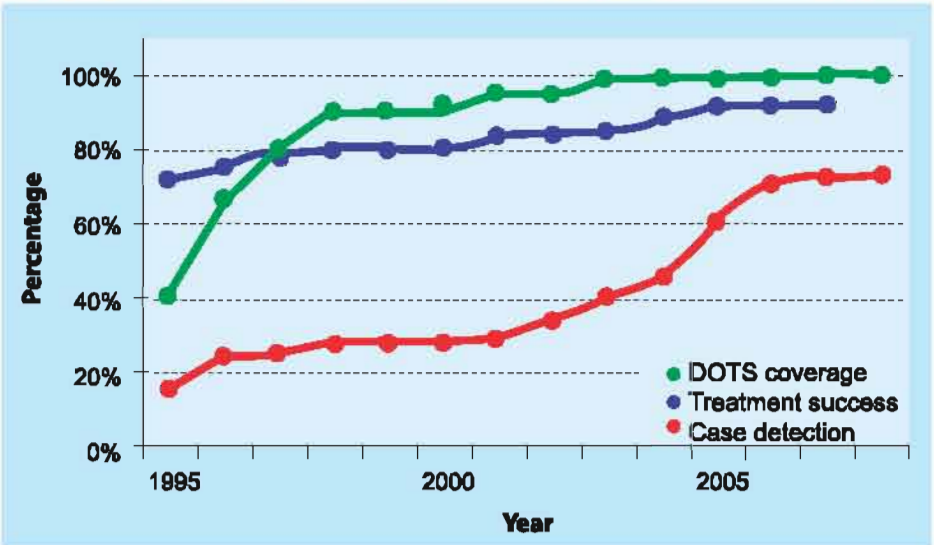
commitment of the government to eradicate the disease from the country. Compared to a decade ago resources of the NTP have dramatically increased, especially with the major financial injections by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) through Round 3, Round 5 and, more recently, Round 8.

Verifying compliance with DOTS Strategy during patient visit

The success of the programme is attributed to the support provided by nongovernmental organizations (NGOs). NGO partners have contributed significantly in the implementation of the programme at the district and *upazila* level and in metropolitan cities. They also provided substantial inputs on programme policy and strategy development, and with regard to conducting research, monitoring and evaluation. As a result the NTP and its partners could maintain the global targets with regard to DOTS coverage, case detection and treatment success (Figure 2).

The supporting role of WHO has evolved over the years. While WHO was perceived as the management agency to channel funds from the Canadian International Development Agency (CIDA) and later GFATM, a phase-out of the bulk of WHO-supported government-led activities has taken place during the first half of 2009. This phase-out provided an opportunity to the NTP to make full use of the government mechanisms and to take responsibility by exercising its leadership role. It also allowed the Organization to focus more coherently on its core business, i.e. providing the technical expertise related to TB control. This support is provided in two ways: as a day-to-day support to NTP in the implementation of its activities and through some special activities directly undertaken by WHO.

Figure 2: Trends in DOTS coverage, case detection and treatment success, 1995–2008



To address the complexities linked to the implementation of the Stop TB strategy, WHO facilitated several consultancy missions bringing in experts on specific areas of TB control such as TB laboratory, TB drug management, and practical approaches to lung health or TB/HIV.

In order to have programme policies underpinned by evidence generated in the country, some research activities were technically and/or financially supported. As a result of these and also following international guidelines, the NTP's National Guidelines and Guidelines on Public-Private Mix were updated. The development of new guidelines on childhood TB, MDR-TB and infection control was supported through a series of stakeholder consultations.

During the 2008–2009 biennium, WHO carried out a Nationwide TB Prevalence Survey in collaboration with the NTP, the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) and the Royal Netherlands Tuberculosis Association. A protocol for the first nationwide TB drug-resistance survey was also developed. With financial support from the Tuberculosis Control Assistance Programme, funded by the United States Agency for International Development, an in-depth assessment of NTP data collected over the past 10 years was undertaken.

Box 3: Nationwide TB Prevalence Survey

The major challenge in conducting the TB prevalence survey was to accomplish different kinds of tasks within the stipulated tight deadlines (about 15 to 20 days per field site). These included mapping, community mobilization, household census with numbers and direction, informed consent-taking, collection of two sputum samples, default tracing, case identification, referral, ensuring treatment initiation, recording sample testing at field laboratories, rechecking, sample transportation to the central laboratory, quality control, report preparation and supervision. Recruitment, training and the involvement of different cadres of personnel was a daunting task considering the field-level nature of the work for the fairly long project period.

Participation was, on average, more than 80% with a high level of cooperation from the community. Political events and natural calamities such as the Sidr cyclone slowed the survey activities but never really interrupted the work completely. Unexpected challenges occurred in Dhaka city, particularly in accessing apartment-dwellers.

This survey estimates the overall prevalence of smear-positive TB at 79.4 per 100 000 adults (95% confidence interval: 47.1-133.8) which is significantly lower than previous survey results.

As a means to increase the capacity of the programme, the attendance of NTP staff in numerous international training courses and workshops was supported. Two international training courses on TB drug management were organized in Bangladesh with support from the Global Drug Facility. The latter agency also supported the supply of first- and second-line drugs through its grant and direct procurement mechanisms. Institutional capacity was also boosted with the creation of a number of committees and working groups in NTP with specified terms of reference and periodic meetings.

A major challenge was the programmatic management of drug-resistant tuberculosis. The National Tuberculosis Reference Laboratory, set up only in 2007, passed successfully two rounds of proficiency testing. Support was also provided to the Rajshahi Regional TB Reference laboratory. Plans were drafted for setting up two more regional reference laboratories (in Chittagong and Khulna). Major support was required for strengthening the project to diagnose and manage drug-resistant forms of TB. The Green Light Committee's annual monitoring mission was facilitated and a shortage of a second-line drug was addressed. The project could increase its enrolment to 283 cases at the end of 2009 with the first batch of patients continuing treatment on an ambulatory basis.

Other challenges include scaling up the involvement of the private sector, especially private health-care providers, workplaces and garments industries. Successful pilot projects have faced difficulties in identifying ways of reaching out to a critical mass of service-providers in order to have a tangible impact on the programme. Numerous advocacy programmes targeting key intervention groups including factory-owners, trade unions and professional bodies were supported. It resulted in increased case notification from these nongovernmental settings.

In order to capitalize on the unique opportunities provided by the various stakeholders and donors and to sustain the efforts under changing institutional arrangements, further support in technical areas as well as in management areas will be required.

Malaria

Malaria is endemic in 13 border districts. The target of the Malaria Control Programme is to achieve a 60% reduction of morbidity and mortality by 2015 (with 2008 as the baseline). A total of 10.9 million people are residing in the endemic area and nearly 98% of all reported cases originate in these 13 districts. The highly-endemic districts are depicted in the map of Bangladesh (Fig. 3), and the bar chart in Fig. 4 shows the number of malaria cases classified by districts in 2005 (baseline data) and malaria cases and deaths in 2007, 2008 and 2009.

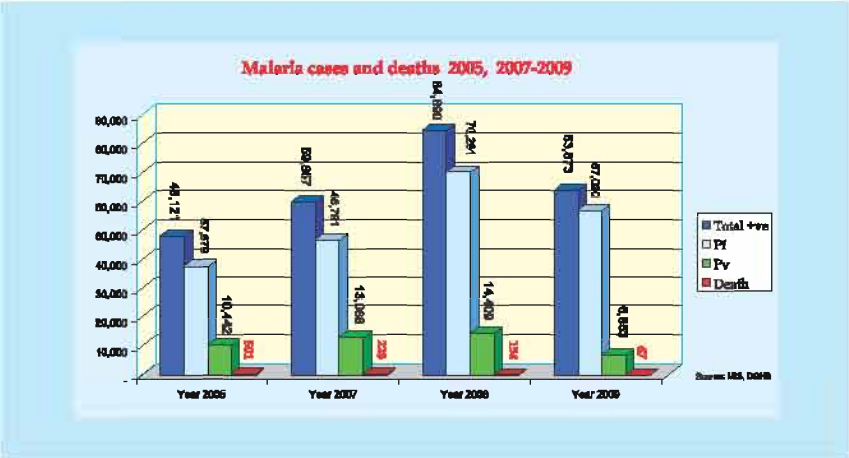
Fig. 3: Malaria-endemic districts

During the 2008-2009 biennium WHO provided technical support (i) to update the national strategies and guidelines and to modify the treatment regimen; (ii) to improve monitoring tools; and (iii) to train relevant health staff including doctors and nurses, laboratory technicians, field staff and private practitioners to conduct drug/insecticide resistance surveillance. Till

early 2009 WHO also procured Artemisinin-based combination therapy, rapid diagnostic tests, long-lasting insecticidal nets and K-Othrine tablets (insecticide tablets for treating nets). These procurement activities were funded by the GFATM. Since early 2009, the procurement of drugs, diagnostics, bednets and other commodities has been done through the Fund's own voluntary pooled procurement mechanism.

Disease and vector surveillance were strengthened and drug resistance monitored in two sentinel sites. An epidemiologist, entomologist and procurement staff were recruited for the long term while several experts have supported the programme through short-term consultancies.

Figure 4: Malaria cases and deaths in (2005 baseline) 2007, 2008 and 2009



The partnership approach that was strengthened with the availability of GFATM funds has also been supported by WHO. The involvement of 21 NGOs in the implementation of the malaria control programme has served as a major boost towards bringing the services closer to the community. This is particularly important since malaria is most endemic in the remote areas of the Chittagong Hill Tracts. As a consequence of this broad-based participation accessibility to quality diagnosis, effective treatment and prevention has dramatically improved. In addition to the consortium of NGOs other stakeholders that received WHO support include the Chittagong Hill Tracts Development Facility of the United Nations Development Programme; ICDDR,B; the Malaria Research Group of Chittagong Medical College, and various government institutions including the National Institute for Preventive and Social Medicine (NIPSOM), Dhaka and the Institute for Epidemiology, Disease Control and Research (IEDCR), Dhaka.

Insecticide Treated Nets dipping session

The programme has started implementing integrated vector management activities in collaboration with the Ministries of Agriculture, Environment and Forest, Local Government, Rural Development and Cooperatives, and selected tea estates. At the community level, micro-environmental management was promoted for the reduction in breeding grounds of mosquitoes in the vicinity of households. Indoor residual spraying was done to contain outbreaks where reported. One rapid response team for outbreak containment was trained in each district.

Dengue/dengue haemorrhagic fever (DHF)

Dengue is a notifiable disease in Bangladesh. The first outbreak was in 2000 and since then every year there have been outbreaks in the metropolitan cities of Dhaka, Chittagong, Rajshahi and Khulna along with reports of sporadic cases in other metropolitan cities. The National Guidelines for Management of Dengue Syndrome was developed in 2000. These were updated in 2009 with technical support from WHO.

Main strategies of dengue control

- Early diagnosis and management of clinical cases.
- Disease prevention by active participation of the community and intersectoral collaboration for dengue vector control.
- Disease and vector surveillance.
- BCC activities and community mobilization.

The support of WHO during the 2008-2009 biennium was provided to update national guidelines and training modules, as well as to train doctors and nurses from all government and private hospitals on the clinical management of dengue/DHF. A regular disease surveillance system has been established under the Directorate General of Health Services (DGHS). Entomological spot checks for the presence of *Aedes Aegypti* mosquito in the metropolitan areas were conducted to assist in planning vector-control interventions. Community awareness programmes were supported to involve a wide cross-section of the population, including students, Bangladesh Scouts volunteers, NGOs and other stakeholders. Mass media – both print and electronic – also played important roles in raising awareness on the prevention and control of dengue.

Aedes. Aegypti mosquito - the Dengue vector

Soil-transmitted helminthiasis

Soil-transmitted helminth infestations, mainly by roundworms (*ascaris lumbricoides*) whipworms (*trichuris trichiura*) and hookworms (*ancylostoma duodenale*) are common in Bangladesh. Although mortality directly related to helminth infestation is rare, the associated morbidity is conspicuous. As a result of helminth infestation, the cognitive development of children may be affected and anaemia and malnutrition aggravated, while in adults productive capacity is decreased.

Periodic deworming with WHO-recommended drugs has demonstrated a perceptible improvement in the condition of the affected people even if they get re-infected. The global target is to regularly treat 75% of all school-age children by 2010 as they have the highest risk of morbidity. The Bangladesh Government has committed to this target

aiming to ultimately attain a soil-transmitted helminthiasis-free status. Albendazol was supplied free-of-charge by Glaxo Smith-Kline following concerted advocacy efforts to this end by WHO and the Global Alliance for the Elimination of Lymphatic Filariasis.

HIV/AIDS

The first HIV-positive case in Bangladesh was detected in 1989. Till December 2009, a total of 1745 HIV-positive and 619 full-blown AIDS cases were reported. Of the AIDS cases 204 have died till date. Bangladesh is thus a low-prevalence country but risk factors that have the potential of moving towards a full-blown epidemic are present.

HIV prevalence levels in central Dhaka showed a rapid increase between 1999 and 2008. The Eighth Serological Survey revealed that the HIV rate has surpassed the concentrated epidemic level among injecting drug users (IDUs). The hepatitis C prevalence levels among IDUs also reached 83%, indicating that needle-sharing is common practice. Data also show that 44% of female IDUs are sex workers. The Bangladesh National Strategic Plan for HIV and AIDS (2005–2010) also identified migrant workers as a priority target group.

Technical support to the National AIDS and STD Programme was provided by WHO for programme planning, implementation and monitoring. More specifically, the HIV surveillance system was reviewed. This review recommended that the collaboration between the National AIDS and STD Programme, IEDCR, ICDDR,B and other partners be further bolstered. Training of trainers on HIV counselling and testing were supported specifically targeting antenatal care, TB and STD clinic nurses. WHO also contributed to the observance of the annual World AIDS Day in Bangladesh.

A joint UN Workplan on HIV/AIDS was developed in collaboration with UN agencies. A laboratory accreditation system for blood transfusion centres and toolkits for monitoring and assuring quality of blood transfusion services were put in place. Technical advice was also given to develop a database of blood banks and donors. Training courses on safe blood transfusion were conducted for health personnel from the Government and NGOs.

2.3 Communicable disease surveillance

Effective communicable (and noncommunicable) disease control relies on a well-functioning and adequate surveillance and response system. Disease surveillance is a critical component of health systems, providing essential information for optimal health-care delivery and cost-effective strategy formulation. Timely reporting of morbidity and mortality helps to design appropriate interventions to control and/or prevent communicable and noncommunicable diseases (NCDs).

Further strengthening of the nationwide integrated surveillance system could provide important information related to patterns and trends as well as the management of epidemics and thereby avert deaths. Such a system could also provide an early warning for any imminent outbreak and its timely containment.

While the district- and central-level control rooms collect data with weekly and monthly intervals, the validation or analyses of these reports remains a challenge. In contrast to

the routine reporting, investigations of acute outbreaks generate much more interest and action.

Rapid response teams have been established at different tiers to investigate and respond to disease outbreaks. All members of national, district and *upazila* rapid response teams have been appropriately trained with WHO support. Several types of investigations also require adjunct laboratory capacity, particularly the investigation of communicable disease outbreaks. A biosafety level-3 laboratory was established at IEDCR in this regard. Plans were formulated for strengthening the laboratory capacity of district hospitals with the provision of making rapid diagnostic tests there to detect diseases related to public health emergencies of international concern.

Developing capacity for preparedness planning, prevention, detection, characterization, and containment and control of emerging and re-emerging diseases (including epidemic and pandemic-prone diseases) was core to the corpus of WHO's support to the country.

Priority support areas included integrated disease surveillance, epidemic alertness and response, and normative functions such as the development of policies, strategies, guidelines and training modules. WHO also provided technical and logistic support for the monitoring of designated sentinel surveillance centres.

WHO provided assistance to the Government of Bangladesh during major natural disasters. Situation reports (called "*sitreps*") including disease surveillance data were frequently prepared and released in collaboration with the government, NGOs and other UN agencies. These have helped in mobilizing timely and necessary funds.

Avian influenza

Highly pathogenic avian influenza (HPAI) H5N1 viruses have spread relentlessly across the globe since 2003. They have been the cause of largescale and widespread deaths among poultry, leading to substantial economic losses for farmers and human infections that carried a high mortality. The high pathogenicity of H5N1 influenza viruses and their capacity for transmission from birds to humans has raised worldwide concern.

The first outbreak of HPAI in Bangladesh was reported in February 2007. By the end of 2009 a total of 327 HPAI (H5N1) outbreaks have been recorded in 155 sub-districts *(upazilas)* in 49 districts. These resulted in the culling of over 1.7 million birds from 592 poultry farms. The first human case of influenza A H5N1 in Bangladesh was notified to WHO in May 2008.

Support was provided for the implementation of the National Avian Influenza and Human Pandemic Influenza Preparedness Plan. A total of 11 SOPs on different aspects of avian influenza in humans and Guidelines for the Clinical Management of Avian Influenza Cases were also developed and relevant health and other personnel trained in their use. A Central Isolation Unit for Avian Influenza was made functional at the National Institute of Diseases of Chest and Hospital, Dhaka. In addition, WHO provided technical assistance for the design of an isolation ward that would be set up in all district hospitals.

WHO Bangladesh also facilitated a high-level consultation on avian influenza between Bangladesh and India in Dhaka in 2008. This meeting provided the impetus for strengthened cross-border collaboration between the two countries to tackle Avian Influenza.

Pandemic Influenza A H1N1 2009

Following the declaration of the H1N1 2009 (popularly known as "swine flu") outbreak as a "public health emergency of international concern" on 25 April 2009, Bangladesh activated its well-rehearsed National Pandemic Influenza Response Plan. During the following eight weeks, and with technical and logistic support from WHO, the country used the opportunity to tighten its grip against the novel virus. The support measures included providing adequate information to relevant people, improving screening facilities at points of entry and strengthening diagnostic abilities at designated laboratories.

H1N1 influenza screening at Hazrat Shahjalal International Airport, Dhaka during Pandemic Influenza 2009

The government, with technical support from WHO, pursued a modified version of its national plan for pandemic influenza. In this modified plan patients with influenza-like illness who have travelled to a pandemic influenza-identified country or who have been in close contact with pandemic influenza patients were targeted for home-based treatment. A core expert group from the MoHFW, WHO and ICDDR,B reviewed the pandemic situation on a daily basis. Any suspect case was promptly investigated by a team consisting of expert physicians from IEDCR and staff from WHO and ICDDR,B. Contacts of those persons were also instructed to take non-medical measures. Patients with severe acute respiratory infection or with co-morbid conditions were hospitalized. Separate influenza wards were opened in all government and in some private hospitals.

WHO provided support for training all relevant health personnel at the district and *upazila* level, and of city corporations as well as immigration officials and all health staff of 16 points of entries. Support was also given to the Ministry of Primary Education to train school teachers as trainers to in turn impart the training to other teachers and students in their respective schools.

Moreover, WHO donated H1N1 vaccines to immunize high-risk population groups in Bangladesh. Three million vaccines were made available in the first phase and another 12 million committed to the second phase. A technical committee also developed a vaccine deployment plan.

As a result of the collaboration between the government, WHO, UNICEF and other stakeholders, Bangladesh could successfully control and contain community-level transmission of pandemic influenza. A major outbreak or high case-fatality rate could

be averted. As of 31 December 2009, a total of 814 confirmed pandemic H1N1 2009 cases were reported with six deaths.

International Health Regulations (2005)

With technical support of WHO the government has particularly focused on three key obligations for implementing the International Health Regulations (IHR): (1) creating an integrated national surveillance system; (2) ensuring timely reporting; and (3) contributing to capacity-building in the public health sector.

Following the adoption of IHR a National Strategy and Guidelines for IHR in Bangladesh were completed, building on the available expertise and making use of improved communication technologies. Linked to these are standard operating procedures for public health emergencies of international concern (PHEICs), and the reporting and management of PHEICs at the points of entry. Relevant training has been imparted on all personnel and health managers at the airports and seaports in the country.

With regard to the implementation of IHR, WHO provided support for the assessment of the core alert and response capacities of health facilities and ports of the country. This assessment included the status of legislation, national policy and collaboration for IHR; disease surveillance capacity; case management; and infection control. It involved the livestock sector, points of entry and notification system. On the basis of this assessment, a Plan of Action to address the identified shortfalls, was developed for the implementation of IHR in Bangladesh.

Box 4: What is IHR?

The International Health Regulations (IHR) 2005 are an international legal instrument that is binding on 194 countries across the world, including Bangladesh. Its aim is to help the international community prevent and respond to acute public health risks that have the potential to cross borders and threaten people worldwide.

The IHR requires countries to report certain disease outbreaks and public health events to WHO. Building on the unique experience of WHO in global disease surveillance, alert and response, the IHR defines the rights and obligations of countries to report public health events, and establish a number of procedures that WHO must follow in its work to uphold global public health security. The IHR also requires countries to strengthen their capacity for public health surveillance and response. Timely and open reporting of public health events will help make the world more secure.

3
Noncommunicable diseases and mental health

Promoting healthy lifestyles together with strengthening the health system for early detection and treatment is essential for the control of noncommunicable diseases (NCDs). As Bangladesh experiences continued economic growth and demographic transition it has been increasingly recognised that NCDs are a priority concern for the health sector. The first national survey of NCD risk factors was conducted in 2009 with WHO support, and a National Cancer Control Strategy and plan of action was developed.

Tobacco control is a major challenge for NCD prevention given its association with a heavy burden of multiple health problems. What is less often realized is the fact that tobacco production and consumption also causes a heavy economic burden on countries and in Bangladesh the net loss to the economy far exceeds the revenue earned. WHO continued to provide support to the National Tobacco Control Cell. In collaboration with the United States Centers for Disease Control and Prevention, WHO supported the Ministry of Health and Family Welfare to conduct the Bangladesh chapter of the Global Adult Tobacco Survey 2009.

Mental health is an important area of public health that has received relatively little attention. Although there is a substantial potential to successfully treat mental disorders, acceptance of treatment is low partly because of the lack of awareness and social stigma. To address this issue WHO has advocated that mental health is integrated into primary health-care services and supported this process through the development of a physicians' manual. Mental health in children received special attention with the implementation of a prevalence survey of mental disorders, and the development of educational materials for incorporation into the school curriculum.

3.1 Noncommunicable diseases

Conventionally, NCDs refer to major chronic diseases such as heart disease, stroke, diabetes, cancer and chronic respiratory diseases. They are addressed through a common strategic framework by controlling the common risk factors such as tobacco consumption, physical inactivity and unhealthy diet. Although the country lacks a good NCD surveillance system, the magnitude of NCDs is considered to be fairly high. Consequently, addressing NCDs is reflected as a priority under the government's Health, Nutrition and Population Sector Programme (HNPSP).

Box 5: Prevalence of NCDs among adults (>= 30 years)
(Source: WHO study 2007)

- Ischaemic heart disease 2.5%
- Stroke 2.0%
- Büerger disease 0.1%
- Oral cancer 0.2%
- Lung cancer 0.7%
- Laryngeal cancer 0.02%
- Chronic obstructive pulmonary disease 3.3%
- Diabetes (urban Dhaka)* 10.5%

*(Note: *adults aged >=20 years)*

The current programme priorities are to facilitate the generation of systemic data on the various dimensions of the problem. Efforts are to be mainstreamed towards a common target of NCD prevention by facilitating networking among relevant institutes and organizations (both public and private) and by outlining the scope of interventions with the sharing of responsibility.

The objectives of the WHO collaborative programme in support of the control of NCDs are to establish an integrated mechanism of routine collection, to analyse and disseminate essential data, and to provide the evidence for public health decision-making. The Organization also aims at strengthening the overall health system capacity for prevention and control of NCDs. Equally, emphasis is given to strengthen health promotion measures to combat public health threats caused by unhealthy lifestyles, and occupational and environment-related factors.

Blood pressure measurement survey for the NCD risk factors survey

Major technical assistance was provided to the government for implementing the National Strategic Plan for Surveillance and Prevention of NCDs (2007–2010) at different levels of the health system. A National Cancer Control Strategy and Plan of Action (2009–2015) was developed. The Bureau of Health Education received support to develop a health promotion policy on healthy lifestyles. Manuals for training of different cadres of health workers on integrated NCD prevention were also developed. And with WHO support the first-ever National Survey on NCD Risk Factors was conducted by the Bangladesh Society of Medicine. This survey has been using a digital technology for data collection and data transfer from the field (Figure 5). The study locations are shown in Figure 6.

Figure 5: Flowchart on electronic data collection mechanism for NCD risk factors survey

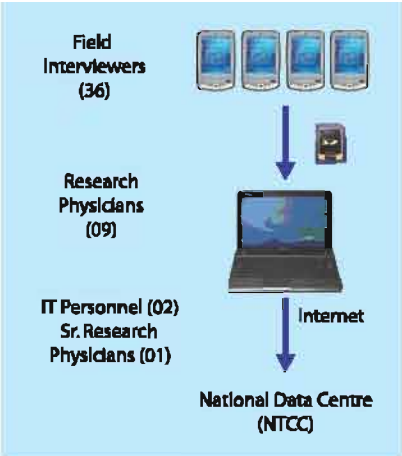
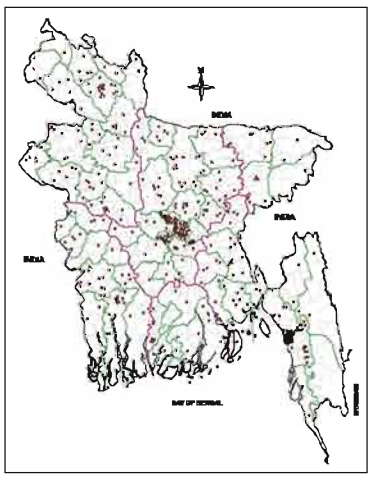


Figure 6: Study locations of NCD risk factors survey



Support was also given to capacity development efforts for effective control and management of NCDs at different levels of the health-care system. Models were also developed for community-based prevention of NCDs in Dhaka city. Similarly, WHO also supported the development of models for NCD prevention in selected garments factories.

Major challenges remain to be addressed in an era where NCDs are gradually increasing. Surveillance is a crucial one. Preventing NCDs through promoting healthy lifestyles is equally important in addition to building capacity for properly managing patients suffering from NCDs. High-level political commitment, appropriate strategies as well as adequate funding are required to roll out programmes for comprehensively addressing NCDs in an integrated and sustainable fashion.

3.2 Tobacco control

Tobacco is the largest single preventable cause of death in most low-income countries, including Bangladesh. As one of the 15 countries globally with the heaviest burden of tobacco-related health problems, Bangladesh carries the double burden of high production and high consumption of tobacco products. Two in five people aged 15 years or more use tobacco in one form or the other. A WHO study estimated that in 2004, 57 000 people lost their lives prematurely as a result of tobacco use and 382 000 people became disabled. The net loss to the economy in the same year was estimated at Taka 26 billion, surpassing the revenues earned from tobacco.

Recognizing tobacco to be an important health issue the Tobacco Control Act was passed in 2005 and its implementation rules formulated. Tobacco control is very much a multidisciplinary and multisectoral issue. In order to spearhead the fight against tobacco, WHO assisted the Government to establish the National Tobacco Control Cell in MoHFW with the objective of coordinating the implementation of a national tobacco policy and plan of action. It serves as a "tobacco control hub" imparting its services to both government and nongovernmental agencies.

Global Adult Tobacco Survey data collection using digital technology

The support of WHO focused on creating the evidence base and building capacity for legislative and tax policy reforms as well as on developing enforcement and cessation tools. As a result a situation report and factsheets were developed. The Bangladesh chapter of the Global Adult Tobacco Survey (2009) was supported by WHO in collaboration with the United States Centers for Disease Control and Prevention. This household survey was conducted by NIPSOM, the Bangladesh Bureau of Statistics and the National Institute of Population Research and Training, and included information on tobacco use. The survey used

digital technology for the first time in Bangladesh for data collection from the public and data transfer from the field in line with the government's commitment for a digital Bangladesh. The study locations were the same as in the NCD risk factors survey (see Figure 6). A total of 9629 individuals were successfully interviewed. The main results are given in Table 2. The survey revealed that in absolute terms 41.3 million people aged 15 years or above are using tobacco in some form or the other; 21.9 million smoke tobacco and 25.9 million use smokeless tobacco.

Table 2: Results of Global Adult Tobacco Survey (2009) – Bangladesh chapter

Indicator	Overall (n=9 629)	Gender		Residence	
		Male (n=4 468)	Female (n=5 161)	Urban (n=4 857)	Rural (n=4 772)
Current tobacco use	43.3%	58.0%	28.7%	38.1%	45.1%
Current tobacco smoker	23.0%	44.7%	1.5%	21.3%	23.6%
Current cigarette smoker	14.1%	28.3%	0.2%	18.4%	12.6%
Current *bidi* smoker	11.2%	21.4%	1.1%	4.7%	13.5%
Current smokeless tobacco use	27.2%	26.4%	27.9%	22.5%	28.8%
Average number of cigarettes smoked per day	5.1	5.2	0.8	8.5	4.0
Average number of *bidis* smoked per day	6.9	7.0	4.3	2.7	8.3
Average number of smokeless tobacco used per day	8.1	8.3	7.9	8.1	8.1
Average age at daily smoking initiation	18.8	18.4	26.5	18.5	18.8
Percentage of GDP spent on purchase of cigarettes	1.0%				
Percentage of GDP spent on purchase of *bidis*	0.5%				
Percentage of people who support increase in tax on tobacco products	81%				

Other activities supported by WHO include observance of World No Tobacco Day every year which was converted into a month-long campaign; the inclusion of tobacco control topics in the school curriculum for Classes III to XII by the National Curriculum and Textbook Board; the incorporation of trade-specific curricula in relevant manuals of the Department of Youth Development; and the development of teaching aids for schools and youth training centres. Technical assistance was also provided to draft amendments to the Tobacco Control Act (2005). Support was given to various organizations to declare public places and public transport smoke-free. Law enforcement agencies and NGO watchdogs were trained on tobacco control issues.

To offer help to those who wish to quit using tobacco, support was provided to establish cessation services at the clinic and community level. Training tools for tobacco cessation were developed. Doctors, nurses as well as NGO workers were also trained on tobacco cessation.

Much is still required to be done in order to have an impact on the tobacco epidemic. Strengthening of the institutional framework in line with the WHO Framework Convention on Tobacco Control (FCTC) is necessary and involves the development of policies, guidelines, standards, enforcement tools and updated legislation.

Box 6: What is FCTC?

The FCTC is the first international health treaty negotiated under the auspices of WHO. It entered into force on 27 February 2005. It currently has 164 Parties. The Convention was developed in response to the globalization of the tobacco epidemic. It represents a paradigm shift in developing a regulatory strategy to address addictive substances. It asserts the importance of demand reduction strategies as well as supply issues. As the governing body of FCTC, the Conference of the Parties promotes and keeps under regular review the implementation of the Convention. The Convention Secretariat operates within WHO in Geneva. It supports the Parties in fulfilling their obligations under the Convention, provides the necessary support to the Conference of the Parties and its subsidiary bodies and translates the decisions of the Conference into programme activities.

Regional Consultation on a Protocol Illicit Trade in Tobacco Products held in Dhaka on 11-12 June 2009

Poor people use tobacco products the most and bear the brunt of the tobacco-related economic and disease burden. It is, therefore, imperative to integrate tobacco control measures in poverty alleviation programmes.

3.3 Mental health

Mental illnesses are important but under-recognized public health problems in Bangladesh. Awareness levels on mental illness and acceptance of treatment are very low due to the associated social stigma and superstition. Despite the potential to successfully treat mental disorders, only a small fraction of those in need receive the most basic treatment. The WHO-supported National Mental Health Survey (2005) showed that 16.1% of the adult population (aged 18 years or older) of Bangladesh was suffering from some sort of mental disorder. Psychosocial care of mentally retarded and disaster-affected people constitutes a major challenge for the health and the social welfare systems of the country. A better understanding of the extent of mental disorders (including epilepsy, mental retardation and substance abuse), their patterns and distribution would allow relevant interventions to be planned better.

Integrating mental health services into PHC services is the most viable way of narrowing the treatment gap and ensuring that common people benefit from mental health promotion. Programme priorities included the generation of systemic data on various dimensions of the problem; introduction of new and innovative approaches; involvement of both government and private sector health-care providers; and a focus on both treatment and prevention of mental disorders as well as mental health promotion.

Box 7: Prevalence of mental disorders in children aged 5-17 years, Bangladesh, 2009
(Source: NIMH)

- Mental disorder 18.4%
- Mental retardation 3.8%
- Epilepsy 2.0%
- Substance abuse 0.8%

Considerable progress was made over the past years in working towards achieving the above-mentioned objectives. Technical assistance was provided to the National Institute of Mental Health (NIMH) for drafting the necessary amendments to the Mental Health Act (which still follows the Lunacy Act of 1912 of undivided India). For the generation of data on the prevalence of mental disorders in children*, WHO supported NIMH to conduct a survey in 2009. In order to foster a community-based approach to mental health, NIMH developed appropriate curricula to be included in the school curriculum for children of grades VI to X. To integrate mental health in PHC services manuals and other materials were developed and tested in a pilot *upazila*. With the same purpose a document on the integration of mental and psychological health into the corpus of PHC was developed on the basis of the lessons from a pilot project supported by WHO.

3.4 Disability, injury prevention and rehabilitation

Injuries are now recognized as a major public health problem that occur from a complex interaction of sociological, psychological and technological phenomena. The nationwide community-based Bangladesh Health and Injury Survey (2005) reported 70 000 annual deaths due to injury. Road traffic accidents injure 400 000 people a year and kill approximately 18 500. Deaths due to drowning also claim over 20 000 lives every year. The majority of disabilities in Bangladesh are caused by injuries resulting from different types of accidents (traffic accidents, burns, electrocution, animal attacks, acts of violence and conflict) and put an enormous stress on the health and

Training of medical doctors on emergency medical services at Dhaka Medical College Hospital, Dhaka

* *Mental disorders included enuresis ,somatoform pain disorder, communication disorders, obsessive compulsive disorder, generalized anxiety disorders, oppositional defiant disorder, attention deficit hyperactivity disorder, conduct disorder, bipolar mood disorder, depressive disorders, physical abuse, autistic disorder, conversion disorder, sleep disorder, phobic disorder, parent child relational problem, dissociative disorder, feeding disorder, separation anxiety disorder, schizophrenia and selective mutism.*

rehabilitation services. Though accurate data are not available, the disability burden is considered to be high.

On a priority basis, programmes were designed or strengthened to cope with this high burden as well as to prevent injuries that cause deaths and disabilities. The preventive strategies, in particular, require collaboration across sectors and the involvement of various partners.

To design effective treatment interventions and identify appropriate health promotion activities aimed at reducing injuries a population-based survey to determine the prevalence of injuries and injury-related disabilities was conducted by the Centre for Injury Prevention and Rehabilitation of Bangladesh. This survey, which received technical support from WHO, found a disability (of any cause) prevalence of 4.1% among the population and injuries were found to be the cause of 17% of all disabilities. The prevalence of injury-related disability was 0.7%.

WHO provided intensive support for the establishment of emergency medical services to tackle accidents and trauma as well as other medical emergencies. The emergency services of three *upazila* health complexes and Dhaka Medical College Hospital received technical support from WHO for improving the management of injuries and other emergencies. In this regard a needs assessment was conducted, training courses (both in-country and overseas) organized and necessary logistic assistance rendered. Manuals for doctors and nurses on emergency care were also developed.

A special initiative was also undertaken by WHO to support the development of a model eye care project as part of PHC services. Training (including a fellowship abroad) of doctors, nurses and paramedics was an important component of the project. Vision testing equipment was also provided. The National Institute of Ophthalmology received support to conduct a survey on eye diseases and to launch a school-based eyesight testing initiative.

4
Family and community health

WHO support to family and community health aims to improve the health of mothers, children, adults and the ageing population throughout the life-course but with special attention given to adolescent and neonatal health needs. A rights-based approach is taken towards sexual and reproductive health of both genders, and emphasis given to community participation and adherence to the principles of primary health care.

Significant progress has been made in Bangladesh to reduce infant and child mortality, though neonatal mortality rates remain unacceptably high. WHO supported the adaptation of the Integrated Management of Childhood Illness strategy to incorporate new advances in key areas such as the detection of illness in young infants. The revised strategy was incorporated into the medical curriculum to ensure a sustained scale-up of its application. A key intervention for child health is immunization and WHO has focused its efforts on polio eradication, accelerated control of vaccine-preventable disease, introduction of new cost-effective vaccines, improving the level of immunization safety, and strengthening the regulatory authority through such measures as vaccine licensing.

Adolescents form more than one fifth of the total population of Bangladesh and the adolescent fertility rate is the second highest in the world. WHO supported the development of National Standards for Youth-Friendly Health Services, and a review of the laws and policies related to adolescent sexual and reproductive health.

Maternal mortality remains high in Bangladesh with only 18% of deliveries attended by skilled personnel (i.e. medically-/midwifery-trained staff). WHO has advocated in favour of strengthening midwifery services and supported the implementation of a community-based skilled birth attendants (CSBA) programme which would feature the development of an accreditation system to regulate the quality of its training. WHO also provided technical assistance to the development of a maternal health voucher scheme which will allow approximately 174 000 poor pregnant women to access free maternal and newborn health services each year.

4.1 Child health

Bangladesh has made significant advances with regard to the survival of infants and children in the first five years of life. The major contributors to the reduction in mortality were immunization, vitamin A supplementation, oral rehydration therapy, improved education (especially of mothers) and the provision of safe water, which has had a positive impact on diarrhoea and other waterborne diseases. The major contributing factors to under-five mortality are acute respiratory infections, pre-term births and low birth weight, birth asphyxia, diarrhoea, drowning, septicaemia, malnutrition associated with other causes, and meningitis. Even though the infant mortality rate has been reduced, the neonatal mortality rate remains high. The latter is associated with a low rate of institutional delivery, low birth attendance by skilled personnel, high incidence of low birth weight and poor utilization of antenatal care services.

The government is committed to reduce the neonatal and infant mortality rates and, by doing so, attaining the Millennium Development Goals 4 and 5. This commitment is reflected in the Health, Nutrition, Population Sector Programme as well as in the National Health Policy.

The globally recommended Integrated Management of Childhood Illnesses or IMCI package has been in place in Bangladesh for several years. WHO supported its adaptation in 2009 in order to be in line with new advances in the areas of growth curves, signs for detection of sickness in young infants, new insights in early child care and development, revision of drugs for pneumonia and dysentery, and the revised deworming policy. Service delivery got a boost through implementation of this revised strategy, while ample support was also provided for a proper assessment of the strategy's implementation. Sustained scale-up has been supported since the inclusion of the revised IMCI strategy in the pre-service curriculum for medical graduates.

Technical assistance has been provided to promote the use of zinc as an adjunct therapy, in addition to oral rehydration salts, for the treatment of acute diarrhoea in children. Training guidelines for community health workers are also being developed for providing home-based newborn care by promoting ante- and postnatal care services. The update of the training package on managing sick children targeting basic health workers was also supported.

A special assessment in collaboration with the Government and ICDDR,B was conducted in support of care for hospitalized children. The quality of services was central to this assessment which was conducted in six districts. The initial step in the improvement process dealt with exploring the current situation of inpatient care at the district and sub-district hospitals with the overall objective of improving inpatient care for under-five children in Bangladesh. The assessment revealed that most hospitals lack emergency preparedness and triage, have a low quality of care and lack adequate monitoring provisions. The prevailing conditions have resulted in low utilization for under-five children in the district and *upazila* hospitals and poor compliance with referrals from first-level facilities. The findings from the assessment clearly suggest that there is an urgent need to improve the quality of inpatient care at the district and sub-district hospitals in Bangladesh.

The government has planned to design a child health and development strategy by revising its child health strategy and incorporating child development issues. The continuum of care for sick neonates and children will be further strengthened. The new strategy builds on three major pillars: acceleration of integration of the strategies in the medical and paramedical pre-service curricula; improved community care for sick newborns and children; and enhanced paediatric services at the health facility level.

4.2 Adolescent health

Approximately 21% of Bangladesh's population comprises adolescents (aged between 10 years and 19 years). Adolescents of both sexes are negatively impacted by poverty and other development problems. Early and unwanted pregnancies, gender bias, malnutrition and forced prostitution affect adolescent girls disproportionately more than adolescent boys. Despite major efforts to improve accessibility, utilization and quality of sexual and reproductive health services for adolescents, health service, legal, policy

and system barriers exist both within and outside the health sector, thereby impeding progress.

One of the major factors that negatively affect adolescent sexual and reproductive health (ASRH) in Bangladesh is the high rate of prevalence of early marriage, and consequently, the high rate of adolescent pregnancy. With 126 births per 1000 women aged less than 20 years, the adolescent fertility rate is one of the highest in the world. This rate has declined, though by only 12% over the last eight years. There is marked difference between rural and urban areas: the adolescent pregnancy rate is 90 births per 1000 women in cities as against 137 per 1000 in rural areas.

Increasing attention is being given to ASRH. An Adolescent Reproductive Health Strategy was developed based on which a national plan of action is currently being prepared. National Standards for Youth-Friendly Health Services were also developed. Tailored training on both adolescent- and youth-friendly health services are being conducted. A compendium of institutions working on ASRH and HIV/AIDS among young people was compiled, A study was also supported to review laws and policies related to ASRH in Bangladesh from a human rights perspective.

While some significant goals have already been reached, future priorities include strengthening cost-effective mechanisms and guidelines for implementation and assessment of adolescent-friendly health services; and promoting an integrated approach for implementation of adolescent health activities in tandem with those of other related programmes such as reproductive health, nutrition, mental health, HIV/AIDS and health promotion.

4.3 Maternal and reproductive health

Though significant improvements were made in recent years, maternal mortality remains high in Bangladesh. Leading causes of maternal mortality are haemorrhage, abortion, injuries, eclampsia, sepsis and obstructed labour. Most of these deaths occur at home for lack of access to services provided by skilled birth attendants. There is ample evidence that services provided by skilled birth attendants reduce the risk of dying during pregnancy, childbirth or postpartum.

While 48% of married women in Bangladesh make use of modern contraceptive methods (Bangladesh Demographic and Health Survey 2007) and 52% receive antenatal care from qualified practitioners, the lack of available maternal health services at and around birth is one of the contributing factors to high maternal mortality. Only 18% of deliveries are attended by medically trained personnel and 15% take place at a health facility. Thus, special efforts must be made to strive towards achieving the targets of having 50% of all deliveries carried out with the support of trained health workers by 2010 and 85% by 2015.

Box 8: Community-based Skilled Birth Attendants (CSBA) Programme

5159 CSBAs were certified by Bangladesh Nursing Council (BNC)

60 out of 64 districts have CSBA Programme in place

29 CSBA training institutes were accredited by BNC.

The Bangladesh government is committed to achieve the MDGs related to reducing maternal (and child) mortality and has included strategies for increasing the number of skilled birth attendants as well as improving

basic and emergency obstetric care services in its health sector and development plans.

To improve access to the services of skilled birth attendants, a community-based skilled birth attendants (CSBAs) training programme is being scaled up with support from WHO and UNFPA. The CSBAs Programme trained Family Welfare Assistants and female Health Assistants in a six-month competency-based training that focused on antenatal care, normal deliveries, postnatal and newborn care, and referral of complications. Besides providing technical support to the training of CSBAs, WHO also contributed to the development of an accreditation system to regulate the quality of training and devised a supervisory mechanism to enhance the quality of care provided by CSBAs. The development of a curriculum for an additional three-month training course for CSBAs was also supported in order to enable the CSBAs to make early detections and timely referrals as well as provide select emergency life-saving interventions for obstetric emergencies before referral. To ensure good quality of services provided by the trained CSBAs, a training module for supportive supervision of CSBAs has been developed and is used by nearly 200 Family Welfare Visitors, who provide technical supervision to the CSBAs.

WHO is also providing technical assistance to develop a major demand-side financing initiative, which is a maternal health voucher scheme. The aim of the scheme is to increase utilization of quality maternal health services by creating equitable access to quality services. Under this scheme an estimated 174 000 poor pregnant women will receive free maternal health services annually.

Other areas supported by WHO included the training of trainers on essential newborn care. This package focuses on neonatal care and resuscitation. Training modules and tools on prevention and control of micronutrient malnutrition, especially in pregnant and lactating mothers, were also developed. A six-month advanced midwifery curriculum for existing nurse-midwives is being designed. An orientation on capacity-building for operational research on maternal, newborn and reproductive health has been provided to select government officials.

Together with UNFPA and UNICEF, WHO supported the implementation of the UN–Government of Bangladesh joint project on "Accelerating Progress toward Maternal and Neonatal Mortality Reduction." Support was provided to further develop Local-Level Planning (LLP) Tools by incorporating the WHO District Team Problem-Solving approach. These newly adapted LLP tools were piloted in four districts for planning maternal and newborn health care.

The focus of WHO in the coming years will be on strengthening the maternal and newborn health programme's capacity, not only through investment in building individual capacity but more so by strengthening systems and mechanisms that will remain constant even when programme staff keep changing frequently. Support for operational research will augment the incountry research capacity for maternal health and contribute to the evidence base for future policies and strategies. Training of district managers will contribute to facilitating programme implementation at the service-delivery levels and strengthen the continuum of care between service-providers and with the community. It is expected that, as a result of all interventions, maternal morbidity and mortality will be further reduced and sexual and reproductive health will be promoted.

Box 9: Maternal Health Voucher Scheme

Maternal health voucher beneficiary receiving care at the community level.

In response to the high maternal mortality ratios and the low utilization rates for maternal health services, WHO and MoHFW initiated the maternal health voucher scheme for a target population of 174 000 pregnant women per year. Means-tested (based on poverty and parity criteria) beneficiaries were given vouchers for the following free-of-cost services: antenatal care, safe delivery, treatment of complications, and postnatal care. The vouchers could be redeemed with certified public, private and NGO heath-care providers. In addition, cash incentives and transport allowances were also provided. While private and NGO providers were reimbursed the total voucher value, public providers were only reimbursed 50% of the same and the remaining 50% could be retained at the facility level for service improvements.

After only two years of operation a case-control evaluation concluded that the scheme had an unprecedented impact on access equity and utilization of maternal health services. The likelihood of delivering with a skilled birth attendant was 70% compared to only 27% in control (non-intervention) *upazilas*. Institutional deliveries reached 44% in contrast to 19% in upazilas without intervention. Use of ante- and postnatal care services and referral of complications showed similar significant differences. While the evaluation design did not permit a comparison of maternal mortality rates, the rate of stillbirths and neonatal deaths was significantly lower in intervention areas.

The cost-effectiveness evidence generated by this evaluation can form the basis for scale-up and integration under the next health sector programme.

Menstrual regulation

Menstrual regulation (MR) services have been widely available in Bangladesh for more than two decades. Consequently, women's access to safe services has significantly increased during the period. Gaps in equitable access and quality of care have been identified. With financial support from the Netherlands Ministry of Development Cooperation and in partnership with the Government of Bangladesh,

Launching the initiative "Strengthening of National Menstrual Regulation Programme for Reduction of Maternal Mortality and Morbidity" by Secretary, MOHFW AKM. Zafar Ullah Khan in Dhaka in June 2008.

WHO supported the launch of the initiative "Strengthening of National Menstrual Regulation Programme for Reduction of Maternal Mortality and Morbidity in Bangladesh" in 2008.

The goal of this initiative is to contribute to reducing maternal mortality by 75% (with 1990 as the baseline) by the year 2015. The overall objective of the initiative is to improve equitable access to MR services for the prevention of unsafe abortions and unwanted pregnancy, especially for underserved groups and in underserved geographical areas. This will be achieved through investing in a public-private partnership within the HNPSP framework. This initiative has a pro-poor orientation with a focus on demand-side barriers. The project also gives increased attention to underserved groups such as the rural population, urban poor and adolescents. Through behaviour change communication and policy reform advocacy it aims at reducing the number of clients rejected for MR. Finally, it seeks at improving the evidence base for informed policy and programme interventions.

At the field level the project is mainly implemented by NGOs whose proposals had been accepted following scrutiny. A quality improvement workshop was held in order to solicit proposals with high technical quality. Proposals of five agencies were selected for funding.

The WHO technical document titled "Safe Abortion: Technical and Policy Guidance for Health Systems" has been translated into Bangla for broader dissemination. Adaptation of this document to the country context is being considered. Under the leadership of the Director-General, Directorate General of Family Planning, and building on the various MR guidelines produced by NGO partners, WHO is also supporting the development of National MR Guidelines.

4.4 Immunization and vaccine-preventable diseases

The immunization programme in Bangladesh has been recognized for its sustained high coverage and its contribution to the reduction of childhood morbidity and mortality. The country needs to intensify further its efforts towards increasing access to safe immunization and strengthening surveillance against all vaccine-preventable diseases. Decisions in the future to introduce new vaccines require special studies and surveillance activities to ensure that the vaccines are cost-effective.

Robust and unwavering support has been provided since long to the Expanded Programme on Immunization (EPI). The WHO Surveillance Medical Officer (SMO) Network provided technical support to the national EPI and civil surgeons throughout the country for surveillance of acute flaccid paralysis and other vaccine-preventable diseases as well as for the strengthening of routine EPI and the implementation of special immunization campaigns. With their strategic presence in the field, these SMOs also provided other relevent support to the Government of Bangladesh in emergency and disaster situations.

During the biennium 2008–2009, specific areas in which technical support was provided by WHO included polio eradication; accelerated vaccine-preventable disease

control; surveillance of vaccine-preventable diseases; introduction of new cost-effective vaccines; strengthening of routine immunization and immunization safety; and strengthening of the National Regulatory Authority. Support was also provided for preparatory work towards building capacity at the district and *upazila* level to gradually integrate the functions of the current field surveillance network into the national surveillance system and other public health outreach programmes.

Considerable investments were made by WHO in building national capacity in the following key areas:

- maximizing the access to current, new and under-utilized vaccines;
- strengthening vaccine management to maintain quality of vaccines and adhere to safe injection practices;
- organizing supplemental immunization activities for measles;
- establishing a monitoring system to provide strategic information for planning and evaluating the national EPI;
- conducting National Immunization Days (NIDs) to ensure that the country's polio-free status is retained;
- maintaining the quality of surveillance for acute flaccid paralysis to enable timely detection of the import of any wild poliovirus;
- strengthening vaccine-preventable diseases surveillance including the detection of outbreaks and response activities;
- vaccine licensing function of the National Regulatory Authority; and,
- strengthening of surveillance of adverse events following immunization in all districts, city corporations and municipalities.

Bangladesh has achieved a high degree of coverage with all routine vaccines. The 2009 coverage evaluation survey revealed that 75% of eligible children were fully immunized as per the routine immunization schedule. The coverage of diphtheria-pertussis-tetanus (DPT3) and measles immunization was 86% and 83%, respectively. The Government, in collaboration with WHO and UNICEF, is making every effort to reach the unreached through the WHO "Reach Every District" strategy, and targeting in particular hard to reach areas and high risk group to missed children. In recognition of the special efforts made and subsequent success achieved, the Global Alliance for Vaccines and Immunization (GAVI) diuring 4th GAVI Partners meeting in Hanoi on November 2009 presented its award to Bangladesh for the countriy's high performance in reaching unimmunized children.

With support from GAVI, WHO and other

Launching of the Pentavalent vaccine by Minister, MOHFW (Professor Dr. AFM Ruhal Haque), at the Khulna City Corporation in January 2009.

partners, the National EPI introduced in 2009 a new combination vaccine that will protect children against five killer diseases with a single injection, including for the first time, the deadly bacterium *haemophilus influenzae* Type b (Hib) that causes some severe forms of pneumonia and meningitis. This new combination—or 5-in-1 (Pentavalent) vaccine—will protect children against Hib and four other deadly diseases – diphtheria, tetanus, pertussis and hepatitis B.

The National EPI also planned to introduce other new vaccines, including the Pneumococcal and Rotavirus vaccines. The introduction of these new vaccines will be included in the next comprehensive Multi-Year Plan (CMYP) for EPI for the period 2011-2016. WHO will provide technical assistance to develop this (CMYP) plan, which is essential for continuing to receive GAVI Phase 2 support.

Box 10: Organizing a National Immunization Day: More than just administering polio drops

Bangladesh has conducted 17 National Immunization Days (NIDs), one Sub-National Immunization Day and three mop-up campaigns between 1995 and 2008. An NID consists usually of two immunization days/rounds each one month apart. Other campaigns such as vitamin A supplementation and de-worming normally combine with the NIDs to achieve greater efficiency in management and implementation.

Fostering high-level political commitment and support by all members of the community is crucial to ensure a successful NID. All sections of society and the community need to be involved: policy-makers under different ministries, top officials of the print and electronic media, professional bodies (such as the Bangladesh Medical Association, Bangladesh Paediatric Association, Bangladesh Teachers' Association), public leaders and development partners. The National Steering Committee for Polio Eradication and Measles Control oversees all preparatory activities undertaken by EPI.

Advocacy meetings on NIDs are conducted at the national, divisional and district level to solicit commitment and support from all concerned, including NGOs. At the upazila level an advocacy and planning meeting is held with all stakeholders to secure their commitment and allocate tasks during the campaign. All field workers, supervisors and volunteers are trained and the logistics required are distributed to all service units. Detailed ward-level microplans are developed to ensure the entire targeted population, especially the unreached, is reached.

Social mobilization activities through interpersonal communication usually start three to four weeks before an NID. Field workers, teachers, and volunteers conduct house-to-house visits to register the target children and inform guardians about the importance of the campaign and the vaccination schedule. Religious leaders, public representatives, councillors, mayors and Members of Parliament play an important role to propagate the campaign message, motivate people to participate in the campaign, and mobilize local resources.

The MoHFW also launches the campaign in Dhaka and city corporations to raise the public awareness of the upcoming NID.

The administrative report and findings from the independent observer checklists are reviewed after the first day/round of NID. Problems are identified and their solutions proposed so that the campaign is further improved or fine-tuned during the second day/round that is held a month later.

Significant progress was also made in the area of vaccine safety and quality. During the biennium 2008–2009 two important functions of the National Regulatory Authority were successfully supported: vaccine licensing and post-marketing surveillance for adverse events following immunization. Fast-track licensing guidelines were developed. Training on adverse events following immunization surveillance was also provided throughout the country with the support of WHO Surveillance Medical Officers.

Important challenges still remain for WHO. The network of SMOs is to be brought under the direct responsibility of the national authorities. Surveillance of vaccine-preventable diseases should be mainstreamed into a government-led national surveillance system. The government has also requested assistance from WHO for upgrading its vaccine-producing industry.

5 Health and environment

The importance of environmental determinants of health is accentuated by the continued growth in the population and economy that threatens the quantum of achievement of sustainable development and the rate of attainment of the Millennium Development Goals in Bangladesh. The contamination of drinking water supplies, air pollution and climate change are among the priority environmental health concerns. To address the issue of safety of drinking water WHO has promoted the introduction of water safety plans that emphasise a preventive approach to managing risks. Water safety plans were piloted in town water supplies and in small hospitals as an extension of the success of their introduction to rural communities registered earlier.

Indoor air pollution produced by the burning of biomass for household energy needs is a major problem and contributes significantly to pneumonia in children and chronic obstructive pulmonary disease (COPD) in adults. A WHO-supported study revealed that there is relatively low awareness among both health personnel and households about the health impacts of indoor air pollution and practical interventions such as behaviour change and use of improved cooking stoves. In this regard WHO has developed training materials for medical officers and grassroots health workers.

Bangladesh is considered to be one of the countries most vulnerable to the impacts of climate change, which in the years ahead is expected to have far-reaching consequences on health and development. WHO has focused its attention to raising awareness through organizing workshops and preparing educational materials to explain the linkages between climate change and health. An increase in the number and frequency of natural disasters such as floods and more intense cyclones is another consequence of climate change. WHO has provided assistance to strengthen the disaster preparedness capacity of health-care providers. Training was provided to hospital staff on mass casualty management and to health managers on emergency preparedness and response. In the aftermath of Cyclone *Sidr* in November 2007 and *Aila* in May 2009 WHO led the UN Disaster Emergency and Response health cluster to coordinate the relief effort.

Nutrition and food safety remains an area of concern in spite of continued progress over the last decade. With regard to nutrition WHO support during the biennium shifted its focus from improving the use of micronutrients to combating severe acute malnutrition. Standards and guidelines were developed which will be used in primary health-care services and also through community-based health promotion.

5.1 Environmental health

Water and sanitation

Ensuring the safety of drinking water in Bangladesh through a conventional monitoring and surveillance system in the context of scarce resources and a predominantly rural

population poses an enormous challenge. Instead of a top-down and centralized approach, water safety plans (WSPs) enable water suppliers from municipal (*paurashava*) authorities to household-managed point sources to adopt a preventive approach to managing their drinking water. WSPs have essentially introduced a risk management approach by identifying potential hazards and appropriate control measures together with guidance on day-to-day operation and maintenance.

Testing water quality in household stored drinking-water.

During 2008–2009 WHO has worked to further develop capacity and broaden the evidence base to facilitate a progressive scale-up of WSPs. Training on the principles of WSP of more than 1000 individual stakeholders–including water engineers, mayors, medical officers, NGO staff and community leaders–was supported. Training and awareness materials were disseminated through an information leaflet aimed at mayors, civil surgeons and local government officials to explain the purpose and benefit of WSPs. Handbooks and trainers' manuals for introducing WSPs were produced for engineers and water supply technicians. The first pilot projects to evaluate these WSPs in the urban context were implemented in small *paurashavas* (with a population of around 40 000) and in four 50-bed *upazila* health complexes. A draft national scale-up strategy was presented at a workshop with senior government officials.

An important outcome of these activities and the attention paid to WSPs has been a request from the Policy Support Unit for Water Supply and Sanitation of the Ministry of Local Government, Rural Development and Cooperative that WHO coordinates the review of water quality and of the WSP thematic area in the Sector Development Programme. There remains much work to be done in order that WSP is fully incorporated into the water supply strategy. For example, the number of master trainers is too few, and the evidence base showing how WSPs can bring tangible health benefits is not yet fully established. The introduction, monitoring and documentation of urban WSPs is at an early stage and pilot projects on a larger scale need to be undertaken.

Indoor air pollution

More than 90% of the country's population depends on biomass (wood, agricultural residues, dung) for their household energy needs. The smoke produced by burning solid fuel on open fires or traditional stoves is a major source of indoor air pollution. The exposure to this smoke, which mainly affects women and infants, is equivalent to that when consuming two packets of cigarettes per day. There is strong evidence that exposure to indoor air pollution contributes to acute lower respiratory tract infection (LRTI) and COPD. There is also growing evidence that it is also linked to asthma, cataract, adverse pregnancy outcomes, heart disease and certain cancers. An estimated 32 000 acute LRTI deaths in children aged below five years and 14 000 COPD deaths among adults are attributed to the use of solid fuel in domestic settings.

The support of WHO focused primarily on raising awareness through advocacy events and training health sector professionals on the pernicious health impacts of indoor air pollution. A three-day national workshop was organized in collaboration with the *Gesellschaft fur Technische Zusammanarbeit* (GTZ)–the German Agency for Technical Cooperation–to disseminate information about the health impact of indoor air pollution and raise awareness about intervention projects that have introduced improved stoves. A model country action plan on household energy and health was critically reviewed. The plan offers a six-point framework to integrate health sector interventions into existing programmes at the national level.

Training materials were developed on the health impacts of indoor air pollution, including a training of trainers manual (for medical officers) and a simplified manual and flip chart for health workers. These materials were field-tested and evaluated through a knowledge-attitude-practice survey. This survey revealed that households have little or no knowledge about the health impacts of indoor air pollution other than the discomfort that they have experienced in the form of coughs and a burning sensation in the eyes.

Additionally a small-scale study was undertaken to identify health benefits following the introduction of improved cook stoves. The results showed a significantly reduced women's exposure to fine particles, which are believed to cause most of the adverse health effects. Studies on a larger scale are needed to test whether such reductions translate into measurable health benefits.

Burning biomass on traditional stoves exposes women and children to harmful smoke.

Challenges remain in creating widespread awareness on the serious health impact of indoor air pollution. Appropriate health promotion messages need to be incorporated into the routine work of the grassroots health workforce. Additional research is also required to further evaluate the effectiveness of interventions to reduce exposure to indoor air pollution.

Climate change

Bangladesh is especially vulnerable to climate change because of its geography: mostly flat, low lying land situated on one of the largest riverine deltas in the world. Thus it is at risk of serious flooding as a consequence of shrinking glaciers in the Himalayas and the slow but inexorable rise in sea levels due to global warming threatening the coastal areas.

The health implications of climate change for Bangladesh are serious. An increase in salinity in coastal areas will lead to drinking water shortages causing an increase in diarrhoeal diseases, a reduction in food production and, together with sea-level rise,

trigger massive migration away from the coastal areas. In the north-western areas of the country changing rainfall patterns are likely to result in increased drought and therefore reduced food security leading to malnutrition. While many vector-borne diseases have distinct seasons of proliferation and are presently restricted to certain regions, climate change may lead to altered spatial and temporal patterns. The most often recognized concern is that an increase in frequency and intensity of cyclones will have devastating health and livelihood impacts in coastal areas.

The World Health Organization has concentrated on raising awareness on the linkages between climate change and health through workshops and advocacy events. The theme of World Health Day 2008 was "Protecting Health from Climate Change" and a series of awareness-building seminars were organized across the country. Health professionals were informed of the health impacts of climate change.

Information booklets were drafted on the science of climate change and health linkages; and on the findings of pilot research projects on the health impacts of climate change in Bangladesh. Additionally a draft framework for action to reduce the health burden of climate change was presented and critically reviewed during a national workshop on climate change and health in Dhaka in 2008.

WHO organized a national workshop in 2009 to further raise awareness of health professionals and government officials of the health impacts of climate change. At this workshop the Honourable Minister of Health committed to the formation of a Climate Change Cell to increase understanding of climate change within and outside the health sector and, most importantly, to enable greater engagement of health professionals in the design and implementation of mitigation and adaptation policies.

5.2 Nutrition and food safety

Nutrition

Bangladesh has recorded ample and tangible progress in reducing child hunger and undernutrition over the past years. Despite that an estimated 41% of children in the country are underweight and 43% stunted. This is far above the MDG target of reducing it to 33% for underweight. The National Nutrition Project aims at increasing food security through therapeutic and supplementary feeding, homestead food production and community-based nutrition advice.

The support of WHO to the government's nutrition programme focused mostly on improving the use of micronutrients following a PHC approach. Vitamin A distribution during NIDs led to a twelve-fold reduction of night blindness. Despite school and NID-based deworming actions, the levels of anaemia caused by iron deficiency remains alarmingly high. While clinical goitre is now rare, iodine deficiency remains unacceptably high. Together with UNICEF, WHO supported the salt iodization policy which increased the availability of iodized salt.

During 2009 the technical assistance provided by WHO shifted from prevention and treatment of micronutrient malnutrition towards combating severe acute malnutrition. Standards and guidelines were developed on how to prevent and treat severe acute malnutrition. A combined facility- and community-based integrated PHC approach was envisaged.

Food safety

Ensuring food safety is a major challenge in Bangladesh. Adulteration of foodstuff is frequently reported in the media. Chemicals – many of which are harmful to health – are liberally applied for the purpose of preservation, enhancement of appearance of the food item or to accelerate ripening. During 2008–2009 there were at least two major food safety scares in Bangladesh. First, traders were caught using formalin to preserve fish; and in the second instance the reported melamine contamination of milk powder of a particular origin may have led to the deaths of dozens of infants in the country of origin. It is, however, not just the unscrupulous use of chemicals at the marketing stage of food supply but also in the production stages that is of concern, since there are instances of unregulated use of additives and excessive application of agricultural chemicals. Added to the chemical contamination is the poor standard of food hygiene practices followed in many restaurants, markets and even at the household level.

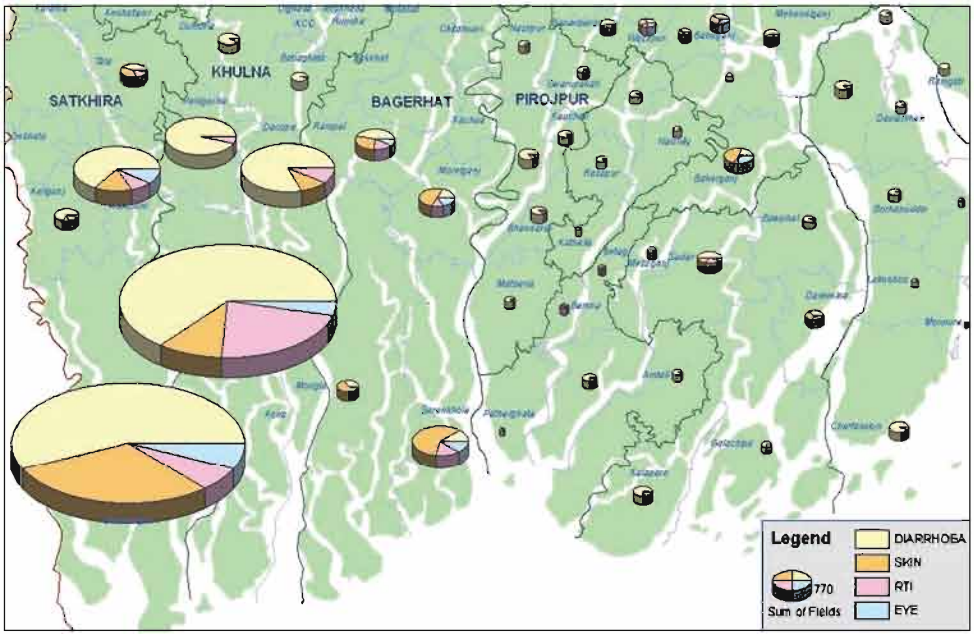
WHO support included the strengthening of laboratory services through international fellowship training and making available to sanitary inspectors lactometers to facilitate the rapid testing of milk quality. A series of workshops was organized to help raise awareness on food safety issues. A training course on Hazard Analysis and Critical Control Points (the food industry's risk management tool) was provided to sanitary inspectors and food quality officers while a training manual was drafted on healthy markets. Specific technical support was provided for the management of melamine-contaminated milk through sampling and testing in international certified laboratories and for drafting information statements for public awareness. Technical inputs were provided for the design of two large-scale projects on food safety of the Asian Development Bank and the Food and Agriculture Organization of the United Nations (FAO).

5.3 Health in emergency situations

Natural calamities are common in Bangladesh. Almost every year major floods affect large parts of the country. Less frequent but more devastating are the cyclones. The damage caused by *Sidr* in 2007 and *Aila* in 2009 is yet to be fully recovered. DGHS control room recorded a total of 28,650 acute watery diarrhea cases while 14,523 cases skin infection, 6611 RTI/Pneumonia cases and 2894 Eye infection cases from 04 June to 23 June 2009 in 11 cyclone Aila affected districts. The Figure 7 showing Upazila-wise details statistics of 4 major diseases.

As part of its support to the Government in conducting needs assessments after the cyclones, WHO led the UN Disaster Emergency and Response's "Health Cluster" group and organized meetings at the central level as well as in the districts affected by *Sidr* and *Aila*. These meetings contributed considerably to improving coordination among the various stakeholders, including multiple ministries, UN agencies and national and international NGOs. As a result, plans were prepared to coordinate support from all key actors for emergency response and recovery for the health sectors. Tasks were allocated to the different agencies based on their comparative strength. Although *Sidr* hit the country on 15 November 2007, most of the rehabilitation and response activities were carried out in the 2008–2009 biennium. For example, additional public health experts were brought in by WHO to provide special support related to health education, capacity building of health personnel, strengthening of emergency medical services and disease surveillance.

Figure 7: Communicable diseases morbidity profile, *Aila*-affected areas, 4–23 June 2009



A buffer stock of emergency drugs (e.g. antibiotics, intravenous fluid sets, antipyretics, analgesics, topical ointments and drops, nebulizers, anti-snake venoms) was created as part of preparedness strengthening at the district and *upazila* levels. Immediate availability of these drugs is essential to reduce the mortality related to disaster-linked disease outbreaks. Early etiological investigation, isolation of pathogens and determining drug-susceptibility patterns improved the management of cholera, *Shigella* dysentery and typhoid fever.

As part of emergency response support, important emergency equipment was also provided by WHO to the nine southern districts affected by the cyclones. These included medical equipment such as oxygen cylinders and masks, ambo-bags, lights and accessories for operation theatres, autoclave and suction machines and the like. Basic emergency supplies such as raincoats, solar lamps, torch lights, rubber safety boots, life jackets, caps, etc. were also indispensable for the efficient mobilization of district- and community-level health workers.

A total of four water-purifying plants were installed by WHO in four *upazila* health complexes severely affected by *Sidr*. This has ensured safe drinking water in the health complexes and nearby areas and reduced the number of waterborne diseases. Three water pumps were also provided.

Along with response activities, preparedness interventions too were supported. Major technical assistance was provided to augment the capacity of the health-care providers. Training courses were conducted on mass casualty management for hospital staff; search, rescue, evacuation and first aid for health volunteers; and psychosocial support for peripheral health workers. A workshop was supported on nutrition in

emergency situations and another on training of master trainers on emergency preparedness and response for health managers at the central, district and *upazila* level.

In addition, senior health professionals were acquainted with the Emergency Medical Service system in *Sidr*-affected areas as well as at the national level. Along with this, multisectoral table-top and simulation exercises on disaster preparedness and response were organized for senior health and disaster management professionals.

Box 11: Guidelines for best public health practices during emergencies

- Hospital Emergency Preparedness and Response Plan
- Health Sector Earthquake Response Plan
- Principles for emergency medical services
- Guidelines on psychosocial support
- Manual on poison management
- SOP on management of health in emergencies

The production of audio/video clips on earthquake management and response, bleeding management, open airway, splint fracture, drowning, snake-bite management and cardio-pulmonary resuscitation was also supported. Similarly, the Country Office provided technical advice for the production of various types of information, education and communication materials related to heath care in emergencies. A series of guidelines for best public health practices in emergencies was also developed.

6 Health systems

In further strengthening the health system, the role of WHO lies in maximizing the core values of the Bangladesh health sector, namely equity, gender equality and service responsiveness. WHO aims to support comprehensive health systems development at the central, district and sub-district level through strengthening the evidence base for policy and planning, and regulatory and organizational development.

During the biennium WHO supported the decentralization process in health through the production of a toolkit to facilitate district-level planning, and facilitating policy development and planning meetings on health-related MDGs at the district and *upazila* level. Training was organized to build capacity in the areas of strategic planning, implementation, monitoring and evaluation.

WHO support to health services included the updating of Village Health Worker training manuals, continued piloting of the maternal health voucher scheme, and an evaluation of the progress made to introduce a new tier to health services in rural areas: the community clinics.

Nursing and midwifery services were strengthened through support to the Directorate of Nursing Services (DNS) and the Bangladesh Nursing Council (BNC) to build management capacity, introduce performance improvement practices, strengthen regulatory bodies, and improve the quality of nursing and midwifery education.

An effective and reliable national health information system is essential for health systems management and taking timely evidence-based decisions. WHO supported an assessment of the health information system that resulted in identification of the main weaknesses in the system. Service Availability Mapping was piloted, which – once operational at scale – will provide invaluable information on the coverage of health services and performance monitoring.

The way in which the health system is financed is a contributing factor to population health and well-being, particularly in developing countries where ensuring equity of access is determined by overall health spending and the prevailing levels of poverty. WHO provided support to the Health Economics Unit of the Ministry to undertake studies on such issues as social protection, health insurance design and disease incidence costing.

Gender and women's health has rightly received growing attention. WHO policy is to promote health equity and gender equality throughout the life course. During the biennium WHO organized workshops on women's health rights and access to health facilities, and on gender mainstreaming in national health policies.

An effective health system is underpinned by well-trained human resources and these must be available in adequate numbers, provide a suitable skill mix and be appropriately located. WHO supported the completion of the Bangladesh Health Workforce Strategy that will enable all these issues to be addressed in a systematic

and holistic manner. WHO also contributed to the development of new curriculum in such fields as optometry, audiology and dialysis. Additionally, the regulatory framework of the Bangladesh Medical and Dental Council was strengthened and quality assurance mechanisms were institutionalized in medical colleges and paramedical institutes.

6.1 Policy and planning

While the overall performance of the health system has considerably improved over the past years, the governance and stewardship functions need to be further bolstered to improve equity and quality of services, especially to reach the poor and the disadvantaged. The management system of public health services in general and the managerial practices at the facility level in particular have not yet led to universal availability and utilization of essential supplies and skilled human resources. Issues related to ethics, equity and social justice to maximize health gains for the entire population and reducing the social and economic barriers to quality health care need to be addressed.

WHO provided support for policy development and planning of health programmes for improved access and equity in health services, with the emphasis firmly being on achieving the health-related MDGs and ensuring improved planning at the district and *upazila* levels. Investments were made for increasing the capacity of mid-level managers to provide equitable access to quality health care. The Organization was instrumental in bringing together key stakeholders for regular monitoring of MDG-related activities and improving intersectoral and interinstitutional collaboration. Different HNPSP strategies were also revised during the mid-term review of the programme. Training sessions were organized for relevant government officials; these focused on strategic planning, implementation, monitoring and evaluation.

Significant progress was made in introducing decentralized operational planning of services for district hospitals. A special toolkit was developed for this purpose and local-level planning for district hospitals was piloted in three districts. Moreover, the process and impact of local-level planning (LLP), conducted throughout the country for a number of years, was also reviewed and a report published.

6.2 Health services

Bangladesh has a good health infrastructure in place with *upazila* health complexes available for every 250 000 people and health centres operating at the sub- sub-district *(union)* level. In spite of this, the delivery of PHC services does not yet meet the desired level. The poor are particularly affected in terms of access to health services. This access inequity has both supply-side and demand-side determinants. The weakening of the supply side can be estimated through the declining percentage of total health expenditure spent on PHC services at the *upazila* level. The demand side suffered from low household cash availability and gender-biased household decision-making patterns that are at the heart of the low utilization rates of maternal health services.

Since 2007 WHO has been piloting a demand-side financing project designed to improve the utilization of quality maternal health services for the rural poor through a Maternal Health Voucher Scheme (see details in Box 9, Section 4.2).

With WHO support the MoHFW initiated action on piloting the new WHO Guidelines on Hand Hygiene in Health Care in 2007, the first initiative of the World Alliance for Patient Safety. Its objective is to institutionalize routine use of alcohol-based hand rub by service providers and caregivers between patient and patient fluid contact. International evidence suggests that nosocomial infection rates, typically ranging between 20% and 25% in the SEA region, can be reduced to 7% to 10% through the use of alcohol-based hand rub. The pilot initiative was carried out in the biennium 2008–2009 in the five wards of the Chittagong Medical College Hospital.

Box 12: Hand Hygiene: Promoting patient safety at health-care institutions

Traditionally, in Bangladesh's health-care facilities there is no handwashing basin in hospital wards. Only one basin usually exists in the nursing and doctors' room. As the promotion of the use of alcohol-based hand rub is in addition to the continued promotion of water-based handwashing, one wash basin per 10 beds was installed in all pilot wards. In addition one hand rub dispenser was wall mounted between every two beds and all staff was given a small "carry-on" hand-rub dispenser bottle. Based on a WHO formula, Isopropyl-based hand rub was produced locally by the Essential Drug Company and distributed to the pilot wards. Different training modules for doctors, nurses and paramedics were developed and given to all staff in the pilot wards.

Alcohol-based hand rub is available at bedside for hand washing.

In addition, a Hospital Infection Prevention Committee was established to lead on the fight against hospital acquired infections. This committee also developed the National Guidelines on the Prevention of Hospital Acquired Infection.

The pilot initiative in the Chittagong Medical College Hospital demonstrated the feasibility of introducing this new hand clean technology in Bangladesh's public health facilities beyond doubt. Based on this success, the MoHFW decided to scale up the pilot into a national programme.

As part of its commitment to revitalize PHC, the Government with the support of WHO continued its Village Health Worker training programme. A training of trainers and village health worker training manuals were updated and field-tested through an iterative development process with involvement of all major stakeholders.

The development of a health systems strengthening proposal was also submitted to GAVI. It aims for comprehensive delivery of PHC services (including health promotion activities) in 13 districts through an effective Community Clinic–Village Health Worker network.

Furthermore, special attention has been provided to support the government for the operation of the community clinic in support of the 'revitalizing PHC' initiative. Technical assistance was provided for rapid assessment of the community clinics to understand the current situations—what worked well, issues/challenges encountered, and how to effectively move forward. Support was also provided for study visits of teams of high-level officials from the Government of Bangladesh for an exchange of community health services experiences in India and Myanmar. Three ambulances were also provided to the government to support this revitalizing PHC initiative.

Moreover, WHO has also supported the development of a manual for the new cadre of health-care providers that will staff these community clinics, in addition to Health Assistants and Family Welfare Assistants. Continuing support will be provided to ensure a high quality of training for community clinic staff and to further strengthen the management of these community clinics.

Box 13: Bringing health services closer to the people – the community clinics

Several studies have highlighted that only a minority of the people use public facilities for their health-care needs. The reasons for this low utilization rate include the large distances, waiting time, behaviour of staff, inadequate services and indirect costs. These barriers disproportionately affect women. An additional tier to the health services in rural areas was therefore conceptualized: this was the community clinic.

These service points have some unique characteristics. They are managed by a Community Clinic Management Group which includes local public leaders and representatives who manage these clinics in the spirit of placing the responsibility for the health of the people in the hands of the people themselves. Clinic staff are selected from among the people of the catchment areas who are locally known to the possible end-users from locality. Common standards have been developed for equipment, logistics and for the services that should be delivered. The latter include some basic curative care services for common minor ailments and injuries; maternal and child health services including vaccination and perinatal care; health education and counselling; and referral of complex and complicated ailments.

A quick assessment of the community clinics, supported by WHO in 2009, showed that with the expansion of the health-care facilities to the peripheral level the distribution of health-care inputs and their utilization became more equitable and the utilization rate of these facilities was almost universal. The study also documented that almost 95% of the community clinic management groups are in place given the overall respondents' perception that their members are satisfactorily trained.

This assessment also highlighted the remaining challenges, particularly related to improving the overall management of these clinics. The physical infrastructure (including water supply and sanitation facilities), equipment maintenance and drug supply need to be further improved in a sizeable number of clinics. Intensified support from the administration and local authorities is required to enhance the capacity of the management groups. More supportive supervision visits by paramedical or medical staff are also required to improve the standard of services.

With the planned and cascading training of community clinic staff and the identification of mid-level supervisors as trainers of trainers, it is expected that these service outlets will soon become optimally functional.

6.3 Nursing and midwifery

The World Health Assembly has called for strengthening nursing and midwifery in relation to national health systems; establishing programmes for human resources development; and involving health personnel in the development, framing, planning and application of health policies. The WHO Country Cooperation Strategy includes within its purview addressing the shortage of health personnel and improving the quality of education, deployment and utilization.

There is severe shortage of nursing personnel in the country. Bangladesh is one of the few countries in the world that has more medical doctors than nurses—the ratio being about three medical doctors to one nurse. Furthermore, with the shortage of nurses coupled with the working environment not being inadequately conducive (e.g. lack of nursing equipment and an effective nursing management system), the quality of nursing care is less than desirable with few exceptions. Moreover, there is inadequate support to ensure that the desired improvements in the system happen. These issues need to be carefully addressed so that health equity can be effectively achieved.

To address quality gaps in the teaching and learning process and environment in nursing schools and health facilities, and to upgrade nursing and midwifery education and services standards, the Government has made efforts to raise the image of nursing to enhance its appeal; improve the quality of services and education; and increase production of nurses and midwives.

It is in this backdrop that WHO extended its support to the Directorate of Nursing Services (DNS) and the Bangladesh Nursing Council (BNC) to further develop the nursing and midwifery workforce; implement the related actions for the programme's strategic directions; and provide holistic, client-centred services. WHO support in this regard during 2008–2009 aimed to enable the DNS and the BNC to:

- build national capacity in planning, education and management;
- introduce and promote quality culture and performance improvement practices in clinical and educational institutions;
- enhance the capacity of the regulatory bodies towards ensuring the quality of nursing and midwifery education and practices; and,
- build capacity of existing nursing and midwifery staff to improve maternal, neonatal and child health.

With support from WHO, the BNC drafted regulations, accreditation guidelines and legislation for nursing and midwifery. The strengthening of nursing and midwifery bodies will help ensure the quality of nursing education and services.

Special efforts were also made to strengthen nursing and midwifery management information systems to enable the DNS to take informed decisions. Nurses and midwives can now access and update their profile online following the introduction of the Personnel Management Information System which is integrated with the Health Management Information System.

Moreover, WHO provided technical assistance in the development and introduction of the BSc in Nursing degree programme as well as in the implementation of the Diploma in Nursing and Midwifery Programme.

Box 14: Model Wards for Improving Quality of Nursing Care

The Directorate of Nursing Services, the Bangladesh Nursing Council and the Dhaka Medical College Hospital joined hands to improve the quality of nursing services in selected wards (i.e. surgical and medical wards) in order to offer better clinical practice sites for educating nursing students. WHO supported this initiative and, in collaboration with the Faculty of Nursing, Prince of Songkla University, Thailand, requisitioned the services of experienced nurse experts to work alongside Bangladeshi nurses at DMCH to develop "Model Wards" during 2005–2006.

The support and involvement of medical professionals in the selected wards in building the capacity of the DMCH nursing team was also fruitful. Moreover, selected nurses from the pilot wards were sent to Thailand to have a first-hand experience of quality client-centred nursing care. The outcome of this collaboration lead to more than merely improving the educational experience for nursing students.

By creating an organizational culture of quality, nursing services became client-centred, evidence-based and more holistic. This innovative team approach demonstrated overall improvements in quality of nursing care, nurses' attitudes, patient satisfaction, doctors' perception of nursing care, and the satisfaction of student nurses. Most significantly, though, patient outcomes were improved and patient safety enhanced. In the "model wards" there was a marked decrease in aspiration pneumonia, bedsores, post-operative complications and medication errors.

The success of this project has led to an increase in the number of wards using the approach from the original few in 2005–2006 to over 30 wards, within DMCH and other hospitals, by the end of the 2009. DNS and BNC plan to expand this "model ward" approach throughout the country.

The quality of nursing training capacity was augmented through international fellowships, development of tailored modules and guidelines and support of in-service training. Leadership and management, behaviour change communication, gender, mental health, trauma management, dialysis, critical care, research methodology, standards of practice, infection control and HIV/AIDS were among the issues addressed.

Globally, nurse-midwives have significant roles to play for improved maternal and newborn health. WHO therefore provided support to the BNC and the DNS to determine strategic directions for enhancing the contribution of nurse-midwives in midwifery services to further the attainment of MDGs 4 and 5 in Bangladesh. The Strategic Direction Paper was developed in consultation with other professional bodies and key stakeholders. The MoHFW had endorsed this document as a strategic framework to strengthen midwifery education and services in the country. To follow up on these strategic directions WHO supported the development of a six-month post-basic midwifery curriculum to educate registered nurse-midwives so that they could contribute more fully to midwifery services.

Box 15: Strategic Directions for enhancing midwifery contribution towards attainment of MDGs 4 and 5

8. Develop and implement strategies for the effective utilization of nurse-midwives as an integral part of the national human resource policy and workforce plan.

9. Strengthen midwifery knowledge and skills to perform quality maternal, newborn and child health-care services as per assigned responsibilities (according to education, qualification and title).

10. Based on workforce plan, deploy nurse-midwives to provide appropriate maternal and neonatal health services, and ensure supportive working environments.

11. Review and update the regulations under the Bangladesh Nursing Council to enable the practice of nurse-midwives for midwifery services and to safeguard the public from unsafe practice.

6.5 Health information and knowledge management

The purpose of the national health information system is to provide health managers, planners, researchers and policy-makers at different levels of the health services with reliable, relevant, adequate, timely and complete information so that it can be used for programme management. Though the country's health information system was expected to meet these requirements, there are still challenges to generate the data needed for evidence-based decision-making. Bottlenecks have been identified during collection, processing, analysis and dissemination of health records.

WHO support for strengthening the existing health information system was channelled to both the Directorate-General of Health Services and Directorate-General of Family Planning. During 2008–2009, contributions were made by WHO to improve different aspects of health information. WHO support for conducting assessments of the country's health information system, with Health Metrics Network funds, was an important contribution during the period (see Box 16).

The recording and reporting formats were further updated to gather uniform and quality data from different health facilities. Senior and mid-level managers of select public, private and NGO hospitals/clinics were trained on the recording and reporting system to extend the purview of hospital-based information beyond the public sector.

WHO also provided support to the Director of Management Information System, Directorate General of Family Planning, to improve the capacity of the personnel involved for analysis of the collected data as well as for publishing annual MCH and FP report.

Geographical Reconnaissance (GR) scope and process updating is another area of support provided by WHO in 2008–2009. GR is a system of yearly collection and updation of population-based health-related household data from rural areas of the country. Data collection is conducted as per set questionnaire by the grassroots health workers, and the total activity is managed and supervised by the Director, MIS, DGHS.

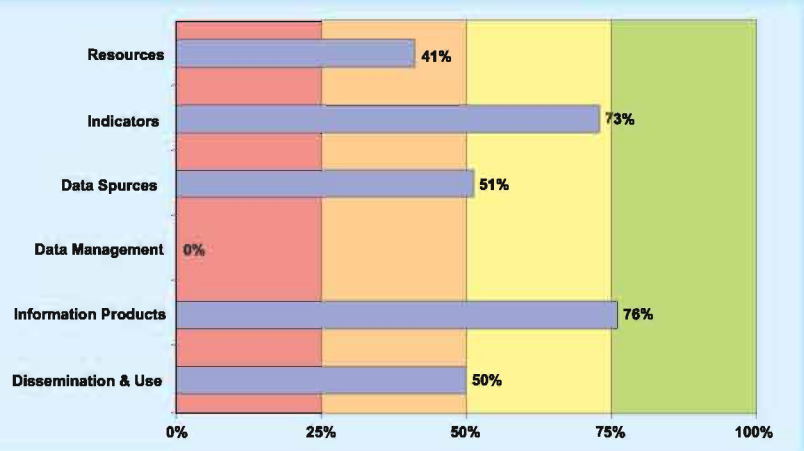
Though it is a good source of local-level information, its use is very limited. Through redesigning the objective and the process of GR, the scope of generating information from household data was both extended and updated. Moreover, verbal autopsy tools were also designed and introduced to determine the cause of death during GR.

Box 16: Health Metrics Network Project in Bangladesh

The Health Metrics Network (HMN) was launched in 2005 to help countries and other partners improve global health by strengthening the systems that generate health-related information for evidence-based decision-making. HMN receives funding support from the Bill and Melinda Gates Foundation, the UK Department for International Development, the Danish International Development Agency, the Netherlands Ministry of Foreign Affairs, the United States Agency for International Development, the European Commission and the World Health Organization (WHO). WHO also serves as the host and secretariat to the HMN.

Bangladesh was among the successful countries and was awarded in 2006 the Round 1 grant for "Assessment of Existing Health Information System (HIS) and Development of Comprehensive Plan for Future HIS in Bangladesh". The Secretary, MoHFW, signed the agreement with HMN in August 2006.

The HMN project activity in the country is actively supported by WHO and the report of the assessment of HIS using HMN framework was completed in 2009. A summary of assessment status indicating the availability of different components of HIS in Bangladesh is given below:



In order to extend the scope of collecting geographical information, Service Availability Mapping (SAM) was piloted in one district (Nilphamari), and this has created opportunity of expanding such information collection in the country in future (see Box 17).

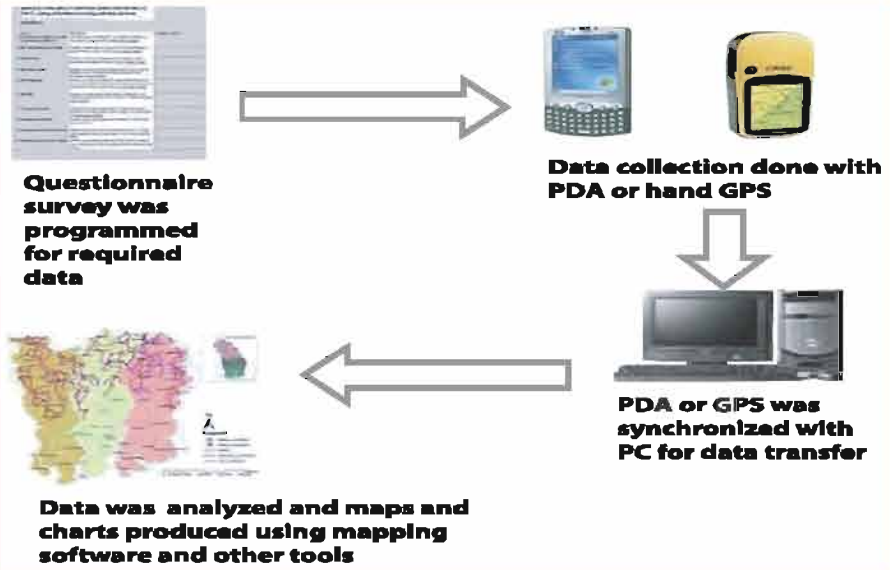
Box 17: Service Availability Mapping:
A tool for geographical information collection

The Service Availability Mapping (SAM) is an application of public health mapping that aims to rapidly assess and monitor the availability and coverage of health infrastructures, human resources and services provided within specific geographical or administrative boundaries.

The service availability mapping enables the district health management to map health services provided in the catchment areas and monitor their performances. The benefits of SAM, however, are its systematic data collection procedure and "user-friendly" presentation of data. Maps and summary measures generated through SAM provide a complete picture of the level and distribution of district resources, as well as highlight gaps in the provision of health services and interventions.

SAM tool was made up of two components:
1. Questionnaires: To collect demographic information of the district population and also of the health facilities.
2. Mapping Interfaces: Hardware (PDA and GPS) and software (Health Mapper and Geographical Information System).

Schematic diagram of data processing procedure in SAM



In the knowledge management area, WHO has provided support in the 2008–2009 biennium for improved access of health professionals to global, regional and local knowledge sources and for improved capacity of health librarians for ICT-based management of health libraries. Moreover, support was also provided for collection and storage, in a consolidated database, of local knowledge assets such as dissertations and theses from postgraduate medical institutions.

6.6 Health financing

WHO has provided continuing technical assistance to the Health Economics Unit (HEU) of the MoHFW for supporting research aimed at generating evidence for policy. As a result, a number of studies were undertaken on social protection; health sector intervention costing; disease-incidence costing; health insurance scheme design; assessments of degree of willingness to pay upfront for insurance premiums; as well as economic studies on the links between poverty and illness. Several of them were published as monographs by the MoHFW. WHO provided support to the HEU to develop a concise factbook on the Bangladesh health, nutrition and population sector, which has been published and distributed in rural health facilities.

Moreover, with WHO support the Health Economics and Health Safety Net Documentation Centre was established within HEU; and the National Health Accounts (NHA) were updated. The 2007 NHA version has adopted the modern classification methods, namely the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10), and the International Classification of Primary Care, 2nd edition (ICPC-2). These tools are particularly recommended for use in developing countries. WHO also provided assistance in training relevant staff in order to produce the updated version and help develop the skills of data-entry operators.

The protocol for a pilot programme for national Social Health Insurance has been formulated, including a fund disbursement and claims management system. Implementation of this scheme, under the leadership of HEU, will begin in 2010–2011. The pilot phase is underpinned by a technical framework providing the theoretical and structural base for the Social Health Insurance programme. Following two baseline studies, the pilot scheme was realigned and reworked to serve as a social safety net programme for better management of health risks and catastrophic illness episodes in a poverty-prone *upazila* covering approximately 1000 poor rural households.

An important challenge is to provide technical support for research and capacity-building aimed at integrating pro-poor health investment approaches into the national HNP sector investment plans, and to explore new and innovative financing mechanisms for health, so that out-of-pocket spending on health care is reduced and degree of access by the poorest people to modern health-care systems is improved. The HEU has been involved in implementing the major recommendations of the Report of the Commission on Macroeconomics and Health.

The longstanding collaboration between WHO and the Government of Bangladesh has contributed to increase national capacity through formal training, hands-on knowledge transfer, field visits and in-house availability of technical expertise. In addition, more significant public-private partnerships are planned, and more emphasis is being placed on the development of HEU's inherent capacity. It is expected that HEU will be able to carry out rigorous evaluation and impact studies of selected HNPSP projects, such as the demand-side financing Maternal Voucher Scheme and other poverty-related health initiatives.

6.7 Gender and women's health

Special attention was given to gender equality through appropriate WHA resolutions. Violence against women had been declared a leading worldwide public health problem

more than 10 years ago. One of the objectives of the Organization's gender policy is to promote health equity and gender equality between men and women throughout their lifespan.

It is widely recognized that integrating gender perspectives into policies and programmes is important to achieve the MDGs. A series of workshops was organized by WHO on women's health rights and their access to health-care facilities; and on gender mainstreaming in the national health and population policies. Primary research has been conducted on women's safe motherhood and equality in access to care at government-run health facilities in rural Bangladesh.

Every year on the occasion of International Women's Day (8 March), the WHO Country Office for Bangladesh in collaboration with other development partners supports a special commemorative programme. Support is also provided to the Gender and Stakeholder Participation Unit of MoHFW to undertake various activities that strive towards achieving gender equality. Research on women's access to modern health-care systems and on the epidemiological pattern of common illnesses in rural areas, based on sex-disaggregated data, has been completed. Plans are underway to start a new programme (in the 2010–2011 biennium) on addressing issues related to the subject of violence against women with support from the Spanish MDG grant given to the Government of Bangladesh, and nine UN agencies in the country, including WHO.

6.8 Human resources for health

The *World Health Report 2006* identified Bangladesh among 57 countries facing a critical shortage of doctors, nurses and midwives. The nurse–doctor and medical technologist–doctor ratios are also among the poorest in the world. While the majority of people live in rural areas, the majority of health professionals work in urban areas. Vacancy rates in government health services in remote *upazilas* are much higher than those near major cities. Different assessments have highlighted major quality gaps in the teaching–learning process and facilities in health workforce educational institutes. The rapid growth of the private sector in both medical education and services necessitates a more stringent regulatory function to be performed by the government. There is also a growing recognition of the need for regulatory bodies for health professionals that can work more closely with the related government agencies to ensure the quality of health workforce education and practices as well as accountability of educational institutions and health professionals to the public.

Developing curriculum for joint public health courses of NIPSOM and Faculty of Public Health, Mahidol University at NIPSOM, Dhaka in 2008

The World Health Organization has extended its support to develop the Bangladesh Health Workforce Strategy and support actions for addressing the above-mentioned issues and challenges in a holistic and systematic manner. More specifically, the Organization's support was to enable the related national authority to build capacity for planning and managing the national health workforce; to promote quality culture and institutional performance improvement practices in health workforce educational institutes; to enhance the capacity of health professional regulatory bodies; and to strengthen the public health educational institutes.

Box 18: Increasing the number of institutes of health technology calls for more attention to ensuring quality of education

Health technologists play an important role in providing effective supportive medical services and preventive health care. To ensure a proper health workforce skill mix and overcome the shortage of health technologists, the government has granted permission for the establishment of additional institutes of health technology (IHTs).

During 2009, WHO supported an assessment of the expansion of paramedical institutes and its impact on the quality of education. It showed that the number of IHTs had increased from two government and three non-government institutions in 2000 to three government and 45 non-government IHTs in 2009. Palpable and multiple gaps in education and the functioning of the IHTs were identified, especially in the recently established institutes. These were related in particular to the suitability of physical infrastructure, adequacy of teaching staff and availability of teaching resources (including teaching aids, books and practical training resources). The majority of students of IHTs where quality assurance mechanisms were piloted were satisfied with the education received: 43% rated the quality of education as 'good', 28% as 'excellent' while 26% found it 'average' and only 3% considered it poor.

The report recommended expanding the quality assurance mechanisms to all government and non-government institutes. Among the key indicators to be monitored are the satisfaction levels of students and teachers vis-à-vis the quality of education.

Assistance provided by WHO during the 2008–2009 biennium and the intricate collaboration with multiple stakeholders led to a number of important achievements. For example, the Bangladesh Health Workforce Strategy (2008) and National Plan for Scaling up the Production of Medical Technologists were finalized. Curricula were developed for new certificate and/or diploma courses in optometry, audiology, language and speech therapy, cardiac catheterization, operation theatre, and dialysis. Following an assessment of the relevance and adequacy of the training of community health workers, the training curriculum of these categories of health workers was updated and master trainers were trained.

The Organization also contributed to strengthening the regulatory framework of the Bangladesh Medical and Dental Council and the State Medical Faculty through providing updated regulations and standards for recognizing educational institutes. Quality assurance mechanisms have been institutionalized in medical colleges and paramedical institutes leading to improved institutional accountability.

An instrumental role was also played in establishing the Bangladesh Public Health Education Institutes Network in collaboration with NIPSOM and Mahidol University, Thailand, as well as in strengthening partnership between NIPSOM and Mahidol University for effective training and management of the public health workforce.

WHO fellowship programme

The WHO Country Office has an administrative unit dedicated to facilitating participation to international programmes (such as training courses, conferences, meetings, seminars, etc.) and monitoring fellowships (study visits and longer term training courses). The Organization believes that offering opportunities for the sharing of experiences as well as learning from experience or exposure to projects in other countries can positively impact the steering of health programmes and contribute to capacity-building. Priority for these international programmes is given to events in the Region or in countries with similar contextual situations.

Table 3: Cluster/Programme-Wise Group educational activities, 2008–2009

Area / Subject / Title	Number of events	Number of participants
Communicable diseases		
HIV/AIDS, sexually-transmitted infections	11	36
Malaria, lymphatic filariasis, anthrax, influenza, nipah virus	18	48
Polio	3	6
Tuberculosis, leprosy	28	69
Non-communicable diseases and mental health		
Cancer, non-communicable diseases	10	22
Eye care	2	2
Health promotion	10	19
Injuries	4	6
Mental health, neuro-psychology	4	16
Tobacco	13	20
Family and community health		
Child and adolescent health	6	8
Gender, nursing	2	3
Reproductive health, safe motherhood	5	9
Health systems		
Health education	13	32
Health information	4	11
Health systems	3	6
Medical/health research	7	13
Paramedical services and education	2	6
Primary health care	16	56
Quality assurance	3	11
Traditional medicine	1	4
Health technology and pharmaceuticals		
Health technology, laboratory training	2	4
Immunization, vaccines	20	38
Safe blood	1	1
Sustainable development and environmental health		
Environmental health	10	16
ERC	1	2
Food, hygiene, nutrition	6	10
Sustainable development	1	3
Water supply, sanitation	3	7
Other		
Administrative meetings	3	5
Executive Board Meeting	2	3
Health Ministers Meeting	2	6
Health Secretaries Meeting	2	6
Policy advisory meetings	11	20
Regional Committee Meeting	2	6
World Health Assembly	2	6
Total	**233**	**536**

To further increase cost-efficiency and maximize the making use of in-country capacity, WHO now also increasingly supports "in-country, international" events wherein, with support from international facilitators, a critical mass of national health staff can be more quickly involved for a quicker and more profound impact.

Table 3 gives an overview of the WHO-supported group educational activities stating the number of events and participants.

In addition, a total of 38 events were organized under the banner of fellowships. These include 22 fellowship programmes under which 71 fellows were enrolled. Seven study visits were also organized to countries in the Region. Table 4 provides a summary of these events.

Table 4: Overview of fellowships (2008–2009)

Subject of Study	Duration	No. of fellows
HIV surveillance and HIV/STD counselling	1 week	1
PhD in Tropical Medicine (3 year programme)	24 months	1
Study Tour on drug-resistant TB	1 week	10
Study Tour on TB/HIV	1 week	11
Study visit on electronic reporting for TB	3 days	3
Study visit on TB advocacy	1 week	11
Assessment of microbiological quality of food and water	1 week	4
Injury prevention and management	2 weeks	3
Library Management	2 weeks	1
Mental health and neurosciences	12 days	3
Leadership and management study visit	2 weeks	3
Management information system	1 week	3
Quality assurance and accreditation	1 week	2
Regional Medical Council study visit	2 days	2
Study visit on best practices in training and education of medical technologists	1 week	4
Decentralized Health Planning	2 weeks	5
Observational study tour of Bangladesh High level delegation on community-based and community managed health care system	4 days	6
Observational study tour of Bangladesh High level delegation on community-based and community managed health care system	4 Days	4
Planning and evaluation of development programme	12 days	5
Regional Training of Health Librarians on Improved Management of Health Libraries	3 weeks	2
Study visit of Bangladesh High level delegation on health system development in WHO, SEARO	3 days	3
Training on Management Information System	2 weeks	2
Dialysis Course	6 weeks	4
Midwifery Training Course	6 weeks	8
Nursing Oncology	3 weeks	4
Psychiatry Training	6 weeks	2
Strategic planning and monitoring of health programme	12 days	7
Disaster Management	8 weeks	2
Good manufacturing practices in pharmaceutical industries	1 month	1
Health financing issues in low-income countries	1 week	3
Training on maintaining and repairing electro-medical equipments	2 months	15

6.9 Essential drugs and medicines

Access to quality-assured drugs to all citizens has been a major concern for the Government. The country has a firm infrastructural base for producing drugs and medicines. According to the Directorate of Drug Administration (DDA), in 2006 local production met 93% of the overall demand for drugs and 100% of that for essential drugs. The National Drug Policy was updated in 2005 in line with which the Essential Drugs List was also revised in 2009. The use of the updated list in production, procurement and supply was promoted.

The Directorate of Drug Administration, the recognized national regulatory authority for drugs and vaccines, is mandated with the licensing, registration and monitoring of the quality and safety of drugs and drug-production plants. There are two national drug testing laboratories in Bangladesh.

In collaboration with the relevant authorities, WHO has assessed the capacity of the Directorate of Drug Administration and the Drug Testing Laboratory in the Institute of Public Health in relation to quality monitoring of medicine and vaccine production. While considerable progress has been made in implementing the recommendations of the assessments (e.g. the DDA was upgraded into the Directorate-General of Drug Administration [DGDA] in late 2009), major concerns remain related to human resources, quality system, documentation and mitigation of conflicts of interest. The presentation of the outcomes of this assessment to policy-makers also enhanced the policy-level commitments to address the identified gaps.

International training of relevant staff from the drug testing laboratories on quality control; provision of new equipment; and orientation on the use of SOPs improved the testing capacity of these laboratories. The capacity of the technical and administrative staff of the National Regulatory Authority was also bolstered as a result of local and international training.

As overprescribing and self medication are widespread in Bangladesh, introducing a more rational use of drugs paradigm remains an important challenge. As the responsibility in this area is fragmented between different authorities, WHO supported the establishment of a national committee for rational drug use. There is ample evidence of enhanced awareness among medical practitioners and pharmacists at district hospitals following orientation programmes on the dissemination of the Manual on Rational Use of Drugs.

The Organization has also been supporting the Directorate of Homeopathic and Traditional Medicine in promoting cost-effective use of traditional medicine. Country monographs on the national system of traditional medicine were also developed.

6.10 Operational research

Operational research on priority health interventions is important in order to provide the evidence base for policy and strategy formulation. For this reason, WHO considers research as one of its core functions. The Country Cooperation Strategy (2008–2013)

provides guidance for strengthening health research in the country by conducting needs-based quality health research; developing and managing effective health research information systems; and generating and disseminating evidences for informed decision-making. A standing Research Review Committee was established within the WHO Country Office in 2008. It reviews research proposals on technical merit, provides an opinion on value for money and checks if it addresses priority public health problems.

Through providing grants and technical support for research in various programme areas the Organization not only aims at building a body of evidence but also at developing the capacity of individual researchers as well as research institutes in the country. Except for a few large research projects (e.g. TB Prevalence Survey, Global Adult Tobacco Survey), most projects are modest in nature with a typical budget of around US$ 10 000, have a limited number of researchers and feature close involvement of the respective programmes.

Table 5: Key research studies supported by WHO during 2008–2009

Research area	Title of research project
Child health	A randomized control trial on use of needle removal devices during routine immunization.
Communicable diseases	Health facility survey in malaria-endemic areas of Bangladesh.
	Establishment of sentinel sites for drug resistance monitoring and assessing therapeutic efficacy of artemether-lumefrantine for treatment of uncomplicated *Plasmodium falciparum* malaria in Bangladesh.
	National TB disease-cum-infection prevalence survey.
	Monitoring and evaluation of a community-based intervention to increase referral and detection of children with suspected TB at microscopy centres at *upazila* level.
	Effectiveness of extended contact survey in comparison with conventional contact survey in leprosy case finding in selected districts in Bangladesh.
Environmental health	Monitoring second-hand smoke exposure in restaurants of Dhaka, Bangladesh.
Gender	Rights-based approach and women's access to health with special reference to safe motherhood at Government-run facilities.
Health-seeking behaviour	Patient behaviour: the use of drugs and the revealed preference for traditional medicine in rural Bangladesh and the phenomenon of bypassing public care facilities: A quantitative study.
Health systems	Measurement of physicians'/clinicians' use of time in the different hospital tiers in the Government and a comparison on this score with the private sector.
	Fiscal space assessment of the Bangladesh HNPSP.
	Study to measure the intensity and incidence of catastrophic health-care costs and their impact on family budgets.
	Rapid assessment of community clinics.
Noncommunicable diseases	National survey on risk factors of noncommunicable diseases.
	Prevalence of mental disorders, mental retardation, epilepsy and substance abuse in children.
	Magnitude, determinants and consequences of injury-related disabilities in a district of Bangladesh.

Research area	Title of research project
	Rapid assessment on salt intake in a sample of rural and urban people.
Tobacco	Global Adult Tobacco Survey – Bangladesh chapter.
	Study on impact on tobacco consummation by a community-based tobacco cessation programme in a rural area of Bangladesh.
	Rapid assessment of knowledge, attitude and practice on tobacco control law among the public and smoking in all Government facilities in Patiya *upazila* under Chittagong district.

Support was also provided to establish a health research information system in the Bangladesh Medical Research Council to facilitate the availability of health research information for use by researchers, research managers as well as programme personnel and policy-makers. In addition to the research projects listed in Table 5, WHO also provided considerable support to strengthen the institutional framework for conducting research. A national research strategy was published. National guidelines and SOPs for reviewing ethical aspects of research protocols by institutional ethical review committees were developed. A total of 223 researchers were trained on different aspects of research methodologies (data analysis, biostatistical analysis and report-writing). Priority research management modules for the country were also identified through meetings with key research managers. The operational capacity of the Bangladesh Medical Research Council was also boosted with training equipment and by making relevant research information available online.

7 Resource mobilization and partnerships

In order to effectively carry out the core functions of the Organization and to implement the WHO collaborative programme successfully, adequate resources will need to be ensured. Generally, there are special considerations from donor communities and development partners to support communicable diseases prevention and control where the outcomes could be easily measured and attained. It remains a great challenge for the WHO Country Office for Bangladesh to mobilize resources to support other areas such as noncommunicable diseases and health systems development where the results will only be achieved on a long term and requiring intensive investment.

Furthermore, there are large numbers of donor agencies and development partners in the country who are supporting and/or actively engaged in health development. It is essential to ensure effective collaboration and coordination among key actors in the health sector to align and harmonize support to the Government to bring about improved health of the population.

7.1 Resource mobilization

Like many developing countries, the health and disease profile of Bangladesh is also gradually shifting from communicable diseases, which were relatively easier and cheap to control, to an increased share of noncommunicable and lifestyle-linked health problems. The cost related to addressing the burden of the latter group is, therefore, increasing significantly.

In spite of the massive funding provided by the Government and donors, the entire health sector still faces a recurrent funding shortfall. As a result, major investments are postponed and staff positions remain vacant for prolonged periods of time. Considerable additional resources are required from domestic and external sources to increase the reach of the modern health-care delivery system and to improve the health status of the people.

The World Health Organization is primarily a technical agency and not a donor. To fulfil its mandate, resource mobilization is an important component of the Organization's overall strategy, as formulated in the Country Cooperation Strategy (2008–2013).

The subsequent biennial workplans of WHO are characterized by a marked increase in the volume of activities and, linked to these, a growth in its budget. Such expansion has been fuelled by the need for an increased engagement of WHO in order to accelerate health development in the country. Consequently, external funds are now increasingly raised in a proactive manner, through stronger communication with donors and based on agreed workplans.

A country-level Resource Mobilization Strategy (2010–2011) has been developed. Grants were secured through successful negotiation with several Government and donor agencies. During the 2008–2009 biennium, WHO Bangladesh managed to mobilize US$ 26 238 000 in Voluntary Contributions (VCs) to support various collaborative programmes. The major sources of these VCs included:

- the Delegation of the European Commission;
- the Netherlands Ministry of Development Cooperation;
- the United States Agency for International Development;
- the United Kingdom Department for International Development;
- the Government of Japan;
- the Sasakawa Memorial Health Foundation;
- the HNPSP fund of the Government of Bangladesh;
- *GTZ* and *Kreditsanstalt fur Wiederaufbau* (KfW) — German Reconstruction Credit Institute;
- GFATM, and
- GAVI.

To support rebuilding health-care services after natural calamities, funds were also obtained from the Norwegian Government, the Government of Japan, and United Nations-Central Emergency Relief Fund. Resources were also mobilized from the Canadian International Development Agency, the United Nations Fund for International Partnerships, the United States Centers for Disease Control and Prevention, and the Bloomberg Philanthropies.

To capitalize on the advantages offered by joint UN efforts, collaboration between WHO and other UN agencies in the country has been strengthened. Interested donors have already pledged financial support for these planned joint UN agency programmes.

7.2 Collaboration with other partners

Being a member of the Local Consultative Group and the Health, Nutrition and Population Consortium, WHO is actively engaging in donor coordination and aid harmonization. Within the HNP Consortium, WHO has taken a leadership role as lead agency in the Government-led Task Group on Human Resources for Health. Furthermore, the WHO Country Office for Bangladesh has been assigned as a focal agency to facilitate and coordinate the joint support of the WHO, UNFPA, UNICEF and the World Bank (or H4 Agencies) to accelerate the reduction of maternal and newborn deaths. This has resulted in fostering an intricate dialogue with the government and donors/development partners. The Organization also plays an active role in the HNP Forum (which is led by MoHFW) and in the Bangladesh Development Forum. The WHO Representative is also a member of the Bangladesh Country Coordination Committee which oversees the implementation of GFATM-funded activities. During October 2005–April 2009 the WHO Representative chaired the UN Theme Group on AIDS.

Within the UN Country Team, WHO provided substantial inputs in dealing with matters related to health in general as well as staff health and well-being. The Organization is leading the UN Technical Working Group on Pandemic Influenza Preparedness and Response. WHO is also actively involved in the monitoring and evaluation of the United Nations Development Assistance Framework (UNDAF) as well as in the preparation of the 2012 UNDAF. It provided technical backup to three of the six theme groups and has been working hand-in-hand with other UN agencies to attain the MDG targets, particularly those related to health and partnerships. A number of joint health development projects are currently implemented by WHO and other UN agencies through joint-programme agreements.

WHO collaborating centres

The Bangladesh Country Office has provided support to strengthen selected national centres of excellence in matters regarding education/training, services and research. Normally, these institutions would be provided with strong collaborative support to build capacity. Once they have demonstrated their capacity, including executing at least two years of successful collaboration with the Organization, they are eligible to be considered for designation as WHO collaborating centres (WHO CCs). The WHO CCs are designated to assist the Organization to extend its work at the national, regional and global level. These WHO CCs have fostered and enhanced national capacity through the introduction of innovative approaches to teaching and continuing education as well as to service delivery and research.

The WHO CCs are selected from among organizations working in technical fields that are relevant to priority public health issues, not only at the country level but also with a bearing at the regional and global level. In Bangladesh, during the reporting period, there were three WHO CCs in place in different areas. These are based in NIPSOM, BIRDEM and the ICDDR,B.

Table 6: WHO collaborating centres in Bangladesh

Sl. No.	Name of WHO CC	Host institute	Month and year of first designation	Expiry of current designation period
1	WHO CC for Research, Prevention and Control of Diabetes Mellitus	BIRDEM	October 1982	4 January 2014
2	WHO CC for Diarrhoeal Disease Research and Prevention, with special focus on IMCI and childhood diarrhoeas	ICDDR,B	January 2002	11 February 2014
3	WHO CC for Public Health Workforce Development	NIPSOM	March 2005	12 May 2010.

The NIPSOM, as a WHO Collaborating Centre for public health workforce development, is engaged in the conduct of public health-related research and training

as well as leading the process of improving the public health education system in the country. Their MPH training curriculum has been updated in collaboration with the Faculty of Public Health, Mahidol University, Thailand, while need-based MDG-related short public health courses have also been organized. It has been actively involved in documenting and disseminating best practices in public health education and services. Furthermore, NIPSOM was assigned by the MoHFW as a focal point for conducting the recently-completed Global Adult Tobacco Survey, Bangladesh Chapter, in 2009.

The ICDDR,B is engaged in research and clinical control of diarrhoeal diseases, with a special focus on childhood diarrhoea and child health issues. Collaborative research is underway on areas related to the development of community-based packages, IMCI, facility-based care for children and testing of vaccines for the prevention of enteric infection, especially those related to rotavirus, and enterotoxigenic E. coli.

BIRDEM has helped develop strategies and innovative tools for the training of health-care personnel on the prevention and management of diabetes and its related complications. Better surveillance methods have been devised and put in place. New mechanisms, developed at BIRDEM, on clinical management of diabetes have been shared with other organizations in the Region.

8 WHO Country Office

While the World Health Assembly (WHA) is the supreme decision-making body of the WHO and the Executive Board oversees the implementation of its decisions, the World Health Organization acts as a secretariat to the Member States and has been delegated the responsibility of implementing the decisions of WHA pertaining to the Organization while providing support to the Member States in the implementation of these decisions by the country.

The WHO Secretariat consists of three tiers: Headquarters (with most offices located in Geneva, Switzerland), Regional Offices (for Bangladesh it is the South-East Asia Regional Office based in New Delhi, India) and Country Offices.

The WHO Country Office for Bangladesh comprises the Office of the WHO Representative and related administrative services and a number of project offices. Some project offices are located in the main country office, others are located in different localities, usually in the proximity of the government programmes they provide support to.

8.1 Human resources

The WHO Country Office for Bangladesh is headed by the WHO Representative. The core staff required for the administrative functioning of the Office include an Administrative Officer, Technical Officer for Administration, Administrative Assistants (for Fellowships, Personnel, Supplies, Finance, and Information and Communication Technology). The office is further supported by secretarial staff and other support personnel.

The technical staff attached to the various projects include long-term international staff and National Professional Officers. Temporary International, Temporary National Professional and General Service staff are engaged to support specific activities of a short-term nature or in the interim before completing the recruitment for long-term posts. Other categories of contractuals include the persons working under Special Services Agreements (SSAs) and those contracted to perform Agreements for Performance of Work or Technical Services Agreements. While they are not considered WHO staff, they were contracted by WHO for various durations and received their remuneration as per the terms of their contracts. However, SSA holders are covered under the United Nations Department of Security Services (UNDSS) as personnel.

An overview of the personnel (staff and SSA holders) in place in the WHO Country Office for Bangladesh as on 31 December 2009 is provided in Table 7.

Table 7: Personnel of WHO Country Office for Bangladesh

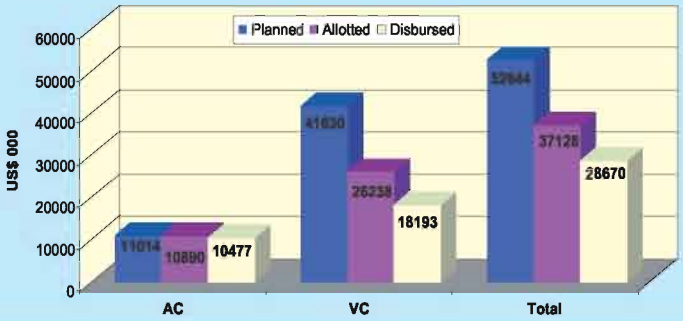
Type of staff	Number
International Professional staff	12
National Professional Officer	11
Temporary International Professional	3
Temporary National Professional	8
Professional personnel under SSA	66
Subtotal Professional Personnel	***100***
Long-term General Services staff	23
Support personnel under SSA	139
Subtotal General Services Personnel	***162***
GRAND TOTAL	**262**

8.2 Budget

As in earlier bienniums, WHO had two types of funds as financial resources, namely Assessed Contributions (AC) and Voluntary Contributions (VC) for implementing its programme for the biennium 2008–2009. AC funds are direct contributions of the Member States to WHO with different countries paying at different rates according to their economic status whereas VC funds are mobilized from donors and development partners by the WHO country offices as well as the regional offices and headquarters. While regular Budget contributions are in principle assured, major efforts are required from the Organization to raise the necessary Voluntary Contributions for the implementation of the planned activities. Hence, availability of VCs is dependant on the ability of the Country Office, Regional Office and headquarters in mobilizing resources for implementation of the biennial programme in the country.

During the planning of the Programme Budget for 2008–2009 "planned costs" were mentioned in the workplans as per availability of AC funds and anticipated availability of VC funds from donors and development partners. Hence, in AC funds, anticipated planned cost and available funds (allotted fund) for implementation of the programme are the same. But in the case of VC funding, a difference remains in anticipated planned cost and the actual funds allotted for the implementation of a programme.

Figure 8: Total planned cost, allotment and disbursement of AC and VC funds in 2008–2009



As evident from Figure 8, the total approved Programme Budget for the biennium 2008–2009 amounted US$ 52 644 000. Of this, a total of US$ 37 238 000 was allotted in the biennium. Of this allotted fund, an amount of US$ 28 670 000 had been disbursed as of 15 April 2010. Though programme implementation has been completed by 31 December 2009, in some cases, disbursement of funds is still ongoing and may be continued upto 31 December 2010.

Figure 9: Allotment of AC funds by Strategic Objectives in US$ 000 (2008–2009)

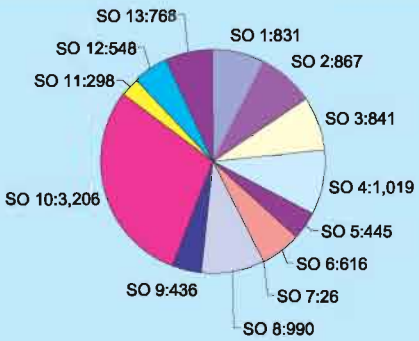
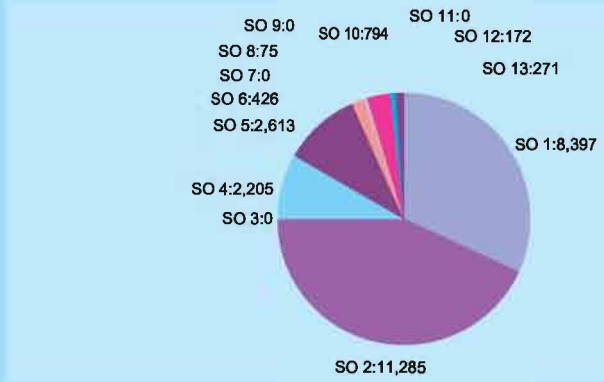


Figure 10: Allotment of VC funds by Strategic Objectives in US$ 000 (2008–2009)



Planned and allotted funds for the WHO biennium 2008–2009 in the country were further distributed to Strategic Objectives (SO), Organization-Wide Expected Results (OWER), Regional Expected Results (RER), Office-Specific Expected Results (OSER), and Products and Activities. Figure 9 and Figure 10 provide information regarding SO-wise distribution of allotted AC and VC funds respectively.

Figure 11: Planned cost of AC and VC by Strategic Objective (2008–2009)

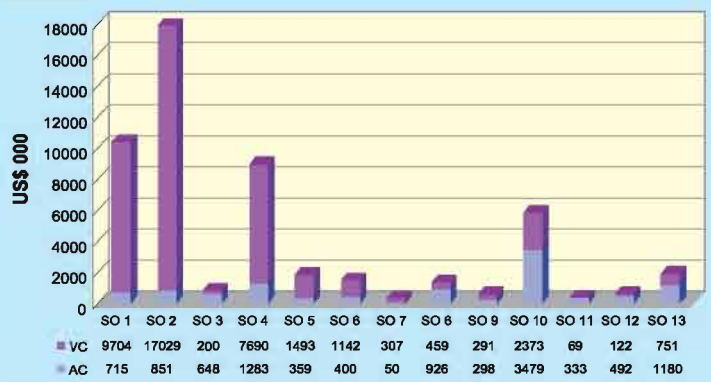


Figure 12: Allotment of AC and VC funds by Strategic Objectives (2008–2009)

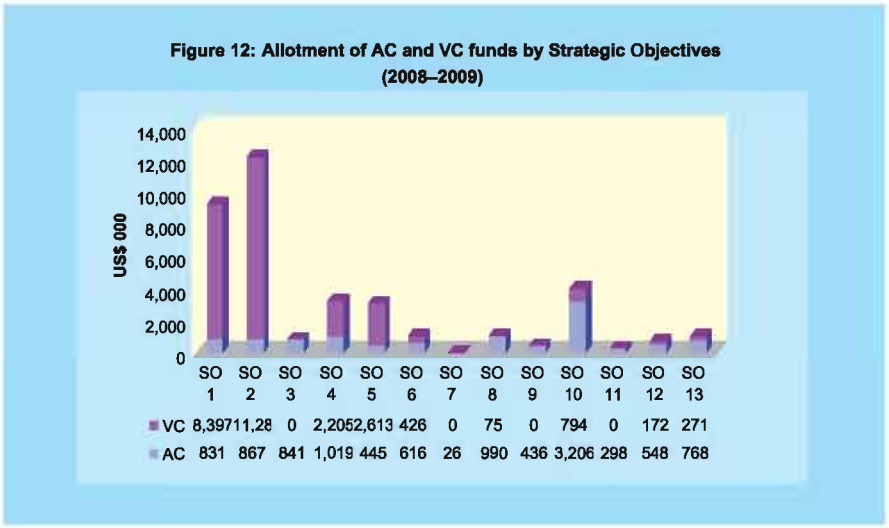
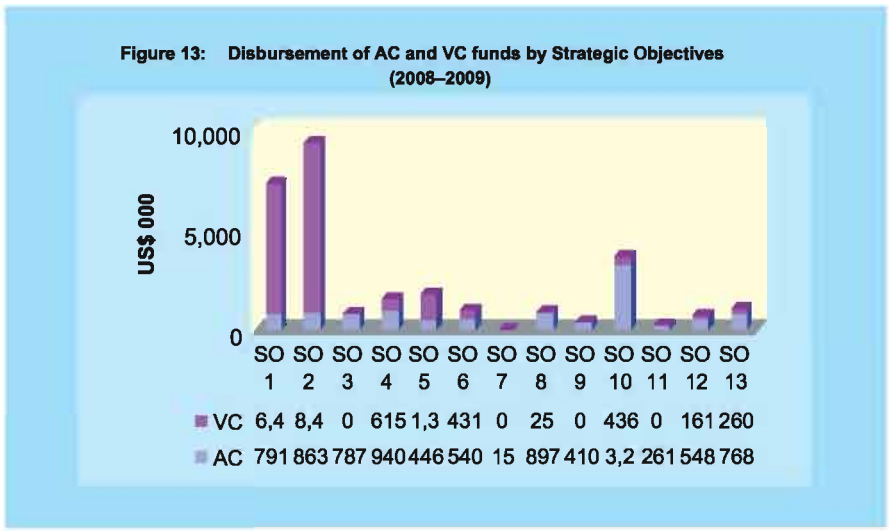


Figure 13: Disbursement of AC and VC funds by Strategic Objectives (2008–2009)



Figures 11, 12 and 13 provide information regarding planned allotted and disbursed AC and VC funds respectively in each of the 13 SOs. It is evident from the figures that most of the mobilized VC for Bangladesh in 2008–2009 was under SO-1 and SO-2 corresponding to the communicable disease areas. But sufficient VCs could not be mobilized for other important areas such as noncommunicable diseases (SO-3 and SO-6), maternal and child health (SO-4) and health system strengthening (SO-10).

Annex

WHO Global Strategic Objectives

Sl No.	Strategic Objectives
1	To reduce the health, social and economic burden of communicable diseases.
2	To combat HIV/AIDS, tuberculosis and malaria.
3	To prevent and reduce disease, disability and premature death from chronic noncommunicable conditions, mental disorders, violence and injuries.
4	To reduce morbidity and mortality and improve health during key stages of life, including pregnancy, childbirth, the neonatal period, childhood and adolescence; and improve sexual and reproductive health and promote active and healthy ageing for all individuals.
5	To reduce the health consequences of emergencies, disasters, crises and conflicts, and minimize their social and economic impact.
6	To promote health and development, and prevent or reduce risk factors for health conditions associated with the use of tobacco, alcohol, drugs and other psychoactive substances, unhealthy diets, physical inactivity and unsafe sex.
7	To address the underlying social and economic determinants of health through policies and programmes that enhance health equity and integrate pro-poor, gender-responsive and human rights-based approaches.
8	To promote a healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental threats to health.
9	To improve nutrition, food safety and food security, throughout the life-course, and in support of public health and sustainable development.
10	To improve health services through better governance, financing, staffing and management informed by reliable and accessible evidence and research.
11	To ensure improved access, quality and use of medical products and technologies.
12	To provide leadership, strengthen governance and foster partnerships and collaboration with countries in order to fulfil the mandate of WHO in advancing the global health agenda as set out in the Eleventh General Programme of Work.
13	To develop and sustain WHO as a flexible, learning organization, enabling it to carry out its mandate more efficiently and effectively.