

NEPAL

National Health System Profile

1. TRENDS IN POLICY DEVELOPMENT

The national health policy was adopted in 1991 (FY 2048 BS) to bring about improvement in the health conditions of the people of Nepal with emphasis on (i) preventive health services (ii) promotive health services (iii) curative health services (iv) basic primary health services with one health post each in the entire 205 electoral constituencies to be converted into primary health care centre (v) ayurvedic and other traditional health services (vi) community participation (vii) human resources for health development (viii) resource mobilisation (ix) decentralisation and regionalisation (x) drug supply, and (xi) health research.

The second long term health plan (SLTHP) 1997-2017 (FY 2054-2074) aims at guiding health sector development for improving the health of the inhabitants, particularly those whose health needs are not often met. The main objectives of SLTHP are:

- To improve the health status of the most vulnerable groups, particularly those whose health needs often are not met - women and children, the rural population, the poor, the underprivileged, and the marginalized population
- To extend to all districts cost-effective public health measures and essential curative services for the appropriate treatment of common diseases and injuries
- To provide technically competent and socially responsible health personnel in appropriate numbers for quality health care throughout the country, particularly in under-served areas
- To improve the management and organisation of the public health sector and to increase the efficiency and effectiveness of the health care system
- To develop appropriate roles for NGOs, and the public and private sectors in providing health services; and
- To improve inter-and intra-sectoral coordination and to provide the necessary support for effective decentralisation of health care services with full community participation
- To increase total health expenditure to 10 percent of total government expenditure (Ministry of Health, Annual Report 2002/2003).

The national health policy aims at improvement in the health conditions of the people of Nepal through extension of primary health care system to the rural population with a view to provide the benefits of modern medical facilities through trained health care providers; active involvement of private sector and NGOs in health services; and adequate training and community participation.

The strategic analysis of health sector in 1999 resulted in the development of the medium term strategic plan for the 10th five-year health plan (2002-07). This included essential, affordable and accessible health care services, promote a public-private NGO partnership, decentralise the health system and execute particular approaches at all levels, and to improve quality of health care through the public/private/NGO partnership by total quality management of human, financial and physical resources.

Considering the Local Self Governance Act (LSGA) of 1999 and the decentralised health management of the Health Sector Reform Strategy (HSRS), it is anticipated that more resources will be mobilised at the local level to ensure financial sustainability (Ministry of Health, Annual Report 2002/2003).

The Nepal government is committed to bring about tangible changes in the health-sector development process. It aims at providing an equitable, high quality health care system for all the Nepalese during tenth five-year plan (2002-07). The proportion of the government budget allocated to health will increase from the present 5 percent to 6.5 percent in 2006 and 7 percent in 2009 (Nepal health sector programme implementation plan, 2004-09).

2. TRENDS IN SOCIO-ECONOMIC DEVELOPMENT

2.1 Economic trends

In more than a decade, the GNP increased only by US \$ 16. It was reported to be US \$ 250 in 2000 but it declined to US \$ 249 in 2002 due to socio-political instability and insecurity in the country. It has again gone up to US\$300 in 2004/05 (as per Nepal Millennium Development Goals: Progress Report 2005)

The GDP per capita has increased from US \$ 227 in 1998/99 to US \$ 237 in 2002/03. The average annual growth during 1990-2000 was 2.4 percent (Statistical Yearbook, 2003).

Nepal is a less indebted country, as the present value of debt is 193 percent of export of goods, services and income (The World Bank, World Development Indicators, 2005).

In Nepal, the foreign aid increased from Rs. 16,188 million in 1998-99 to Rs. 16,974 million in 2002-03.

The share of annual health expenditure as percentage of the national budget was 5.1 in 2001-03. Nepal's rank in terms of the UNDP human development index (HDI) is 138 among 177 countries. The index increased from 0.291 in 1975 to 0.527 in 2004 (Nepal Annual Report DOHS, 2002-03, Human Development Report, 2006).

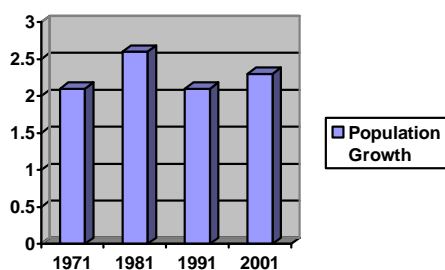
Nepal's labour force increased from 8.8 million in 1990 to 11.7 million in 2003. The average annual growth rate for the period is 2.2 percent. The unemployed population aged 10+ is reported to be 5.1 percent while unemployment rate is 3.8 percent (Statistical

Yearbook, 2003 and Nepal Living Standard Survey 2003/04). However, the proportion of females in labour force has not increased much. It was 38.5 percent in 1990 and 39.5 percent in 2003 (World Development Indicators, 2005).

In Nepal, 24.1 percent of the population earn less than an American dollar per day and 31 percent of the population is living below poverty line (Nepal Millennium Development Goals: Progress Report 2005).

2.2 Demographic trends

The population of the country increased from 11.6 million people in 1971 to 25.8 million in 2006. However, the annual growth rate during the period did not decline; rather it increased from 2.1 percent in 1971 to 2.6 percent in 1981, and again decreased to 2.1 in 1991, but again increased to 2.25 in 2001. The CBR decreased from 35.4 per 1,000 population in 1996-97 to 33.5 population in 2001 to 28.4 per 1,000 population in 2006 (Nepal Demographic and Health Survey, 2006) while CDR decreased from 11.5 per 1,000 population in 1996-97 to 9.96 per 1,000 population in 2001. The average fertility estimate for 2006 is 3.1 (Nepal Demographic and Health Survey, 2006) and 2001 was 4.1 as against 5.1 during 1984-86. There is significant difference in TFR for urban and rural areas i.e. 2.1 and 3.3 , respectively (Nepal Demographic and Health Survey, 2006).

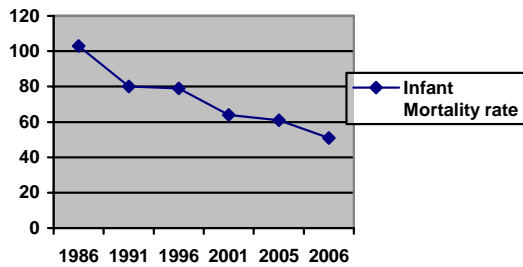


As per the census 2001, 39.3 percent of population was below 15 years and 6.5 percent was 60 years and above. About 54.2 percent of population was between 15-59 years (Computed from Population Census 2001, National Report).

The life expectancy at birth increased from 42.0 years for males and 40.0 years for females in 1971 to 55.0 years and 53.5 years for males and females, respectively, in 1991. However, it has shown slight increase in female life expectancy over the males since then. It was 61 years for females and 60 years for males as per 2001 report (Demographic and Health Survey, 2001).

Trends in infant mortality rate (IMR) show that it declined from 140 per 1,000 live births in 1976 to 103 in 1986, to 64 in 2001 (Demographic and Health Survey, 2001) and is estimated to be 61 in 2005 (Nepal Millennium Development Goals: Progress Report

2005) and according to NDHS survey tis 51 per 1,000 live births (Nepal Demographic and Health Survey, 2006)



The percentage of the urban population in 2001 was 14.2 and it was expected to increase 5.15 percent annually during the period (2000-03) (Statistical Yearbook, 2003).

2.3 Social trends

The literacy rate is showing a steep upward trend. It was 54 percent in 2001. The Ministry of Education pegs the latest rate at 57 percent. Enrolment ratio in the primary and secondary schools are 0.79 and 0.69, respectively. Gender inequality in the rate of literacy is, however, glaring. It was 42 percent for females and 65 percent for males (National Population Census, 2001). The Net Enrolment Rate in primary education in 2005 is 84 (Nepal Millennium Development Goals: Progress Report 2005)

2.4 Food supply and nutritional status

The proportion of newborns weighing less than 2,500 grams at birth was 23 percent in 1996/97 and 14.3 percent in 2006. The government has set a target to reduce it to 12 percent by 2017 (Health Information Bulletin 2001).

The demographic and health survey of 2001 reported that about 50.5 and Nepal Demographic and Health Survey, 2006 reported that about 49.3 percent children below 5 years were affected by stunting (short of their age), which can be a sign for early chronic under nutrition. The survey also found that 48.3 percent in 2001 and 38.6 in 2006 of the children were under weight. Also, in the year 2000, 55 percent of children below 5 years were stunted (Nepal Millennium Development Goals: Progress Report 2005), an indicator of acute malnutrition.

The Nepal Micronutrient Status Survey (NMSS) report 1998 revealed that the median urinary iodine level among women was 114.0 mg/I and among school-aged children it was 143.8 mg/I. According to the 'between census household information monitoring evaluation survey 2000', only 63 percent households were adequately covered with iodised salt. These reports show that the median urinary iodine level is higher than the

WHO cut-off point but household coverage of adequately iodised salt is still lower than the WHO cut-off point. Therefore, IDD is still a public health problem in Nepal.

Iron deficiency anaemia is the most common nutritional problem in Nepal affecting approximately three-quarters of women. Anaemia is one of the underlying risk factors in pregnancy. Anaemia reduces work capacity of adults by 10-30 percent. Among women, there is distinct variation in the prevalence of anaemia according to the ecological zone with highest levels in the Terai followed by the mountainous regions.

The most common cause of anaemia in Nepal is considered to be inadequate intake of iron from food followed by parasitic infection, as 71 percent pregnant women are not consuming adequate amount of iron from their daily diets. This is despite fact that antenatal iron supplementation is in place in Nepal since more than two decades. However, the coverage and compliance of antenatal iron supplementation is beyond satisfaction. There is a big gap between supply and demand of iron tablets.

A baseline study was carried out in the districts where Intensified Antenatal Iron Supplementation Programme (IAISP) was implemented. The findings in the programme areas revealed that 27 percent and 47 percent of pregnant women took iron tablets in the second and third trimester, respectively. Similarly, drop-out rate was 19 percent during the second trimester and 25 percent in the third trimester. Lack of knowledge about the importance of iron tablets is stated to be the main reason for not taking iron supplementation. However, due to continuous effort by health workers to improve the coverage of iron tablets during pregnancy and postpartum, the coverage of iron tablets reached to 68 percent in the fiscal year 2002-03.

Breastfeeding is nearly universal in Nepal and the median duration of breastfeeding is long (34 months). Nearly one in three children is breastfed within one hour of birth, while two out of three babies are breastfed within one day of birth. This is an improvement over the last five years. However, contrary to the WHO recommendation, only two-thirds of children less than six months of age are exclusively breastfed. Only 53 percent of children under six months of age are exclusively breastfed. Bottle-feeding is not common in Nepal (Nepal Demographic and Health Survey, 2006)

It also reported that 40.9 percent of newborn receive pre-lacteal feed which needs to be reduced (Demographic and Health Survey, 2001).

2.5 Lifestyle and Risk Factors

Smoking is associated with increased risk of lung and heart diseases and is also closely related to other behaviours risky to health, such as alcohol and drug use.

Nearly three-fourths of men smoke cigarettes, *bidis* or other tobacco, two-thirds consume alcohol; more than one in two both smoke and consume alcohol. Smoking and alcohol consumption is much less common among men in the age group of 15-19. Smoking and alcohol consumption is also less common among divorced, separated, or widowed men

and women living in the Terai ecological zone, western development region, and central Terai sub-region than in other regions.

The present priority in health programmes is more on group I and II diseases. However, heart disease, diabetes and cancer are on the increase. That is why the government has taken several steps to create awareness among the public about the harmful effects of tobacco, alcohol and narcotic drugs. Besides, other measures such as increase in excise duty on tobacco and alcohol products, health tax on tobacco products, compulsory health warning on every cigarette package, ban on smoking in public places, ban on advertising and promotion of tobacco products, and import and export tax on tobacco products have been enforced to discourage use of tobacco and alcohol. The Smoking (Prohibition and Control Act, 2058) is awaiting the parliamentary approval. Under the national anti-tobacco programme, anti-tobacco communication campaign, a five-year action plan (2004-08) has been prepared by the health ministry (Update on the National Health System Profile Nepal, 2004).

3. HEALTH AND ENVIRONMENT

3.1 General protection of the environment

Air water pollution and deforestation are assuming alarming proportion. Water pollution is due to inadequate sewerage and sanitation, industrial wastes and pesticides from agricultural sources. On the other hand, vehicular and industrial emissions, combustion of fossil fuels and biomass are the main causes of air pollution. To address these problems, the Nepal environment policy and action plan was formulated in 1993 and in the same year the environment protection council was also established. The Ministry of Population and Environment was created in 1995. A ban on diesel driven three-wheelers in Kathmandu, regular check up of vehicle emission by the government and other designated agencies, a policy decision to keep the vehicles more than 20 years old off the road, are some of the important steps taken in recent years.

Lack of resources and trained human resources, inadequate infrastructure, weak coordination and lack of awareness on environmental issues, are some of the main problems in the implementation of environmental programme.

3.2 Water supply and sanitation

The piped water is considered as a safe source of water. According to the living standards survey report 2003/04, 14 percent households had access to piped water supply within their houses and 30 percent outside of their houses. The remaining 56 percent households depended on covered well (37 percent), open well (5 percent) and others (14 percent), including rivers, streams, ponds etc.

Urban areas have better access to safe drinking water (68 percent) as compared to rural areas (39 percent). The piped water facilities were available to 33 percent households in 1995/96 as compared to 44 percent in 2003/04.

The proportion of households with proper toilet facilities in their dwelling units was 39 percent in 2003/04 as compared to 22 percent in 1995/96. About 12 percent of households have access to sanitary (sewerage) system, but it is concentrated in urban areas (54 percent). Only eight percent households have disposal facilities for solid waste by public and private collector (Nepal Living Standard Survey 2003/04).

In Nepal 25 percent of the population have access to excreta disposal facility with coverage of 21 percent rural population and 53 percent of the urban population.

According to a joint study by the government, National Planning Commission (NPC) and UNICEF in 1996, the major reasons for not having a latrine among the households were: no perceived need (66 percent), resource constraint (31 percent), smell and privacy (three percent).

The Nepal Water Supply Corporation, a government agency, serves the major municipalities while the department of drinking water and sewerage serves rest of the country.

The government strategy is to integrate sanitation with water supply, promotion and utilisation of local knowledge, skills, resources and low-cost technology. Local bodies, user groups, NGOs are involved in the operation, repair and maintenance jobs. Small-scale drinking water projects are handed over to local communities and user groups. But the major constraints facing its better implementation are lack of resources, weak cost recovery, etc. Hence private investment is lacking. There is poor coordination among the stakeholders at local levels. Besides, rapid urbanisation, pollution of surface water, diminishing spring water sources and high leakage rate (38 percent) are some of the other problems. High content of arsenic in tube well water in the Terai region is posing a new problem.

4. HEALTH RESOURCES

4.1 Human resources for health

Human resource development has been an area of priority of health services delivery programme in Nepal. The integrated and community health programmes of 1974 introduced systematic training process with the aim to develop all health personnel on integrated health care, who were brought in to mainstream of the integrated public health services from vertical health projects. The revision of the health services structure in 1993 brought the institutional leadership in the area of health manpower training.

The number of personnel trained at central and district level training centres during the 2000-01 and 2002-03, is given below:

Training performance over the three-year period

Sr. No.	Training	Numbers of persons trained		
		2000-01	2001-02	2002-03
1.	Central level	4,961	7,745	2,440
2.	District level	83,937	93,191	102,425
3.	Training achievements	84 %	87 %	87 %

Source: Ministry of Health, Annual Report 2002/2003.

The above table shows that the training achievements increased from 84 percent in 2000-01 to 87 percent in 2002-03.

The available health manpower at the end of the 8th five-year plan and in the 9th five-year plan during financial year 1999-2000, is given below:

Skilled Human Resources

Description	End of 8 th plan	Ninth Plan (1997-2002)	
	1996-97	1999-2000	2001-02
Doctors	894	1,259	3,944
Nurse/ANM	4,706	4,655	4,315
Ayurvedic physician	290	211	387
Baidhya	219	210	354
Paramedic/Health Assistant	5,152	5,295	5,295
Village Health Worker	-	4,015	3,985
MCHW	3,187	3,190	3,190
FCHV	42,427	46,737	62,546
TBA	12,682	14,951	

Source: Central Bureau of Statistics, Statistical Year Book of Nepal, 2003.

It may be seen from the table that health manpower has not increased, except for categories of doctors, FCHV/TBAs. The post of village health worker is a new creation during the 9th plan period.

According to the Central Bureau of Statistics, Nepal, 2003, there was one physician per 5,886 people.

4.2 Financial resources for health

A public expenditure review of the health sector was carried out during early 2003. The review brought out many important findings, some of which are given below.

- i. Public funding in health care increased from US\$ 3.5 to US\$ 5.1 during 1999-2002.
- ii. The contribution of external development partners (EDPs) in health sector through the ministry of finance was reduced to almost one-third during this period
- iii. The share of recurrent budget is being spent more on wages
- iv. The funding in health care to rural areas is decreasing. Health services are comparatively less utilised by the female population.

Resources available for health care during fiscal year 2003-04 (in rupees) are as follows:

A. Total outlay in health care

Fund from government	1,410 million (49.3percent)
Fund from external sources	1,450 million (50.7percent)

B. Breakdown of the fund

Physical infrastructure	300 million (10.5percent)
Salary and services	2,560 million (89.5percent)

C. Percentage outlay in health

Percentage of national budget in health:	6.2
Percentage of the current five-year plan allocation in health:	6.0

About 10 percent of the expenditure on health care comes from the state-owned enterprises. Local bodies have been contributing more for the health sector in recent days.

In absolute terms, the budget allocation for the whole nation and for the health sector has gradually been increasing over the last 30 years, but in percentage terms there has been no actual enhancement in the allocation for health. For example, in 1983-84 it was 4.6 percent, in 1993-94 it was 4.0 percent and in 2002-03 it was 4.9 percent. Unfortunately even the allocated budget for the health sector was hardly expended to the fullest. It is on an average 68 percent of the total allocation.

Financial resources in the health sector have been coming down noticeably during the last few years due to mounting concern for maintaining internal security. External donors have also reduced their contributions to the health sector. Funding from the external donors is increasingly going to the international and national NGOs.

Although the policy of the government, as per the 10th five- year plan, is to stress on giving priority to primary health care and to the poor in remote areas, in practice, distribution of funds is mainly urban-centric and more funds are being allocated for areas that already have better infrastructure, e.g., with better transportation and communication facilities.

Government Expenditure in Health Care by Level

Level of Care	Fiscal year
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	1999/2000	2000-01	2001-02
Primary (percent)	62.8	55.1	59.5
Secondary (percent)	5.1	7.2	6.9
Tertiary (percent)	22.7	26.9	24.4

In Nepal, total health expenditure as percentage of GDP has been fluctuating since 1998. It was 5.1 percent in 1998 and 5.2 percent in 2002. Share of public expenditure in total health expenditure declined from 67.2 percent in 1998 to 65.6 percent in 2002, whereas the share of private expenditure increased from 32.8 percent in 1998 to 34.4 percent in 2002. On the other hand, the share of public expenditure increased nominally as it was 7 percent in 1998 and 7.5 percent in 2002 (World Health Report, 2005).

The per capita total expenditure on health has been increasing gradually as it was US \$ 10 in 1998 and US \$ 12 in 2002, whereas the per capita public expenditure on health stagnated since 1998 as it was constant at US \$ 3 during 1998-2002 (World Health Report, 2005).

Main sources of funding are the royal government and external resources.

In March 2004, the International Labour Organisation launched a national campaign on social security and coverage for the benefit of all Nepalese. It aims at providing access to health insurance and other benefits. It was initiated for the first time in Asia, particularly Nepal, where 95 percent of the people are not included in any form of social security.

4.3 Physical infrastructure for health

The lowest level of formal health care starts from Sub-Health Posts (SHPs) at the Village Development Committee (VDC) level to Health Posts (HPs), Primary Health Centres (PHCs) and hospitals at the district, zonal, sub-regional, regional and central levels. Basically all PHC services provided at various levels in the public sector are by the Department of Health Services (DHS) and the Department of Ayurvedic Medicine (DAM). The SLTHP, periodic plans and the general policy of the government emphasises in providing PHCs to people, particularly living in remote, rural and unserved areas and focusing on pregnant women and children.

Types/Service Delivery Level and Number of Public Sector Health Facilities

Service Delivery Level	Type of Facility	Number
Specialised	Hospital	3
Capital	Hospital	5
Region (5)	Hospital	2
Sub Region	Hospital	1
District (75)	PHOs/DHOs/ Hospitals	14/61/67
Electoral Constituency (205)	PHCs/HPs	193/701

Village Development Committee	SHPs	3,129
Ward (Community)	Female Community Health Volunteers (FCHV)	48,550
	TBAs	>12,000
	Outreach Clinics	15,248
	Immunisation Centres	15,532

Topography-wise the Distribution of the Health Care Facilities

Type of institution	Total	Mountain	Hill	Terai
Hospital	85	16	45	24
PHCC/HC	193	20	94	79
Health Post	701	152	379	170
Sub-Health Post	3,129	387	1,606	1,136
Ayurvedic Hospital	2	-	1	1
Dist. Ayurvedic HC	50	8	27	15
Ayurvedic Dispensary	211	28	125	58
Zonal Ayurvedic Dispensary	14	1	8	5
Homeopathic Dispensary	1	-	1	-
Unani Dispensary	1	-	1	-

Source: DHS Annual Report 2001-2002

Among the hospitals (including the 85 shown in the above table) 94 are run by the government. The government also has two teaching hospitals, besides nine teaching hospitals managed by the private sector. There are three community-run hospitals, 12 NGOs-run hospitals and 16 eye hospitals. Also, there are 74 private sector hospitals/nursing homes in Nepal.

Hospital Beds and Their Distribution

Type of Hospital	Number of Beds	Remarks
General		
Government	4,512	448 for army, 100 for police, 115 ayurvedic, 6 homeopathic
Non Government	961	
Eye Hospital	995	
Teaching Hospital		

Government	1,058	
Private	2,285	
Community Hospital	70	
Total	9,881	

Source: Ministry of Health 2001-2002*

* As per an exercise organised by the government, a total of 3,210 beds will be required for the district level alone by 2017.

In addition to the above-mentioned allopathic hospitals/health care facilities, there are two ayurvedic hospitals (one of which is a 100-bed hospital and the other one a regional hospital) and one regional ayurvedic dispensary. There are 14 zonal, 55 district and 216 general ayurvedic dispensaries throughout the country. Nepal also has a six-bedded homeopathic hospital and one Unani dispensary. All of these are run by the public sector.

Concern on equity, particularly in a country like Nepal, is louder than ever. The concern for the poor, marginalised and the unserved people has been the priority of the government in providing health services, education and employment in general and to the Dalits in particular. Similar provisions have also been made in the community drug programme. On the whole, the ministry spends about 51 percent of its funds in rural areas, 18 percent in semi-urban and 31 percent in urban areas. Each hospital allocates five percent of the contribution received from the government and five percent of their own income for the services of the poor.

The policy of Nepal Government as set out in the SLTH plan, health ministry has given low priority to the hospital based services. In practice, however, this policy could seldom be translated into reality. The policy, as set in the present five- year plan and in the medium-term expenditure framework (2002/03-2004/05), suggests that the private sector will be more involved in catering to hospital based services.

Due to the thinly scattered population profile in the hilly and mountainous regions, the accessibility to health facilities is still a problem in this Himalayan country.

4.4 Essential drugs and other supplies

The policy on medicine, which came into force in 1995, emphasises on establishment of coordination among the government, NGOs and private organisations involved in production, import, export, storage, supply, sale, distribution, quality assessment, regulation, rational use and information flow of medicines in the country.

The department of drug administration (DDA) was established in 1979 following the promulgation of the Drug Act the previous year. Since then, it has been implementing the following:

- Development of constitution and regulation for the drug consultative council and drug advisory committee

- Registration of medicine
- Maintaining of medicine standards
- Inspection of compliance of the regulations
- Promulgation and implementation of the codes for production of medicine
- Promulgation and implementation of the codes for sale and distribution of medicine
- Promulgation and implementation of the codes on advertisement of medicine.

It has developed and distributed books on the rational use of drugs, Standard Treatment Schedules (STS) for health posts and sub-health posts to encourage and enforce rational use of drugs. The drug administration has also developed and published training manuals for HPs and SHPs on drug quantification, prescribing and dispensing practice to be used for training health workers.

The drug administration also took 317 administrative actions and 33 legal actions during 2002-2003 for non-compliance of the Drug Act and other regulations. Similarly, 14 products from eight domestic and nine from four foreign companies were recalled from the market and import license of seven foreign companies was cancelled during the same period.

The Nepal Drug Research Laboratory is another principal body for testing and analysis of medicines. It works as the national drug control laboratory.

Procurement and supply of drugs, equipment, insecticide, vaccine and medical consumables are organised for all the divisions of DHS by the Logistics Management Division (LMD) and a supply section in the department of ayurvedic medicines for ayurvedic medicines. Quality of medicine is overseen by the drug authority. .

While half of the procurements are still in the hand of the central office at the national level, half of the procurement is now done at five regional health service directorates for the peripheral units. Essential drug procurement is gradually being shifted to SHPs. This has however, raised questions on the quality of the medicine procured.

Since the establishment of the drug authority, Nepal has been producing medicines and meeting 65 percent of the domestic needs (39 percent allopathic and 26 percent traditional).

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4.5 International partnership for health

The external development partners are generally involved in strengthening and expanding the health facilities and services in different parts of the country supporting preventive, promotional and curative services. In recent times, a health sector reform committee was formed under the chairmanship of the health minister and a core group was formed consisting of EDPs, international NGOs, national NGOs and private sector to plan and coordinate the use of resources available for health sector programmes from all

stakeholders. The group is expected to mobilise bigger resources and also increase the fund absorption capacity of the government.

Currently, Nepal is partnering with 21 international NGOs, four multi-lateral and six bi-lateral development partners.

The GFATM has provided US\$7 million for the HIV/AIDS control programme and US\$4 million for the malaria control programme.

5. DEVELOPMENT OF THE HEALTH SYSTEM

5.1 Health policies and strategies

After the world nations agreed to attain the goal of 'Health For All' (HFA) by the year 2000AD through primary health care approach, Nepal also stepped ahead to extend and strengthen the integrated approach to meet the national goals.

The ninth five-year plan (1997) had set a target to improve public health status by strengthening of the existing infrastructure for preventive, promotive, curative and rehabilitation services.

The second long-term health plan (1997-2017) aims at improving health status of the people, particularly those whose health needs are often not met; the most vulnerable groups, women and children, the rural population, the poor, the under-privileged and the marginalized. It emphasises on assuring equitable access by extending quality essential health care services with full community participation and gender sensitivity by technically competent and socially responsible health personnel throughout the country.

In addition to essential health care, specialist services are also to be extended gradually on a cost-effective basis. The targets to be achieved by the second long-term health plan (SLTHP) by the end of the plan period of 1997-2017, are as follows:

- i. IMR will be reduced to 34.4 per thousand live births from its present level ;
- ii. Under- five mortality rate to be reduced to 62.5 per thousand live births from the its present level;
- iii. TFR to be reduced to 3.05 from its present level;
- iv. Increase life expectancy to 68.7 from its present level;
- v. To reduce CBR to 26.6 per thousand population from the its present level;
- vi. To reduce CDR to 6 per thousand population from its present level;
- vii. To reduce maternal mortality ratio to 250 per 100,000 births from the its present level;
- viii. To increase CPR to 58.2 percent of its present level;
- ix. To reduce percentage of new born < 2,500 gm to 12, and
- x. To provide essential health care services at district level to 90 percent of the population living within 30 minutes of travel time

Millennium Development Goals (MDGs)

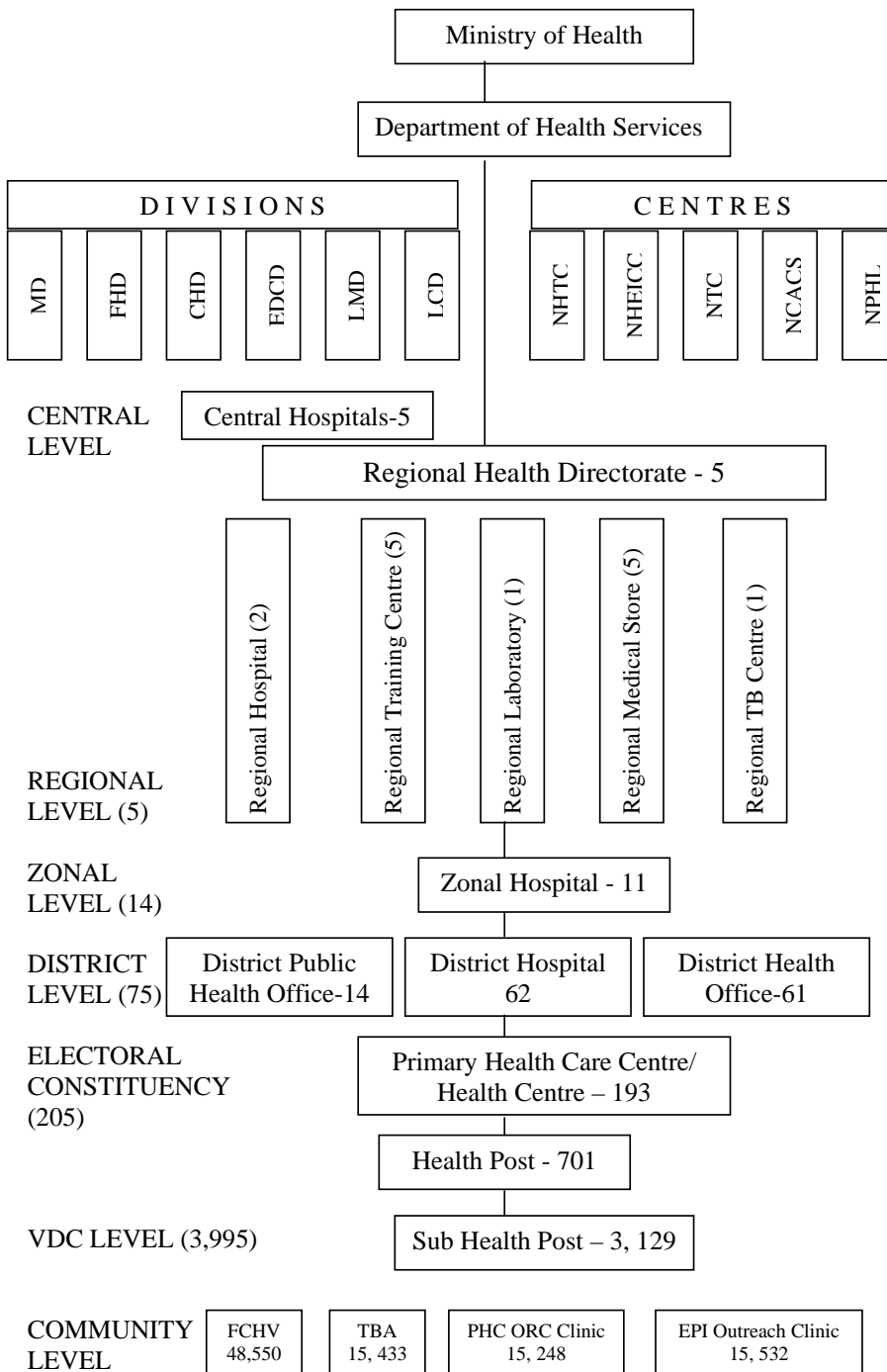
The progress made towards achievement of health related MDGs is given at Annex-2.

5.2 Organisation of the health system

The overall purpose of the Department of Health Services is to deliver preventive, promotive and curative health services throughout the country. The Department of Health Services (DoHS) is one of three departments under the Ministry of Health. As seen in Figure 1, the organisational structure of the ministry MoH outlines how different levels of the health care system relate to each other in the form of a health care network under the DoHS.

According to the institutional framework of DoHS and MoH, the Sub-Health Posts (SHPs), from an institutional perspective, is the first contact point for basic health services. However, in reality, the SHPs are the referral centres of the volunteer cadres like TBAs and Female Community Health Volunteers (FCHVs) as well as a venue for community-based activities such as PHC outreach clinics and EPI clinics. Each level above the SHP is a referral point in a network from SHPs to HPs to PHCs, and to district, zonal and regional hospitals, and finally to the speciality tertiary care centres in Kathmandu. This referral hierarchy has been designed to ensure that the majority of population receives public health care facilities and minor treatment in places accessible to them and at a price they can afford. Inversely, the system works as a supporting mechanism for lower levels by providing logistical, financial, supervisory and technical support from the centre to the periphery.

FIGURE 1
Organisational Structure of the Department of Health Services



There are a few private non-profit hospitals as well. These hospitals have mobilised their resources from various sources, the main being the charges for services. One of these hospitals gets a substantial contribution from its local communities and the local government as well.

Almost all the private sector hospitals, including those runs by NGOs and private profit-oriented nursing homes that are for profit, are situated in the urban areas and have been expanding during in the last 10 years. The outlook of the private hospitals clearly gives a psychological advantage to the people of better quality of services. The easy access to them in urban areas have an added advantage over the resource constraints, inadequately motivated, poorly managed public health facilities; which are supposed to be utilised by people with very little health awareness, education and often having difficult access or who are unwilling to leave their household chores in preference to their health needs.

The charges at the private hospitals and medical colleges are quite high and beyond the control of the government though efforts have been made time and again in the past to rationalise their service fees.

The Planning Division has initiated a Health Sector Reform (HSR) planning in the last about two years with close involvement and support from all interested External Development Partners (EDPs), International Non-Governmental Organisations (INGOs) and National Non-Governmental Organisations (NNGOs) and the private sector. This HSR planning has already carried out about 14 studies in different areas in the process of situation analysis in different initiatives taken in the past in providing health services in the country. This whole exercise of HSR has resulted in a joint planning of the Nepal Health Sector Planning – Implementation Plan (NHSP-IP). A memorandum of understanding between the government and the EDPs has recently been signed in this regard. It is expected to be of much help in shaping the future of the health services of the country jointly by the government, EDPs, INGOs and NNGOs, the private sector, and other stakeholders all involved together.

Decentralisation is one of the priority issues in the health sector of Nepal. The Ministry of Health, in coordination with the Ministry of Local Development, has taken initiatives from the lowest level i.e. the Sub-Health Posts, for handing over their financial and administrative management to the respective Village Development Committees. District offices are given fund for mounting health promotional activities. The initial problems were:

- I. Policy making process which needs to be looked into its context, objectives, stakeholders and consultation with them, legislative compatibility and monitoring mechanism
- II. Organising the structure at different levels with appropriate responsibility and authority
- III. Clear-cut policy on resource generation and allocation; thus avoiding the burden on to the poor
- IV. Appropriate and efficient planning of health suitable to the local need
- V. Resource management

- VI. Coordinating with the national policy and spirit, and
- VII. Capacity building at the local level along with development of a Public Private Partnership (PPP) spirit.

More frequent and intense monitoring of the system would be necessary to identify the initial hiccups and take remedial measures in time.

5.3 Managerial process

Steering Committees have been formed for various programmes like for GAVI (Hepatitis B)/Polio eradication, HIV/AIDS, leprosy, family planning, IMCI and others at the central level.

5.4 Health information system

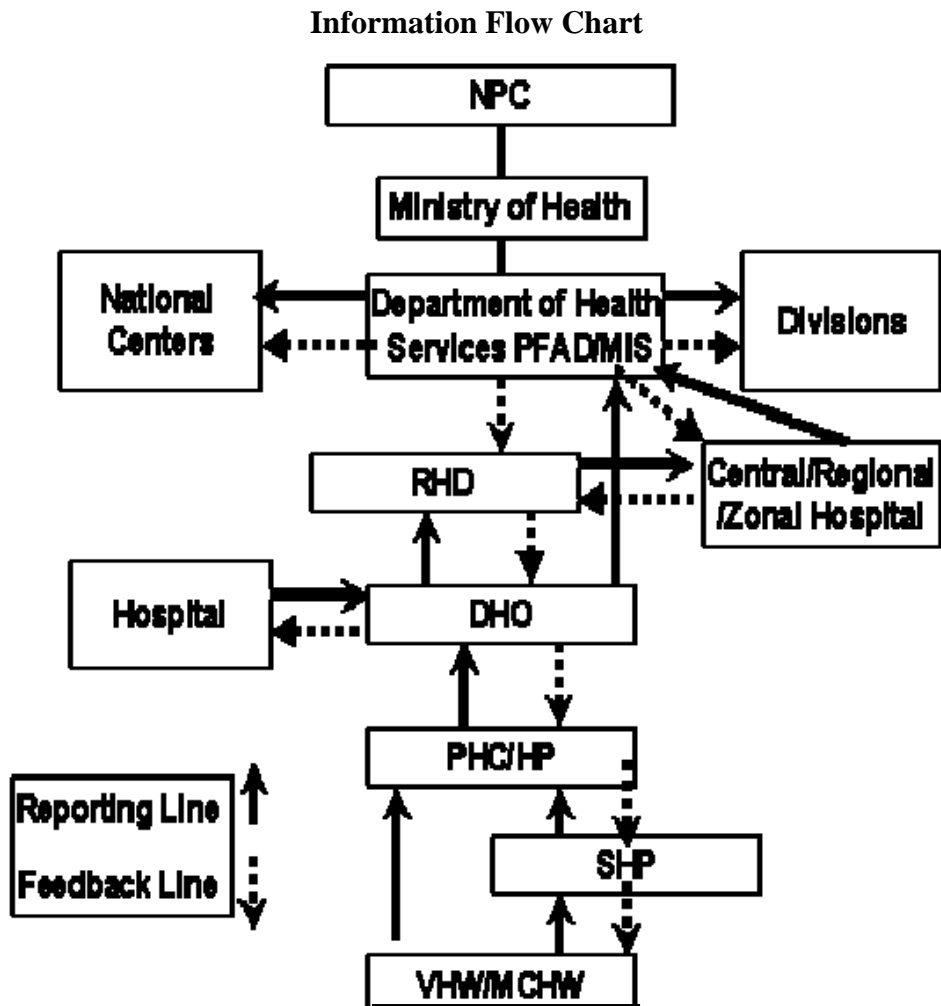
Routine monitoring system has much improved over the years. Various mini surveys are frequently being carried out, especially for vitamin A and child survival and epidemiological programmes. The management information system in the form of Health Management Information (HMIS), Logistics Management Information System (LMIS) and Fiscal Management Information System (FMIS) has also been developed quite well during in the last 10 years with the help of organisations like the WHO and the UNFPA. To start with, the FP and MCH, Child Health, Epidemiology and other programmes had their own separate forms (all together more than 130) for reporting of their activities and findings. At present all health related activities are recorded and reported right from the lowest health unit i.e. SHP to district hospitals.

Besides the HMIS, there are also other sources of infrequent, frequent or regular information of individual programmes like child health, epidemiology, leprosy, tuberculosis, public health laboratory and others depending on the nature of their activities. Such information may be in the form of general or specific monitoring visit reports or surveillance reports as in HIV/AIDS in every six months or evaluation reports.

The LMIS has been developed mainly to assess the storage situation (depletion level), forecast the need and plan for the supplies to reach at a certain time and at a certain institution. It is being done by using some particular forms, designed for this purpose, and by receiving reports regularly from all health institutions at the Logistics Division of the DHS (Demographic Health Survey). This has saved health workers worries of supplies going out of stock. The USAID is the main partner in this endeavour.

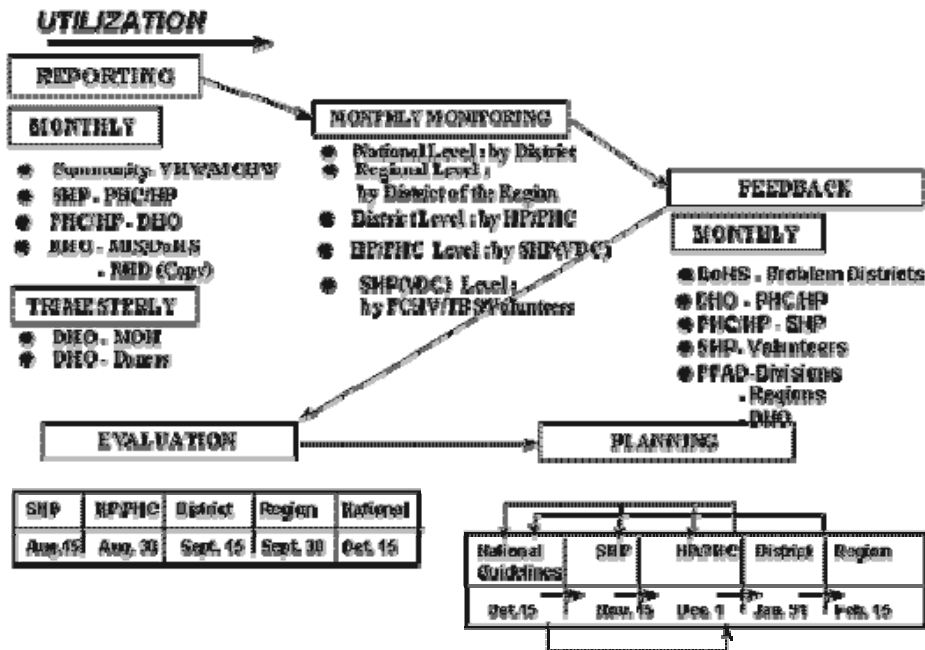
The FMIS is one of the very recent developments in the DHS. It is one of the most difficult problems technically and so far even regular efforts from time to time have failed to improve the fiscal management system at different levels. Since the initiation of FMIS, the staffs working in the area of fiscal management have been trained, forms are designed and reporting made strictly regular. This new arrangement has considerably improved the fiscal discipline and the management system.

1. Vertical and horizontal flow of data in the system is shown in the flow chart given here:



The design of the HIMS for capturing the data and building data bases is given below:

HMIS Design and Development



2. Dissemination through the MoH publication
 - a. National Health Bulletin : irregular
 - b. Annual Report of DoHS: This publication is being regularly published since 1994, capturing most of the health service from the government health infrastructure directly below the ministry — PHCs, HPs and SHPs, Government Hospitals and some of Non- Government hospitals.

The problem of this publication is that it only captures about 25 percent of the existing health services, not capturing the private health services coverage, and the monthly timely coverage report only less than 70 percent.

Hospital reporting is reflected on the basis of in-patient discharge and classified according to ICD-10. Patients admitted at the emergency department were not reflected in the annual report. The basic hospital statistics such as Bed Occupancy Rate, Length of Stay, Turn Over Interval are also not covered for district hospitals. Bed occupancy Rate is reported for the central hospital only.

There are opportunities to improve the quality of the publication for improvement of health services at national and district level. There should be more relevant information in logistics, finance and personnel aspects of health services, especially to improve essential health service coverage.

5.5 Emergency preparedness

A Disaster Health Working Group has been formed and it has produced an inter-agency action plan for emergency preparedness and disaster response plans for the health sector in Nepal which will help tackle all the health aspects of major hazards including epidemic outbreaks in the country.

5.6 Health research and technology

- Produced and disseminated IEC materials including a CD ROM on HIV/AIDS
- Supported Epidemiology and Disease Control Division to develop guidelines on Emergency Preparedness and Disaster Management for hospitals in Nepal.
- Supported operational research studies on:
 - ❖ ‘The influence of REFLECT on changes in consciousness concerning selected topics of reproductive health’
 - ❖ Rapid Situational Analysis on ARH in HSSP working districts
 - ❖ EOC Needs Assessments for the Bardiya, Achham and Dhading districts hospitals
 - ❖ Improvement of Midwifery Services at the Doti District Hospital (Ministry of Health, Annual Report 2002/2003).

6. HEALTH SERVICES

6.1 Health education and promotion

The National Health Information, Education and Communication Centre (NHIEC) was established as a health education section of the DHS during early 1950s particularly to promote personal and community hygiene, food and nutrition and educate people on the utilisation of health services. It was converted into an autonomous centre during the 1993 re-organisation of the Ministry of Health in 1993. Since 2002, the centre has been shifted from the DHS to the Ministry.

The early activities of the centre have been gradually shifted to other relevant ministries such as the Ministry of Housing & Physical Planning. Today the centre carries out the following activities:

1. Provides technical backstopping to other ministries, NGOs, INGOs and private organisations
2. Provides reproductive health education, hygiene, nutrition promotion and disease prevention education to 8th to 10th grade students
3. Encouragement of public and private partnerships
4. Training to health workers in collaboration with the National Health Training Centre, and
5. Conducts research to determine gap in KAP among target population and service providers, impact assessment and evaluation of different IEC (Information Education Communication) interventions.

More than 90 percent of the Nepalese people can be reached through radio. Mass media are used against tobacco and alcohol on a regular basis.

6.2 Maternal and child health/family planning/adolescent health

The first Plan of Action on Safe Motherhood was prepared for 1994-1997. The programme now covers 19 districts. The basic principle of this programme is to create awareness at all levels, building up the local capacity in dealing with three delays – delay in seeking care, delay in reaching care and delay in receiving care. The present programme has been enunciated under a 15-year plan of action (2002-2017). The ultimate aim of the plan is to scale up the intervention to all 75 districts. The 10th five - year plan (2003-2008) also proposed to establish a Comprehensive Emergency Obstetric Care (CEOC) in 10 hospitals and Basic Emergency Obstetric Care (BEOC) in 50 hospitals across in the country.

A Reproductive Health Steering Committee, at the central level and a Reproductive Health Coordination Committee in 33 districts have also been formed. That apart, district level Safe Motherhood Sub-committees have been formed in three districts for an effective coordination.

Building up of local capabilities and adoption of two major strategies have been the mainstay for addressing the programme thrust. These strategies are (i) Providing the CEOC or BEOC round the clock, and (ii) Ensuring the presence of skilled attendants during delivery, especially at home. The programme also envisages an increased access to emergency funds and transportation services. The CEOC model includes improved physical facility, provision of appropriate and adequate equipment and capacity- building. Initiative has also been taken to accommodate delivery corners in major hospitals and low cost special care baby unit at the Maternity Hospital in the nation's capital city of Kathmandu.

According to the record of the Maternity Hospital, Kathmandu (1993), about 20-27 percent of maternal deaths in the hospital occurred due to complications of abortion. The maternal mortality and morbidity study in 1998 revealed that five percent of the deaths in the community were due to abortions.

Starting in 1995 from the Maternal Hospital in Kathmandu, a post-abortion care programme has now been expanded to 29 cities in the country. The Nepal Government (NG) has recently approved the Safe Abortion Service Procedures, 2060 (2004) and accordingly, this Maternal Hospital at Thapathali, Kathmandu has started providing abortion related services since March 2004.

The 11th amendment to the civil code has legalised abortion services under certain conditions. Under safe abortion service procedures, a consultative committee had been formed under the chairmanship of the Director General of Health entrusted with the responsibility to advise and recommend to the government in the formulation of policy, plan and programmes for safe abortion services and play the role of facilitator and

coordinate the services among the Government, NGOs and private agencies. Professional organisations and NGOs are the active partners which are complementing the family planning and safe motherhood services. Together they contribute to about eight percent of the total services in Nepal (BASICS II-2004).

Trends in ANC Visits and Delivery Services (DoHM, HMIS, Health Service Coverage Fact Sheet-2004)

Services	2000-2001	2001-2002	2005-2006
First antenatal visit	41 %	43 %	44 %
Delivery conducted by TBAs	6.5 %	7.1 %	11.3 %
Delivery conducted by health workers	7.3 %	7.9 %	18.3 %
Pregnant women immunised with TT-2	26.9 %	24.2 %	48 % (2003-05)
Contraceptive prevalence rate	20.5 %	20.9 %	40.2 %

In Nepal, 44 percent pregnant women were attended by trained personnel during pregnancy in 2005-06 (Demographic Health Survey, 2006). Around 18.3 percent of deliveries were attended by trained personnel in 2005-2006 (expressed as a percentage of expected pregnancies). Further, around 40.2 percent women of childbearing age were using family planning methods during this period (Demographic Health Survey, 2006).

6.3. Immunisation

Universal immunisation of children under one year of age against the six vaccine-preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) is one of the most cost-effective programmes in reducing infant and child morbidity and mortality. The expanded programme of immunisation is a priority programme for the Government of Nepal. Among the immediate objectives of the programme are (i) to reduce measles cases by 90 percent and deaths due to measles by 95 percent from previous levels by the year 2000, and (ii) to eradicate polio by the year 2000 (Ministry of Health, 2001). Since 1988, the EPI under the Ministry of Health has covered all 75 districts of the country. The programme in Nepal follows the guidelines set by the World Health Organisation (Ministry of Health, Nepal Demographic and Health Survey, 2001).

Vaccine Coverage among Infants in Nepal

Vaccines	2000-2001	2001-2002	2005*
BCG	95 %	94 %	87 %
DPT-3	80 %	80 %	75 %
Polio –3	80 %	80 %	78 %
Measles	75 %	76 %	74 %

Source: DHS, HMIS, Health Service Coverage and * EPI Fact Sheet, WHO/SEARO

The National Immunisation Day is observed annually every year with broader participation of local communities, NGOs and volunteers. A high level inter-agency coordination committee has been formed for coordination of immunisation programmes with representatives of the World Health Organisation (WHO), the UNICEF, the JICA and NGOs and private philanthropic organizations.

Hepatitis B vaccination has been added to the arsenal of EPI in 2003 with the help of GAVI. The whole country is expected to be covered by 2006-2007. Vaccine coverage has been improving during the last three years mainly due to strengthening of programme management and monitoring measures at various levels.

6.4. Prevention and control of locally endemic diseases

An inter-country agreement among Bangladesh, Bhutan, India and Nepal has been reached to develop cross-border collaboration and networking by sharing information and standardisation of surveillance and laboratory diagnosis for priority vector-borne diseases.

Spraying, early detection and treatment, IEC, distribution of insecticide treated bed-nets, outbreak response etc., are some of the important strategies adopted by the royal government in this regard. In addition to these measures, an Early Warning Reporting System (EWARS) has also been established in 24 zonal and district hospitals throughout Nepal. The EWARS mainly focuses on weekly reporting of cases and deaths of six priority diseases (malaria, kala-azar, encephalitis, polio, measles and rabies).

Malaria, kala-azar, Japanese encephalitis and filariasis are some of the major endemic diseases prevalent in the Himalayan country. Malaria is endemic in 65 districts and approximately 74 percent of the total population is at risk. Out of 1, 13,403 slides examined, 10,446 (9.2 percent) were found to be positive in 2001-2002. As compared to 2002, there was rise in slides collection by 6.75 percent and decrease in number of positives by 25.64 percent. The slide positivity came down from 9.2 percent in 2001-02 to 4.3 percent in 2003-04.

Kala-azar is endemic in 12 districts of the Eastern Terai region and approximately 5.5 million people are at risk. The reported cases of kala-azar decreased from 1,290 in 2000-2001 to 829 in 2001-2002 but in 2003, altogether 2229 cases were recorded in the country. There were 32 deaths due to Kala-azar in 2003.

Japanese encephalitis has been reported from 14 Terai districts, including some from Kathmandu. So far, total of 26,667 cases and 5,381 deaths have been reported during 1978 to 2003. The Case Fatality Rates (CFR) are ranging from 9.8 percent to 46.3 percent during 1978 to 2003. But in the recent years, CFR has declined and contained below 20 percent.

HIV/AIDS is assuming an unprecedented proportion in its prevalence particularly among the injecting drug users. It is estimated that there are 60,000 HIV positive and about 5,000 AIDS cases in Nepal. Among injecting drug users, over 68 percent were from the Kathmandu valley and 44 percent of them in the country have been found to be HIV positive during 2002.

Iodine deficiency disorder was the most endemic problem in Nepal. The Ministry of Health has introduced a policy to fortify all edible common salt with iodine to overcome this public health problem.

In Nepal, the prevalence of leprosy has dropped to 2.41 per 10,000 populations in 2003-04 from 5.9 at the end of the eighth plan. The Nepal Leprosy Elimination Campaign is working towards eliminating leprosy from the country by detecting hidden cases in the community. The improvement in reduction of leprosy prevalence was possible due to partial progress in transferring of patient retained earlier at referral centres to the health institution nearest to the patients' house. It can be improved further if referral centres fully comply with the national guidelines for transferring of retained patients to the respective health centres (Ministry of Health, Annual Report 2003/2004).

6.5. Prevention, control and management of common diseases and injuries

The Acute Respiratory Tract Infection Control Programme has been given a major emphasis in Nepal in view of the fact that more than one-third of deaths among the children in Nepal, have been reportedly caused by respiratory diseases. This programme aims at reducing the complication caused by respiratory tract. To achieve this objective, there is a regular ARI control programme in place which has been implemented in 61 districts as a special programme. The incidence of diarrhoea and ARI cases are given below in the table:

Diarrhoea and ARI Situation in Nepal (DHS, HMIS, Health Service Coverage Sheet – 2004)

Indicator	2000-2001	2001-2002	2003-2004
Incidence of diarrhea/1000 children < 5 years of age	177	177	222
Percentage of children with severe dehydration (new cases)	4	4	3
Incidence of ARI/1000 children <5 years of age	210	229	344
Proportion of severe pneumonia among new cases	4.2	3.8	2.5

In Nepal, the Diarrhoeal Disease Control programme was launched in 1984 to reduce the infant and child mortality by promoting Oral Rehydration Therapy. As per the given table, the percentage of children with severe dehydration has decreased from four percent in 2000-01 to three 3 percent age in 2003-04. This improvement is assumed to be due to increased public awareness created by health education programmes.

Cases of heart diseases and cancer are increasing due to extended longevity and changing of life style and dietary patterns. To address the situation, the government has established a specialised hospital in Kathmandu and a cancer hospital in Bhratpur. In addition, the government is also providing services of radio therapy and chemotherapy from Bir and Bhaktapur hospitals.

7. TRENDS IN HEALTH STATUS

7.1. Life expectancy

Life expectancy at birth has been increasing for both males and females in Nepal. It has increased from 42 years for males and 40 years for females in 1971 to 60 years for males and 61 years for females in 2003. It is projected to increase to 62.9 years for males and 63.7 years for females by 2006 (World Health Report, 2005 and population projection for Nepal 2001-2021).

In Nepal, Health Adjusted Life Expectancy was 51.8 years with 53.5 years for male and 51.1 years for female in 2002 (WHO, Core Indicators 2005).

○

7.2. Mortality

Infant Mortality Rate

The Infant Mortality Rate has declined in Nepal from 140 per thousand live births in 1976, 64 per thousand live births in 2001 to 48 per thousand live births (Nepal Demographic and Health Survey, 2006). It is proposed to reduce IMR to 34.4 per thousand live births by 2017 (SLTHP 1997-2017).

Under-5 Mortality

The Under-five mortality came down from 118 in 1997, 91 in 2001 to 61 per thousand live births (Nepal Demographic and Health Survey, 2006).

Maternal Mortality Ratio

Maternal Mortality has come down from 475 per 100,000 live births in 1997 to 281 per 100,000 live births in 2006 and is proposed to be reduced to 250 per 100,000 live births by 2017 (Health Information Bulletin 2001 and NDHS 2006).

○ http://www.who.int/whosis/mort/profiles/mort_searo_npl_nepal.pdf

7.3. Morbidity

Ten most common causes of morbidity at the national and regional levels are given below:

**Ten Leading Diseases
Total New Visits as a Percentage of Total Population by Development Region
(1999-2000)**

Sr. No	Diseases	National Total	EDR	CDR	WDR	MWDR	FWDR
1.	Skin Diseases	5.39	3.60	5.26	6.08	4.56	4.97
2.	Diarrhoeal Diseases	3.12	2.87	2.68	3.54	3.62	3.70
3.	Intestinal worms	2.85	3.04	2.55	3.43	2.59	2.36
4.	Acute Respiratory Infection	2.68	2.63	2.11	3.44	2.89	2.97
5.	Gastritis	1.79	1.64	1.43	2.39	1.95	1.96
6.	Pyrexia of Unknown Origin	1.86	1.07	1.47	1.99	1.79	2.51
7.	Ear Infection	1.30	1.26	1.39	1.23	1.24	1.30
8.	Chronic bronchitis	0.93	0.81	0.77	1.18	1.12	1.03
9.	Anaemia	0.86	0.72	0.93	0.93	0.80	0.94
10.	Abdominal pain	0.86	0.73	0.75	0.95	1.10	1.08

It may be seen from the table that diseases vary according to the development of various regions. However, the WDR region in general have highest cases for skin and, diarrhoeal diseases, intestinal worms, ARI and gastritis, while FWDR have more cases in areas of pyrexia of unknown origin, anaemia and abdominal pain (Health Information Bulletin 2001).

7.4. Disability

The over all disability prevalence rate in Nepal is 1.63. It is more among the males. Disability is the highest (64.3 percent) among the working age group (15-59 years of age). A survey done in 2001 has shown that 57.6 percent of the head of households with disabled members had no education. Among the disabled, 22.2 percent of the economically active people were working in the agriculture sector. Among the disabled the following types are predominant:

1. Mobility 19.5 %
2. Speech 19.4 %
3. Hearing 19.1 %
4. Manipulation 14.8 %
5. Epilepsy 11.1 %
6. Mental Retardation 5.9 %
7. Sight 5.6 %

8. Psychopathy 6.4 %

Disease is the main cause (30.3 percent) of all types of disabilities, particularly in case of disabilities in sight, mobility, hearing and mental retardation. Among the sight disabled, 10.4 percent are born with sight defects, 62.5 percent are due to disease and 10.4 percent due to accidents. Among the disabled people, 35.9 percent have hearing disabilities. Among the multiple disabled, 25.5 percent have hearing problems. The main causes of hearing disability are: congenital (57.4 percent), disease (26.4 percent) and accident (7.7 percent). Locomotor disability constitutes about 34.4 percent of which 19.5 percent is moving disability and 14.8 percent manipulative disability. The causes include congenital (27.3 percent), disease (36.0 percent) and accidents contributing to 25.5 percent of cases. In general 15.4 percent of all disabilities are due to accidents. Among the disabled, about 70 percent went to some sort of healers (41 percent of them to doctors).

According to the Nepal Micronutrient Status Survey 1998, the overall prevalence of current night blindness in women of reproductive age and pregnant women was 4.7 percent and 6 percent, respectively, while 16.7 percent of women showed having night blindness during their last pregnancy. Furthermore, the rates were higher in rural areas. The highest rate of night blindness cases were seen occurring in the Eastern and central Terai regions (Ministry of Health, Annual Report 2002/2003).

8. OUTLOOK FOR THE FUTURE

The Ministry of Health has developed a 20-year SLTHP for FY 2054-2074 (1997-2017). The aim of the SLTHP is to guide health sector development for improving the health of the population, particularly of those whose health needs are not often met.

The SLTHP addresses disparities in healthcare, assuring gender sensitivity and equitable community access to quality health services.

The SLTHP's vision is a healthcare system with equitable access and quality services in both rural and urban areas. The system would encompass the concepts of sustainability, full community participation, decentralisation, gender sensitivity, effective and efficient management, and private and NGO participation (Ministry of Health, Annual Report 2002/2003).

9. Basic Health Indicators including the U.N. Millennium Development Goals

See Annex -1.

Annex-1

Country reported Data for Basic Health Indicators including health related MDG Indicators

Indicator	Latest available data	Year	Source	Remarks
POPULATION AND VITAL STATISTICS				
Total population (in millions)	25.8	2006	14	
Population density (persons per sq km)	175 ¹	2001	1	
Sex ratio (males per 100 females)	100	2001	1	
Population under 15 years (%)	39.3	2001	1	
Population 60 years and above (%)	6.5	2001	1	
Crude birth rate (per 1000 population)	28.4	2003-05	14	
Crude death rate (per 1000 population)	9.9	2003-05	6	
Natural (population) growth rate (%)	2.25	2001	13	
Total fertility rate	3.1	2003-05	14	
Urban population (%)	14.2	2001	2	
SOCIO-ECONOMIC SITUATION				
Gross national product per capita (US \$)	300	2004/5	13	
Adult literacy rate (%)		2001	5	
Total	53.7			
M	65.1			
F	42.5			
Prevalence of low birth weight (weight <2500 grams at birth) (%)	14.3	2006	14	
Prevalence of underweight (weight-for-age) in children <5 years of age (%)	38.6	2006	14	
HEALTH SYSTEM				
INPUTS				

¹ Based on surface area of 147,181 sq km

Indicator	Latest available data	Year	Source	Remarks
<i>Facilities</i>				
Hospital beds per 10,000 population	4.26	2001/02	15	Computed
Number of PHCCs/Health centres	193	2001/02	10	
<i>Human resources</i>				
Physicians per 10,000 population	2	2004	15	
Nurses per 10,000 population: Professional nurses	2		15	
<i>Budgetary resources</i>				
Total Expenditure on Health (THE) as % of Gross Domestic Product (GDP)	5.3	2003	15	
Public Expenditure on Health (PHE) as % of Total Expenditure on Health (THE)	28	2003	15	
Private Expenditure on Health (PvtHE) as % of Total Expenditure on Health (THE)	72	2003	15	

FUNCTIONS				
Pregnant women attended by trained personnel during pregnancy (%)	44	2003-04	15	
Deliveries attended by trained personnel (%)	20	2005	13	
Women of childbearing age using family planning (%)	48	2003-05	6	
Infants reaching their first birthday that have been fully immunized against poliomyelitis (%)	78	2005	16	
Infants reaching their first birthday that have been fully immunised against measles (%)	74	2005	16	

Infants reaching their first birthday that have been fully immunised against tuberculosis (%)	87	2005	16	
Women that have been immunised with tetanus toxoid (TT) during pregnancy (%)	30	2002/3	10	
Environment				
Population with safe drinking water available in the home or with reasonable access (%)	81	2005	13	
Population with adequate excreta (sanitary) disposal facilities available (%)	39	2005	13	
OUTCOMES				
Life expectancy at birth (years):		2001	7	
Male	60			
Female	61			
Total	61			
Infant mortality rate (per 1000 live births)	48	2006	14	
Under-five mortality rate (per 1000 live births)	61	2006	14	
Maternal mortality ratio (per 100,000 live births)	281	2000	15	
Out-of-Pocket Spending on Health (OOPS) as % of Private Expenditure on Health (PvtHE)	92	2003	15	
GENDER EQUITY				
Life expectancy at birth ratio (females as a % of males)	100	2003	2	Computed value
Seats held in Parliament (% of women)	5.8	2000	13	
Female share in employment (non-agricultural sector) %	18	2000	13	
Ratio of earned income (females as a % of males)	0.50	1991-2001	3	
Adult literacy ratio (females as a % of males)	65.5	2001	5	Computed value

Primary school enrolment ratio (females as a % of males)	86	2004	13	
Secondary school enrolment ratio (females as a % of males)	78	2002/03	8	Computed value

Indicator	Latest available data	Year	Source	Remarks
MDG HEALTH RELATED INDICATORS				
G1.T2.I4 - Prevalence of underweight children (under-five years of age)	38.6	2000	14	
G1.T2.I5 - Proportion (%) of population below minimum level of dietary energy consumption	47	2000	13	
G4.T5.I13 - Under-five mortality rate (probability of dying between birth and age 5)	61	2006	14	
G4.T5.I14 - Infant mortality rate	48	2006	14	
G4.T5.I15 - Proportion (%) of 1 year-old children immunised for measles	74	2005	16	
G5.T6.I16 - Maternal mortality ratio	281	2006	14	
G5.T6.I17 - Proportion (%) of births attended by skilled health personnel	20	2005	13	
G6.T7.I18 - HIV prevalence among 15-49 years of age (%)	0.5	2005	13	
G6.T8.I21c - Malaria prevalence rate per 100,000	78	2003	13	
G6.T8.I23a - Tuberculosis death rate per 100,000	23	2000	13	
G6.T8.I23b - Tuberculosis prevalence rate per 100,000	280	2005		
G6.T8.I24a - Proportion (%) of Smear-Positive Pulmonary Tuberculosis cases	71	2005	13	

detected and put under directly observed treatment short course (DOTS)				
G6.T8.I24b - Proportion (%) of Smear-Positive Pulmonary Tuberculosis cases detected cured under directly observed treatment short course (DOTS)	88	2005	13	
G7.T10.I30a - Proportion (%) of population with sustainable access to an improved water source, rural	71	2005	13	
G7.T10.I30b - Proportion (%) of population with sustainable access to an improved water source, urban	83	2005	13	
G7.T11.I31 - Proportion (%) of urban population with access to improved sanitation	81	2005	13	

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Millennium Development Goals (MDGs)

The progress made towards achievement of health related MDGs is given here:

GOAL 1: ERADICATE EXTREME POVERTY AND HUNGER

TARGET 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger

INDICATOR	1990	1995	2000	2005	2015	Will development goal be reached?
Percentage of population below minimum level of dietary energy consumption	49 ^{a.1}	NA	47 ^{a.2}	NA	25	Potentially
Percentage of underweight children aged 6-59 months (>- 2 S.D.)	57 ^b	47 ^c	53 ^d	38.6 (2006)	29	
Percent of stunted children aged 6-59 months (> -2 S.D.)	60 ^b	54 ^c	55 ^b	49.3 (2006)	30	

Source: a HMG/United Nations Country Team of Nepal, 2002 (a.1: 1992 data; a.2: 1997 data).

b Extrapolation based on the trend between 1975 and 2000.

c Nepal Micronutrient Status Survey (NMSS) 1998/99.

d Department of Health Services (DOHS)/New ERA 2002; UNICEF 2005 (calculated for the age group based on NDHS 2001 data).

STATUS AND TRENDS

One of the causes of hunger is inadequate food security. Several studies have underlined the finding that sufficient overall production is a minimum condition for food security, but it is not a sufficient condition on its own. Food security cannot only be examined from a national perspective but must be looked into at the micro-level to encompass household and, preferably, intra-household levels. This is particularly so in Nepal, given the discrimination against girls, women, the elderly, and the disabled. The World Bank defines food security as 'access by all people at all times to enough food for an active, healthy life'. Food security must be viewed in terms of availability (production of food); access (economic and social access to food); and utilisation (proper processing of food items into food).

Overall, the agricultural sector has not been able to exhibit impressive performance and especially in recent years, the situation has deteriorated because of the insurgency (Sharma 2003). Surprisingly, food production improved and surplus food grains have

been reported since 2000 (DOA 2002), although food availability remains uneven. For example, some of the hill and mountain regions have been vulnerable to food insecurity.

Because a key feature of food security is access to sufficient food by all people at all times, various health, nutrition, and consumption surveys examine access. It is possible that households not producing sufficient food can be consuming sufficient food through exchange systems, such as by the purchase/ exchange of food, or by borrowing food or money to purchase food. In Nepal, especially in the hills and mountains, one way of ensuring food access within families with less food self-sufficiency is labour migration. A study shows that on average, a household can provide itself with food from its own farming activities for only 6-7 months, and as a result many households resort to labour migration either to foreign countries or to urban areas of Nepal (Adhikari and Bohle 1999).

Another way of understanding hunger is to look at child malnutrition. Malnutrition is a serious impediment to children's overall development. The most common forms of malnutrition are: protein-energy malnutrition (PEM), iodine deficiency disorders, and deficiency of iron and Vitamin A. The 1998 Nepal Micronutrient Status Survey reported that 90 percent of Nepalese children are suffering from one or another form of malnutrition. There are wide disparities in malnutrition across regions and ecological zones. For instance, in the mountains, stunting (a child being short for his/her age - a sign of chronic under-nutrition); being underweight (a child having low weight for his/her age); and wasting (a child being thin for his/her height, an indicator of acute malnutrition) are more prevalent than in the Terai. Likewise, the rate of stunting in the rural areas is much higher than that in the urban areas.

The major direct cause of general malnutrition, also referred to as protein-energy malnutrition, is inadequate availability of calories, which is the result of low food intake and a high burden of disease, or more commonly a combination of both. Underlying causes are inadequate access to food, insufficient basic health services, an unhealthy environment, and inadequate care of children, pregnant, and lactating women.

The nutritional status of children less than five years old has seen only modest improvement since 1975, when the first nationwide survey was conducted. It is clear that the proportion of underweight children has reduced hardly at all when the baseline value for 1990 and the status in 2001 are compared. For instance, between 1975 and 2001, stunting among children aged 6-59 months was reduced from 69.4 percent to 49.3 percent, a reduction of only 0.6 percentage points by year. If this reduction rate is maintained, the rate of stunting will be 44 percent in 2015. This is far higher than the goal of reducing the stunting rate of 60 percent in 1990 to 30 percent in 2015. This means that unless the reduction rate is significantly increased, it is highly unlikely that Nepal will attain the MDG goal.

As for the proportion of the population below the minimum level of dietary energy consumption, a lack of reliable current data has made it difficult to assess the exact status and trends in this regard, thereby warranting additional work in this area. However, given the modest reduction in child malnutrition over the last decades, it seems unlikely that

Nepal will achieve the target of reducing by 50 percent the proportion of people who suffer from hunger by 2015.

SUPPORTIVE ENVIRONMENT

After the political change in 1990, the government vigorously pursued liberalisation policies, and especially by the mid-1990s, it was realised that the benefits of these policies needed to be channelled to the poor. A number of measures were adopted to gradually remove subsidies, deregulate price controls of agricultural inputs and products, and encourage the private sector's involvement in producing and marketing agricultural products and inputs.

The basic premise of the APP, implemented since 1997, was the overall economic development triggered by high growth in agricultural production. The APP set out to improve food security and poverty through a number of measures. These entailed increasing the income of poor and small farmers through employment creation from agricultural growth and the intensification of small farms with high-value crops; removing the greatest barriers to the poor's participation in the growth process; empowering the poor and needy, particularly women, in the growth process; and implementing supplementary activities for food security such as short-term food aid, the distribution of food aid through NGOs, the implementation of Food-for-Work programmes by WFP, GTZ, and DFID, and food stock maintenance.

Also, several micro-level initiatives have aimed to increase food security in targeted areas since the mid-1970s (Food-for-Work). Under the food aid programme, the government provided subsidies to the Nepal Food Corporation (NFC) to transport food-grains to designated 'remote areas' with a high incidence of poverty and hunger. Similarly, several programmes are in operation that target children by providing them with schooling and food assistance. One such example is the Primary School Feeding Programme, which provides midday snacks to encourage enrolment and daily attendance, particularly of girl students, in government-run primary schools.

In an effort to improve the nutritional status of children, major policy initiatives include three national-level nutrition strategies developed in 1978, 1986, and 1998. A National Nutrition Coordinating Committee has been created, and Nutrition Focal Points have been set up at key ministries. In addition, several noteworthy programmes include the Expanded Programme of Immunisation, the Control of Diarrhoeal Disease Programme, the Acute Respiratory Infection Control Programme, and the Decentralised Action for Children and Women. The National Vitamin A Programme has proven to be quite effective, mainly due to the successful mobilisation of Female Community Health Volunteers (FCHVs). Likewise, the Anaemia Control Programme has been effective in reducing the rate of anaemic women and children. A national deworming programme, covering all 75 districts since 2004, shows initial signs of success in reducing anaemia among children (UNICEF 2005).

CHALLENGES

While a number of small-scale and targeted food-assistance programmes and projects are in operation, including subsidies for food-grain transport to remote areas, initiatives to provide mid-day meals in a significant number of primary schools, and food assistance for natural and other disasters (Perry 2000), food security has never constituted a major plank of policy making and programming (Mishra 2001). The food assistance programme remains cost-ineffective due to geographical constraints and high operational costs, and the centralised distribution system.

Given the widespread rural poverty in Nepal, non-improving agricultural productivity, and massive food deficits in parts of the country, the goal of halving hunger-affected people between 1990 and 2015 will be a daunting task. Multiple types of malnutrition remain a common problem among rural children as iron-deficiency anaemia affects almost all children at pre-school levels. In spite of some successful interventions such as the Vitamin A programme and the expanded programme on immunisation, improving child nutrition is a tremendous task, warranting different interventions at multiple levels.

Conflict and the resulting violence emerge as a major challenge to achieving the goal of reducing hunger and malnutrition. Lately, various successful initiatives such as infrastructure building and Food-for-Work programmes have been hit hard. There have been several incidents of food-grains meant for beneficiaries of the Food-for-Work programmes being taken by the insurgents. In rural areas, the fear of violence has severely disrupted the normal mobility of people, thereby hampering food distribution of the Nepal Food Corporation, for example. As a result, food insecurity has become more challenging, and has widened the disparities across regions.

The MDG Needs Assessment exercise has made it clear that the estimated amount of resources required for the implementation of the MDG hunger/agriculture intervention packages is considerably higher than the government's current budgetary allocation. It should be noted that the needs assessment exclusively reviewed agriculture-related interventions, and not interventions directly aimed at addressing malnutrition, such as promotion of, and education on, improved childcare and feeding. Neither did it include interventions aimed at reducing child disease and improving hygiene and sanitation, which are covered under other MDGs.

GOAL 4: REDUCE CHILD MORTALITY

TARGET 5: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

INDICATORS	1990	1995	2000	2005	2015	
					Target	Will development goal be reached?
IMR	108 ^a	79 ^b	64 ^c	48 ^d	34	Potentially
U5MR	162 ^a	118 ^c	91 ^c	61 ^d	54	
Proportion of one-year-olds immunised against measles	42 ^e	57 ^b	71 ^c	74 ^f	>90	

Source: a National Family Health Survey (1996) (1989 data). b NFHS 1996. c NDHS 2001. d Nepal Demographic Health Survey 2006. e Nepal Fertility, Family Planning and Health Survey 1991. f HMIS/DOHS 2003/04 f EPI Fact Sheet 2005, WHO-SEARO

STATUS AND TRENDS

Remarkable reductions have been seen in child mortality rates in Nepal over the last decades. From a staggering infant mortality rate (IMR) of 200 per 1000 live births some 30 years ago, the IMR today is 48 per 1000 live births (NDHS 2006). The under-5 mortality rate (U5MR) was found to be 61 per 1000 live births in the same survey. The most likely causes of the decline in IMR are improvements in the management of diarrhoea, improved immunisation, Vitamin A supplementation, and the improved management of acute respiratory infections, especially pneumonia. If this progress continues, it seems likely that Nepal will achieve this target for 2015. However, it must be emphasised that the country's child mortality rate (U5MR) is the fifth highest among all the countries of the WHO South East Asian Region (WHO 2005).

It must also be noted that any further reduction in IMR is increasingly dependent on saving more newborn lives. While the overall health of children has improved and as the overall child mortality has declined, the proportion of neonatal deaths has increased from 40 percent of infant deaths in 1987 to 60 percent in 2001. Nepal's newborn mortality is the third highest in the world, as is its percentage of low birth weight babies and it has the fourth lowest percentage of births attended by skilled personnel. Of every 1000 newborns, 34 die within the first month of life (NDHS 2006).

It is estimated that nearly 30,000 children die each year in Nepal during their first month of life, with two-thirds of these dying during their first week (National Neonatal Strategy 2004). Hospital-based data² suggest that the major direct causes of neonatal death in Nepal, as elsewhere, are infection, birth asphyxia /trauma, prematurity, and hypothermia. There is a constellation of underlying causes including poor pre-pregnancy health, inadequate care during pregnancy and delivery, low birth weight, and inadequate newborn and post-partum care. Fundamental to these is the low status and priority given to women and newborns.

²There are no population-based studies that describe the pattern of neonatal death in Nepal

Appropriate care for the normal newborn is not widely understood or practiced. Traditional attitudes and practices dominate newborn care and are often hazardous.

The data also suggests considerable differences by geographical area and by groups. Infants in rural areas are exposed to a risk of death 1.4 times higher than those in urban areas. Similarly, children in the mountain region are twice as likely to die before they reach the age of five as children in the other economic zones. Furthermore, data from 2001 showed that the Mid and Far-Western regions had higher infant mortality at 103 and 84 per 1000 live births respectively, compared to the Eastern region at 61. The Western region's IMR, at 59, was less than the national average of 64. Large variations can also be seen observed by district. The IMR in the worst districts are over 6 times higher than those in the best districts (UNDP 2004). Ethnic disparities are suggested by the data, particularly of the socially disadvantaged groups, and of women. Compared to the average IMR of 67.3 per 1000 live births in males and 68.4 in females of higher castes, IMR was 70.4 in males and 69.8 in females among ethnic groups. Dalits are in a much worse situation with IMR of 88.3 in male and 84.5 in female (CBS 2003).

The mortality rates reflect gender disparities. Girls are nearly 1.5 times more likely to die between their first and fifth birthdays than boys. This most likely reflects gender discrimination in child rearing and health care seeking practices, since biologically, boys are more likely than girls to die in this age group.

Immunisation against measles and major diseases also showed a significant increase, although here again, there were wide disparities in access to immunisation in terms of groups, with recent data showing the lowest coverage for Muslim and Dalit children.

SUPPORTIVE ENVIRONMENT

The progress in reducing child mortality is mainly the result of increased awareness and accessibility to programmes that prevent child deaths. These include a community based Integrated Management of Childhood Illness (IMCI) package. This package has four child survival programmes: control of diarrhoeal diseases; control of acute respiratory infection (ARI); immunisation and nutrition including micro-nutrients; and a community component. The decade under review has seen progress in controlling communicable diseases. Immunisation has been significantly improved, and deaths due to diarrhoeal diseases have declined. Deaths due to ARI have also declined in recent years. Campaigns promoting micro-nutrients such as Vitamin A together with deworming tablets for children between 6 and 59 months biannually have fared well, and iodised salt is now easily available. The biannual Vitamin A supplementation is said to have prevented the deaths of 22,000 children per year in Nepal.

With regard to immunisation, Nepal has been conducting campaigns to meet disease specific targets in the last several years. The tetanus campaign coverage was good and the reported number of neonatal tetanus cases has gone down. Nepal can be said to have virtually eliminated neonatal tetanus, although the official validation exercise will only be conducted in November 2005. No case of wild polio has been reported since November

2000. A nationwide measles campaign was conducted in 2004/05 and reached over 95 percent of children between 9 months and 14 years. As a result, the number of measles outbreak has gone down from 137 in 2004 to 1 as of July 2005 (WHO Nepal-IPD 2005)

The Health Sector Reform Strategy and Implementation Plan (NHSP-IP), which formulated the goal, "To achieve (the) health sector MDG in Nepal with improved health outcomes for the poor and those living in remote areas and a consequent reduction in poverty," provides operational guidelines for its implementation. The strategy will work in tandem with the PRSP (2002-2007) to provide an equitable, good quality health care system in partnership with the Ministry of Health (MOH) and external development partners. The Essential Health Care Package (EHCP) of the Health Sector Reform Strategy pays special attention to child health and includes perinatal, neonatal, infant, and childhood healthcare.

The main interventions for reducing neonatal mortality that address the care of pregnant women and their newborns are implemented through MOH's National Safe Motherhood Programme, to which many donors contribute. The National Safe Motherhood Programme aims to address maternal and neonatal mortality reduction in an integrated approach to maximise synergies between the two and to increase cost-effectiveness. Since 2001, essential newborn care training has been integrated in the facility based refresher training of doctors and nurses. A National Neonatal Strategy was developed in 2004 to increase the profile of newborn care. An integrated maternal and newborn long-term plan is expected to be developed in 2005. While the National Safe Motherhood Programme approach has consisted of facility strengthening complemented by community mobilisation, the effectiveness of community mobilisation approaches have often been the subject of debate. Community field interventions/ trials in Nepal have confirmed the effectiveness of community approaches in improving knowledge and changing behaviours for birth preparedness and reducing neonatal mortality. Field-based trials are also ongoing to see whether FCHVs and other peripheral community health workers can be trained to perform a set of activities for early detection of infection in neonates. Newborn care has also been incorporated in the Community Based-Integrated Management of Childhood Illness training package. Furthermore, acknowledging the need to increase the number of available skilled health personnel throughout the country, the government has developed a skilled birth attendance policy and several other measures described in the chapter on Goal 5.

CHALLENGES

During the period under review, under-five and infant mortality rates have declined substantially. This can be attributed to the interventions described above. However, neonatal mortality - death in the first month of the baby's life - in Nepal stands at 39 per 1000 live

births and accounts for 60 percent of infant deaths. So, lowering the neonatal mortality rate is vital if Nepal is to continue to reduce the under-five and infant mortality rates.³

Though most of the complications leading to neonatal mortality are preventable, currently there are few interventions addressing these issues. Low birth weight (LBW), which contributes to perinatal death, is linked to low maternal weight, height, and body mass index, the birth of a previous preterm infant, and a birth interval of less than two years. With improved maternal health and the service of a skilled birth attendant during delivery, most deaths can be prevented. This means that neonatal mortality can be reduced by improving the health and nutrition of the mother and ensuring that the mother gives birth with a skilled birth attendant. This inter-relationship is important to highlight the challenge of reducing U5 mortality.

The contribution of immunisation has been of immense significance in reducing child deaths. Nevertheless, the percentage of fully immunised children was 60 percent, with 8 percent of children under-five not immunised at all in 2003 (CBS 2004), thus pointing to disparities in service coverage. The challenge for Nepal would be to maintain the high coverage rates achieved through nationwide campaigns for polio, tetanus, and measles immunisation, and to continue to increase coverage rates of fully-immunised children through the routine system. The ongoing security problems may present a challenge to maintaining past performance and to making further improvements.

Addressing child malnutrition, the underlying cause for half the child deaths, remains a challenge in Nepal. About half of children under three years of age are stunted, or are too short for their age, and most children suffer from some type of micronutrient deficiency. The fact that the situation has not shown significant progress in the last 30 years suggests that the strategies to combat child malnutrition need to be revisited.

In Nepal, there is a serious problem with access to drugs. Policies are needed to include the promotion of rational drug use such as the use of antibiotics. New drugs are sometimes not available due to their prohibitive cost. Another inhibitive factor is that, while private establishments providing clinical services are mushrooming, their services are unaffordable to many. Often the poor are compelled to avail of these services as specialists are less easily accessible in public facilities. Thus, sometimes, people are forced to make catastrophic payments for ill-judged treatments. The other danger is that patients may turn to quacks and untrained indigenous healers, often with unfortunate consequences.

Although deaths from diarrhoea and ARI have reduced, deaths from accidents and injuries are emerging as an important cause of U5 mortality globally. While the incidence of this problem in Nepal is not known, injuries and even deaths caused by explosives including landmines are increasing due to the ongoing conflict. This is compounded by the difficulty in getting timely and adequate treatment due to insecurity, curfews, the looting of medicines and supplies, and the destruction of health facilities. Numerous children have

³Infant mortality refers to death under one year of age; neonatal mortality refers to death in the first 28 days of life.

been traumatised or emotionally affected after witnessing brutal atrocities associated with the conflict. The increased workload of women due to male out-migration may also make appropriate child care an even more difficult task for women.

The healthcare system needs to be improved if it is to deliver effective and efficient service. Training for healthcare practitioners is required, as well as better organisational management and inter and intra-sectoral coordination. Furthermore, timely referral between healthcare institutions remains a challenge. The financial implications of fulfilling these critical requirements are immense. The projected cost of the child health intervention package is estimated to be Rs. 2368.1 million (US\$ 33.8 million) for 2005; which will more than double to Rs. 4967.5 million (US\$71.0 million) in 2010; and further increase to Rs. 7594.5 (US\$108.5 million) in 2015.

Another issue to be highlighted is the need for stronger coordination among the concerned actors, based on clear-cut responsibilities. While decentralised management is a policy measure, the roles and responsibilities of the central and district authorities are not clear at present, resulting in confusion in the functioning of the local facilities.

GOAL 5: IMPROVE MATERNAL HEALTH

TARGET 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

INDICATORS	1990	1995	2000	2005	2015	
					Target	Will development goal be reached?
Maternal Mortality Ratio (MMR)	850 ^a or 515 ^b	539 ^c	415 ^d	281 ^j	213 or 134 ^e	Potentially
Percentage of deliveries attended by health care providers (doctors, nurses, and auxiliary nurse midwives)	7 ^b	9 ^c	11 ^f	20 ^{g4}	60 ^h	
Contraceptive prevalence rate (percent)	24 ^b	29 ^c	39 ⁱ	48 (2003-05)	67 ⁱ	

Source: a UNDP Human Development Report 1992 (1988 data). b NFFS 1991. c NFHS 1996. d NPC 2002. e Heat Sector Strategy - An Agenda for Reform, MOH 2004. f NDHS 2001. g CBS 2004. h MOH 2005. i MOH 1993, Safe Motherhood Plan of Action (1994-1997) j NDHS 2006.

⁴ The 2004 CBS figure covers all types of health practitioners (doctors, nurses, auxiliary health workers, maternity child health workers, village health workers, health assistants, senior auxiliary health workers, and auxiliary health workers).

STATUS AND TRENDS

It should be highlighted at the outset that data on maternal mortality is highly problematic in Nepal, as measurement of the maternal mortality ratio (MMR) suffers gravely from under-reporting and misclassification, and even household surveys are subject to wide margins of uncertainty due to such issues as variability of the sample, the small number of events, and differences in methodology.

The baseline figure for the MMR itself is conflicting. While the survey-based MMR for 1991 for the period of 10-14 years before the survey was 515 deaths per 100,000 live births, another source indicated a figure as high as 850. The ratio for 1990 to 1996 was 539 deaths per 100,000 live births, for the period 0-6 years before the survey. Then the available figure is the National Planning Commission estimation of 415 in 2002.⁵ Now National Demographic Health Survey 2006 has estimated maternal mortality ratio of 281 per 100,000 live births. Therefore, it is difficult to draw any precise conclusions about the trend in maternal mortality in Nepal. Available data suggested that the target of reducing maternal mortality is achievable. However, such assessment suffers from serious data problems.

More recently, deliveries by skilled birth attendants (SBAs)⁶ have been proposed as a proxy indicator for the maternal mortality ratio. This indicator shows an increase from 7.4 percent deliveries (by skilled attendants and other health workers) to 19.8 percent in 2004. The rate of progress suggests that there is a significant challenge in meeting the target for this indicator by 2015.

In Nepal, over 80 percent of deliveries take place at home. Most of the births are assisted by family members and neighbours, with only one-fifth of deliveries attended by health workers (CBS 2004). Births attended by skilled birth attendants (doctors, nurses, and auxiliary nurse midwives) are as low as 11 percent (NDHS 2001). Another 10 percent of births were attended by traditional birth attendants (TBAs), who may be trained or untrained, however they do not qualify as skilled birth attendants. There was a gradual increase in the number of deliveries conducted by trained TBAs from 2 percent in 1995 to more than 11 percent in 2003/04. It was found that some ethnic groups prefer TBAs for delivery. Home deliveries are usually opted for in anticipation of the care and support from family and community. Besides, pregnancy and childbirth are still perceived as natural phenomena, not requiring formal health services (UNICEF 1998).

⁵ Although this is a widely quoted figure, UN agency estimates are much higher. WHO, UNICEF, and UNFFA have recently developed an approach to estimate maternal mortality for countries with no data and to correct available data for under reporting and miscalculation with the purpose of drawing attention to the existence and likely dimensions of the problem. It does not provide precise estimates and is only indicative of orders of magnitude. The MMR estimate at 2000 is 740 within the range 440-1100

⁶A 'skilled birth attendant' is an accredited health professional-such as a midwife, doctor, or nurse-who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirths, and immediate postnatal period and in the identification, management, and referral of complications in women and newborns (WHO 1994).

The causes of maternal deaths are severe bleeding, sepsis, toxemia, obstructed labour, and the consequences of abortion. Unsafe abortion and maternal death can be due to a lack of access to reproductive health care, including family planning. Most maternal deaths can be prevented if women have access to essential obstetric care services.

Antenatal attendance is low with only 14 of women attending the recommended four antenatal visits, and only about one seventh of adolescent mothers attending the antenatal clinic. Only 17 percent of women receive a postnatal check within 48 hours (NDHS 2001) which indicates an opportunity lost in monitoring the health of the mother and the newborn.

Family planning, a pillar of reproductive health, has affirmed its unequivocal contribution to mothers' health and the reduction of sickness and death. Although universal awareness was presumed, the NLSS 2004 reported that only 77 percent of married women between 15 and 49 years, had knowledge of any modern family planning method. There is higher awareness among the rich and educated urbanites. About 46 percent reported having used family planning methods, and 39 percent currently use some form of contraceptive. The most popular method is surgical contraception, followed by three-monthly injections of Depo Provera.

Although the total demand for contraception was 67 percent, only 39 percent of the demand could be met. The use in urban area is 1.7 times higher than in rural areas. Only 9 percent of adolescents between the ages of 15 and 19 are currently using modern methods, although 40 percent are already mothers. Thus, the need to address the issue of adolescent sexual and reproductive health is critical in bringing about behavioural changes towards responsible parenthood. The present trend shows that the CPR has been increasing at a rather modest pace, with a high level of unmet demand, underlining the need for greater attention to access to achieve the target of 67 percent in 2017, as stated in the Safe Motherhood Plan of Action.

SUPPORTIVE ENVIRONMENT

The Second Long Term Health Plan (1997-2017), the Health Sector Strategy 2002, and the Nepal Health Sector Strategy Implementation Plan all support the goal of, "Achieving the health sector MDGs with improved health outcomes for the poor and those living in remote areas and a consequent reduction in poverty." Safe motherhood and neonatal health are key elements of the essential health care package. In addition, the Vulnerable Community Development Plan (2004) addresses social exclusion issues in the health services and its effects and implications for vulnerable groups.

The National Reproductive Health Strategy was formulated and adopted in 1996 to strengthen and expand basic maternity care services, including family planning, improved access, coverage and quality of overall reproductive health programme, and the promotion of research and inter-sectoral collaboration and the upliftment of women's status. The National Adolescent Health and Development Strategy 2000 aims to improve the access and coverage of the overall programme with quality assurance for adolescents

- who make up more than one-fifth of the population - covering information, education, and counselling on human sexuality towards developing responsible sexual behaviour and responsible parenthood.

The Safe Motherhood approach has been adopted for improving maternal health in a holistic way, and the National Maternity Care Guidelines were developed in 1996. Since then several policy documents guiding the implementation of the National Safe Motherhood Plan have been developed - the Safe Motherhood Policy, the Fifteen-year Safe Motherhood Programme Plan, the National Safe Motherhood Training and Information Education and Communication Strategy, and the National Neonatal Strategy, defining the basic care for women and newborns during pregnancy, delivery, and the post-natal period at all levels. The primary intervention for reducing maternal mortality is universal access to assistance at birth by a skilled birth attendant and provision of Essential Obstetric Care (EOC) supported by access to family planning and management of unwanted pregnancies.

Some vital ongoing measures supported by the National Safe Motherhood Programme include measures to increase the availability of essential obstetric care (EOC) services through the establishment of pilot EOC facilities in 15 districts; and a gradual increase in the utilisation of Comprehensive and Basic EOC, in particular among marginalised groups. The programme has also supported complementary community awareness-raising programmes consisting of birth preparedness activities to reduce the 'first two delays' to accessing EOC. Community EOC funds have been raised through community support and transport schemes developed. The National Safe Motherhood Programme focuses on neonatal service provision within the Safe Motherhood training package.

The Ministry of Health (MOH) has prioritised skilled birth attendance as the major strategy for reducing maternal deaths. While the national SBA policy was drafted only in July 2005, NG has provided cost-sharing incentives to promote SBAs with the provision of nationwide transport for delivery in health institutions, free delivery services in 25 of the poorest and most conflict-affected districts, and incentives to health workers providing delivery services in institutions and for home births. The abortion bill was passed in 2002 and the implementation of comprehensive abortion care services has been vigorous with services now available in 65 districts.

I/NGOs and the private sector, including social marketing organisations, have contributed significantly to family planning and maternal-child health programmes. The public-private partnership has increased access to reproductive health services, and more focus on rural areas is called for. Media coverage on the issues governing maternal mortality has also helped mobilise public opinion in support of gender equity to improve maternal health and reduce maternal mortality. At the community level, mothers' groups have been mobilised to set up emergency funds, particularly where female community health volunteers are active. In the Tharu community, the community leader (*bhala-manas*) has organised the *bullock cart* ambulance to ferry pregnant woman to the health facility. Support groups have been formed and some even organise adult literacy classes. There

are possibilities for community empowerment and mobilisation, where positive change will reduce maternal illnesses and death.

CHALLENGES

The fact that more than 80 percent of deliveries take place at home is a serious obstacle to reducing maternal and neonatal mortality. Despite a network of health institutions available all over the country, many problems remain. These include poor quality of health infrastructure and services, in particular delivery by skilled attendants and EOC; unsatisfactory access to reproductive health information and services; low level of access to and quality of antenatal and postnatal care, and non-affordability of delivery in hospitals and primary institutions. All of these results in many women delivering with family members and some with no assistance whatsoever. The policy of promoting public-private partnerships has limited benefits due to concentration of private services in lucrative areas. Lack of stringent measures for quality control and pricing for life-saving interventions in response to complications pushes the poor to desperate financial decisions.

As the focus of the National Safe Motherhood Programme for many years has been on TBA training, the paradigm shift to skilled attendance and EOC is fairly recent. Many vital policy issues are only just being addressed, such as the skilled birth attendance policy. The proportion of SBA-attended births is an important indicator in assessing progress in improving maternal health. However, the definition and the core competencies of a skilled birth attendant have been the subject of much debate. The indicator that has been in use in the national Health Management Information System (HMIS) is, "Deliveries by a trained health worker," and includes skilled birth attendants (doctors, nurses, and auxiliary nurse midwives) and other health workers, who do not meet the criteria of 'skilled birth attendant'. Although the government has initiated new strategies to promote skilled birth attendance through providing free delivery services in 25 of the poorest districts, this remains a challenge in the remainder of the country. While human resource availability at health facilities is a problem, more serious is its unequal distribution, with most skilled attendants concentrated in Kathmandu and the other larger cities. In this regard, it is expected that a human resource development plan will be developed, but difficulties in its implementation are anticipated, especially in fulfilling vacant positions in the rural and remote areas. Given the slow acceptance of skilled birth attendance as the primary intervention for reducing maternal deaths, no programme interventions in support of this strategy have been implemented. WHO has set the target of SBA attendance during delivery of 50 by 2010 and 60 percent by 2015 for countries with very high maternal mortality ratio. Even this appears ambitious in Nepal's case.

As discussed above, most maternal deaths are preventable with the provision of skilled attendance during delivery, a well-organised referral system to basic and/or comprehensive obstetric care, safe abortion, a sound efficient family planning programme, and a strong health system. In addition, efforts are required to make families aware of the importance of pregnancy and delivery-related services and to bring about behavioural

changes. Implementing these interventions, however, implies that a significant amount of resources will need to be allocated. The projected cost estimate for maternal health intervention packages is Rs. 899.7 million (US\$ 12.9 million) for 2005. This will double to Rs. 1,828.9 million (US\$ 26.1 million) in 2010, and will more than triple in 2015 to Rs. 2,755.1 million (US\$ 39.4 million).⁷

Another challenge is to increase contraceptive use and to involve men in promoting and supporting the reproductive health decisions of their wives and children. This is not easy in a patriarchal social structure with persistent gender discrimination. It is also critical to provide adolescents with sexual and reproductive health knowledge and information to bring behavioural changes toward responsible parenthood.

In recent years, the conflict has impeded progress, leaving many health facilities vacant or unsupervised. There are reports of insurgents looting medicines from pharmacies or porters carrying supplies. Frequent strikes and roadblocks are reported to have resulted in the deaths of pregnant women who were delayed on their way to hospitals. According to a study (Thomas and Aitken 2004) on the impact of the conflict on safe motherhood, an additional 10 percent delay was added to the normal delay women experienced in seeking and receiving essential obstetric care (EOC).

GOAL 6: COMBAT HIV, MALARIA AND OTHER DISEASES

TARGET 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

INDICATORS	1990	1995	2000	2005	2015	
					Target	Will development goal be reached?
HIV prevalence among 15-49 years of age	NA	NA	0.29 ^a	0.5 ^b		Unlikely
Contraceptive prevalence rate including condom use (percent) ⁸	24 ^c	29 ^c	39 ^c	NA		

Source: a National Centre for AIDS and STD Control (1999 data). b UNAIDS, FHI/NCASC 2003. c NDHS 2001.

⁷ These estimates do not include the resource requirement for the neonatal health package, which is dealt within MDG4.

⁸ Given the paucity of data, the indicator 'contraceptive prevalence rate (CPR) including condom' was used instead of the MDG global indicator 'condom use rate of CPR'. From the HIV /AIDS prevention perspective, the CPR data needs to be interpreted with caution, as it covers all forms of contraceptives and thus does not give condom use rate related to infection. Also, given paucity of data, indicator 16 was modified to CPR including condom, rather than condom use rate of CPR. The original indicator may be better as CPR inclusive of all forms of contraceptives would not give condom use rate related to infection. Indicator 17 can be modified to proportion of orphan-hood in children 1-10 years caused by HIV /AIDS rather than number of children orphaned by HIV /AIDS.

STATUS AND TRENDS

Although the estimated prevalence rate of HIV infection is 0.5 percent in the age group 15-49 (UNAIDS, FHI/NCASC 2003), with a male to female ratio of 3 to 1, epidemiological data suggests that Nepal has entered the stage of a concentrated epidemic. This means that the HIV/AIDS prevalence consistently exceeds 5 percent in some sub-populations such as female sex workers (FSW) and injecting drug users (IDU). Among high-risk groups, seasonal labour migrants make up 40 percent of the nation's HIV-infected population, followed by clients of sex workers (18 percent) (FHI/ NCASC 2003 estimate). The number of children orphaned by HIV/AIDS is estimated to be 13,000 (UNICEF 2002).

The dynamic of the epidemic follows a predictable course. A rapid increase occurs in the most vulnerable group, e.g. the FSWs and IDUs as the first step. It spreads via the 'bridge population' of the clients of female sex workers (such as truck drivers, labour migrants, the uniformed services, businessmen, students, and partners of injecting drug users). HIV /AIDS spreads from this bridge population to the general population including the wives and the partners of the clients. Men who have sex with men (MSM) are also considered a high-risk group, as they may be married and by engaging in unprotected sex, may consequently infect their wives as well. Though small in number, blood or organ recipients also expose themselves to the risk of HIV infection.

The interaction of these high-risk groups with a much larger and low-risk general population through unprotected sex has the potential to cause an explosive epidemic that may, within a decade, affect the economically productivity in the age group 15-49. It has been estimated that by the end of the decade, 100,000-200,000 young adults will be infected by HIV, and 10,000-15,000 may die of AIDS, making it the leading cause of death among the 15-49 age group (Chin 2000). Children separated from families are also subject to sexual exploitation and exposure to HIV/AIDS (Cross and Osborne 2002). In Nepal, there are 80,000 migrant children in the cities (ILO 1995) engaging in work such as rag picking, stone quarry labour, and domestic labour (CWIN 2002).

Key facts and figures regarding HIV /AIDS in these sub-populations are summarised below.

Female sex workers (FSWs)

- HIV prevalence among FSWs: about 2 percent in the Kathmandu Valley (FHI 2004); and 3 in 16 Terai highway districts between Jhapa and Rupandehi (NCASC/FHI 2003).
- Consistent condom use among FSWs: about 56 percent with clients; less than 20 percent with husbands and boyfriends (FHI/CREHA 2004).
- An estimated 50 percent of Nepalese FSWs in Mumbai brothels are HIV positive (FHI 2004).

- The number of ex-FSWs returning with HIV infection: 5000-25,000 in the Kathmandu Valley (CREHPA/New ERA 2001, Seddon 1998); 300 in Pokhara; and 700-6900 near highways (CREHPA 2003, SC-US 2002, ADRA 2003).
- About 58 percent of street FSWs and 25 percent of brothel-based FSWs are illiterate (NCASC/FHI 2005), which limits their access to prevention information, treatment, and care services.

Injecting drug users (IDUs)

- HIV prevalence among IDUs - 68 percent in Kathmandu; 22 percent in Pokhara; and 35 in Jhapa (FHI 2000, 2003, 2004) with nationwide prevalence of 35 percent (FHI/NCASC 2003 estimate).
- IDUs make up 14 percent of Nepal's HIV cases (NCASC 2004), but some estimates suggest IDUs account for one-third of HIV infections in the country (FHI 2004).

Clients of female sex workers

- An estimated 600,000 to 1.3 million Nepalese migrate to India for seasonal work (CBS 2001). As much as 10 percent of those men migrating to Mumbai have been found to be infected with HIV (Poudel et al 2003).
- HIV prevalence among migrant labourers returning from Mumbai is estimated at 7.7 percent (FHI 2002).
- An estimated 75 percent of all truckers and 51 percent of migrant workers reported having sex with FSWs, of which only 40 percent used condoms. HIV infection varied from 1.5 to 4 percent (FHI 1999).

Young people

- 15 percent of 14-year-olds and 50 percent of those aged 19 have had sexual encounters, according to a study of young factory workers (Puri 2002).
- Adolescents with risk-taking behaviour such as substance abuse, multiple partners, irregular condom use, unsafe abortions, and forced sex were found by the same study (Puri 2002).

Vulnerability to HIV continues especially among mobile populations, such as seasonal labour migrants and their spouses, trafficked women and girls, and children outside the family system.

Knowledge about HIV /AIDS is higher among the younger and more educated population. While the condoms are used for contraception by 2.9 percent of currently married women and 6 percent of currently married men, with 39 percent having used contraception at some time, inconsistent condom use is a serious problem. In terms of gender differences, men have more knowledge of HIV /AIDS (72 percent) than women (50 percent). However, the percentage of women who have heard of HIV/ AIDS nearly doubled from 27 percent in 1996 to 51 percent in 2001 (NDHS 2001).

Unfortunately, those infected with HIV are subject to stigmatisation and exclusion. There is an acute lack of HIV /AIDS counselling, care, and support. Most of the 62,000 people living with HIV /AIDS are not aware that they are infected and may engage in unsafe

sex. Possible stigmatisation and exclusion prevent them from taking advantage of the voluntary counselling and testing (VCT) services provided in 23 sites (3 government, 20 NGO sites targeting the high risk groups⁹) including Youth Friendly Services (YFS); and Sexual and Reproductive Health Services and Information, and seeking treatment if infected. Some NGOs also provide partial (non-comprehensive) VCT services. For the Prevention of Mother to Child Transmission (PMTCT), a national programme was recently launched in three government hospital sites. In terms of antiretroviral therapy (ART) programme, about 100 people are receiving the therapy, which is available only in two hospitals. A target of 3000 patients provided with ART has been set under the Government National Operational Plan for 2005.

The trend shows that unless programmes are implemented on a war footing, a generalised epidemic with high mortality in the most economically productive group will begin and will start a vicious circle. The spread of HIV/ AIDS will increase poverty and vulnerability, which in turn causes more infection and has serious impacts on the country's socio-economic condition. The achievement of the Goal on HIV /AIDS appears very remote.

SUPPORTIVE ENVIRONMENT

The Nepal Health Sector Strategy Implementation Plan (2004-2009) has set the goal of, "achieving the health sector MDGs in Nepal with improved health outcomes for the poor and those living in remote areas and a consequent reduction in poverty." It includes the Essential Health Care Package that promotes AIDS /STD (sexually transmitted diseases) control. In addition, the National Policy on AIDS and STD Control was adopted in 1995, with 12 key policy statements focusing mainly on multi-sectoral, preventive activities in partnership with NGOs in an integrated and decentralised manner. It underlined the promotion of safe sexual behaviour, counselling, confidentiality, screening of blood for transfusion without any discrimination in terms of age, sex, and infection. The national strategy on HIV/ AIDS 2002-2006 has the overall objective of containing the HIV/AIDS epidemic among vulnerable groups, and focuses on young people, mobile populations, FSWs, MSMs, IDUs, and children. In the strategy, five priority areas are clearly identified: 1) prevention of STI/HIV infection among vulnerable groups; 2) prevention of new infection among young people; 3) ensuring treatment, care, and support services; 4) expansion of the monitoring and evaluation framework through evidence-based effective surveillance and research; and 5) the establishment of an effective and efficient management system for an expanded response.

Various efforts have been undertaken to establish an adequate institutional framework to address the threat of HIV/AIDS. Nepal has established a high-level National AIDS Council (NAC), to be chaired by the Prime Minister to generate a multi-sectoral response. Its National AIDS Coordination Committee (NACC) came under the Health Minister, who approved work plans and guided the implementation of the national strategy for 2002-2006. The steering committee, chaired by the Health Secretary, reviewed programme activities, while programme implementation was delegated to the

⁹ There are still very few VCT sites targeting the general population.

National Centre for AIDS and STD Control (NCASC), supported by external development partners (EDP). There is continuing effort to maintain relationship and communications between the government, the NGO community, and the donor community as well as among NGOs to make progress for the development of new coordination and institutional capacity development mechanisms for a national response to the HIV epidemic.

The National Action Plan for 2005-2006 is expected to produce greater impact in terms of access to services and involvement of multiple partners, especially in affected communities. Approximately 65 percent of the resources needed for the Action Plan have already been pledged by external development partners, such as DFID, the Global Fund to fight AIDS, TB and Malaria, USAID, and the UN System. This support will make possible the scale-up of targeted prevention interventions, which will pursue a comprehensive package of services that include peer education, STI management, voluntary counselling and testing, condom distribution, and community sensitisation, among the priority communities. In addition, increased resources for HIV treatment, care, and support will expand the numbers of people with HIV who need to receive antiretroviral treatment to 30 percent.

The Plan will also aim to strengthen government and non-government implementation capacities. Improved facilities and equipment and better trained staff in HIV and AIDS at the district level will be an important aspect in the implementation of the Plan, in order to ensure that communities receive quality health care. Civil society organisations are key stakeholders in the implementation. Institutional development activities that will build on their existing technical experience and will improve resource mobilisation and management will be a major focus in the annual plan.

CHALLENGES

The original HIV surveillance system was introduced in 1991 in 7 sites. It covered 5 population sub-groups (FSW, patients with sexually transmitted infections, IDU, antenatal care attendants, and tuberculosis patients) at six-monthly intervals. However, the sites, the interval between the rounds, and the subgroups targeted were changed after a few rounds. Since 1995 the surveillance has been limited to the patients with STI and no round has been conducted for the past two years (UNICEF 2005). However, the government adopted a second generation surveillance system that has monitored sub-groups (IDUs, FSWs, truckers, male clients of FSWs, MSM and migrants) in Nepal since 1998, and has also collected both behavioural and sero-prevalence (i.e., testing positive for HIV antibodies) data.

People living with HIV /AIDS (PLWHA) have limited access to care, support services, and treatment; and have less opportunities for creating sustainable livelihoods. A comprehensive care and support service package for PLWHA is missing. Few organisations provide community care and support. PLWHA that have some resources often run community care centres providing nutrition, referral, HIV testing, counselling, and psychological support for PLWHA and their families.

Lack of educational awareness among women has been posing a significant challenge for the prevention of HIV /AIDS infection among women. Many women do not have control over their bodies and thus are subject to pressure to engage in unprotected sex. Furthermore, as a result of the breakdown of family units and social networks caused by the conflict, it is anticipated that the pressure on women who are now heading households has intensified, which could put them at a higher risk of exposure to HIV/AIDS through unprotected sex in exchange for money. The ongoing large-scale movement of the population, especially male youths, add further complications.

Despite policy commitment to multi-sectoral programmes and NCASC serving as the technical review authority which advises on policy and funding issues and acts as secretariat to the NACC, HIV /AIDS is still seen as a 'medical' issue, resulting in limited involvement from other ministries. While the fund flow continues from foreign sources, the capacity for multi-sectoral involvement, especially among ministries, and the monitoring and evaluation system seem structurally inadequate. This is a critical gap given the multi-faceted problem of HIV /AIDS.

Improved coordination and the increased efficiency and effectiveness of various programmes are urgently called for, as the estimated resource requirement is very high. The figure derived by an exercise in 2002 on the resource requirement of the national HIV/AIDS strategy for the period 2003-2006 was US\$ 51 million, depending how the strategy was operationalised (Country Report for Nepal Jan-Dec 2002 for UN General Assembly Special Sessions - mimeographed). For the period of 2005-2015, the total cost involved for HIV /AIDS interventions is estimated to be Rs. 4830 million (World Bank 2004). A positive development in this respect is that US\$ 14.7 million has been pledged for the annual estimated budget of US\$ 22 million, which leaves a gap of \$7.4 million for the period between July 2005-June 2006 (MoH 2005). In the absence of a national HIV /AIDS sub-account as part of overall National Health Accounts (NHA), monitoring the flow of resources is yet another challenging task.

TARGET 8: Have halted by 2015 and begun to reverse the incidence of Malaria and other diseases

INDICATORS	1990	1995	2000	2005	2015	
					Target	Will development goal be reached?
Prevalence rate associated with malaria (number of cases per 100,000 people at risk)	115	NA	65 ^b	78 ^{b.1}		Potentially
Proportion of population in malaria risk areas using effective malaria prevention measures	NA	9.75 ^{d.1}	6.94 ^d	11.4 ^{b.2}		

Slide positivity rate (SPR) ^e	5.1	9.2	4.3 ¹	NA	
Prevalence associated with tuberculosis	460	420	310	280	
Death rates associated with tuberculosis	43	35	23	NA	
Proportion of tuberculosis cases detected	NA	46	69	71	
Proportion of tuberculosis cases cured under Directly Observed Treatment Short Courses (DOTS)	NA	NA	89	88	

Source: a HDR 1996 (1992 data). b NPC/UNDP 2004 (b.1 and b.2: 2003 data).
d Rana 2001 (d.1: 2002 data). e NDHS 2004 (1: 2003 data).

STATUS AND TRENDS

Malaria control services including drugs are provided free to nearly 17.3 million people - or 74 percent of the population - at risk of infection in 65 districts. Priority is given to 12 high-risk districts, accounting for about 25 of the total population. This has been further classified into 'Stratum 1' with a very high incidence of falciparum malaria, and 'Stratum 2', which accounts for 20.6 percent of the total population. Both are covered under the 'Roll Back Malaria' (RBM) global initiative by Early Diagnosis and Prompt Treatment (EDPT).

The incidence of malaria cases has gone down to 65 in 2000 from 115 in 1990 which again increased to 78 per 100,000 people in 2003. The high-risk population in districts covered by preventive measures was 9.75 percent in 1996, before going down to 6.94 percent in 2002, and up again to 11.4 percent in 2003. An analysis of service statistics indicates a resurgence of *P. falciparum* malaria, increasing from 6 percent in 2000 to 11.75 percent in 2004. Resistance to routine drugs is on the increase. Malaria is expected to be contained in the Terai and is not seen higher than 1400 metres above sea level, but high prevalence has been observed in the hills and mountainous districts recently. From 2001 to 2004, the number of malaria cases in infants under one has steadily increased from 1 case to 9 in the Eastern Development Region and 5 to 33 cases in the Central Development Region. No cases were reported from the Midwestern Region in 2004, which was probably due to under-reporting caused by the conflict.

Not only is progress slow, but the situation has also become worrying because of the increase in the incidence of *P. falciparum*, drug resistance, and malaria incidence in infants. Unless urgent measures are taken, the goal will not be achieved. On the other hand, there is the potential for 'quick wins' with the use of modern technologies.

Tuberculosis contributes to 7 percent of the total burden of disease¹⁰. According to a WHO estimate, little more than two-fifths of the total population suffers from TB, of which 60 percent belongs to the economically productive age group. Almost half the 44,000 people suffering from TB have infectious diseases that can spread unless treated. The use of Directly Observed Treatment Short Course (DOTS) has made remarkable strides in the cure rate of TB. Although reduced, death rates are still in the range of 6000 to 8000 per year. As long as prevalence of HIV /AIDS is low, the decline in the incidence of TB will be permanent, and the target to reverse the trend of tuberculosis and to halt it by 2015 will be achieved. Thus from a death rate of 43 per 100,000 in 1991, the death rate is expected to go down to 13 per 100,000 by 2015. But given the anticipated HIV/AIDS epidemic, an opportunistic infection like tuberculosis will go on the attack. It is estimated that 10 percent of HIV /AIDS patients will progress from TB-infection to full-blown tuberculosis every year (DOHS 2004).

It is noted that even if the rate increases by 0.1 percentage points each year, prevalence in 2015 will reach 1.4 percent. This means a reversal of the gains otherwise expected, preventing the meeting of Target 8 on tuberculosis. If it were not for the prevalence of HIV /AIDS, progress in tuberculosis control would be satisfactory. A short course of anti-tuberculosis chemotherapy under DOTS has revolutionised the cure rate since 2001.

SUPPORTIVE ENVIRONMENT

The inclusion of malaria in the Essential Health Care Package shows the priority it has received in government programmes. The Vector Disease Research and Training Centre in Hetauda has contributed to research and training. In 2003, Global Fund for HIV /AIDS, Tuberculosis and Malaria (GFATM) approved a five-year grant of US\$ 7.6 million to augment the implementation of malaria control activities in Nepal. The Global Fund (GF) programme sets out to reduce the incidence of malaria in twelve target districts. Its goal is to reduce the malaria burden and elevate the health status of the population in high-risk districts by working through community-based action and partnership supported by an effective Primary Health Care (PHC) system. A successful implementation of the plan will help to attain this goal.

The Roll Back Malaria global initiative aims to reduce morbidity and mortality from malaria by more than 90 percent by the year 2010 from the baseline level of 2001.

The Nepal Tuberculosis Centre is well organised and DOTS is available at all the health facilities down to the sub health post level, with good public/private participation. Functioning laboratories for sputum examination and the setting up of regional centres with assistance from I/NGOs for quality control are necessary supportive measures. The multi-drug resistance (MDR) problem is decreasing in newly-registered cases and is a sign of an

¹⁰ Burden of disease means death, illness, and disability accounting for more than two-thirds (68 percent) of infectious diseases, maternal and perinatal disorders and nutritional deficiency disorders (MOH Second Long Term Health Plan 1998).

effective DOTS programme. The TB programmes have benefited from harmonised donor support, and the Global Fund for HIV/AIDS, Tuberculosis, and Malaria has agreed to fill the financing gap for the TB programmes for 2006-2010. In addition, the Global Fund is expected to fill in the implementation gap to combat malaria in 12 districts identified as high-risk. The project has begun to distribute Insecticide Treated Nets (ITN) free of cost to the poor and at subsidised rates to the non-poor.

CHALLENGES

The overall malaria situation has deteriorated recently as a result of the conflict. People from non-endemic regions of Nepal have been compelled to move to endemic parts of the Terai for security. In addition, conflict-related poverty is increasingly forcing people to seek poorly paid seasonal work in highly endemic parts of India. About 1 million Nepalese cross the border each year for seasonal work and many return infected. This phenomenon has important implications for the development of drug resistance in Nepal.

Critical weaknesses in management capacity have threatened to undermine the impact of existing GF. There are no laboratory facilities in some endemic areas. Microscopes are lacking or they are not maintained properly. There is a lack of motivation in peripheral workers resulting in low slide collection, and non-examination of slides due to unfilled laboratory posts. Of the 66,500 malaria patients reported as treated in 2003, just 9500 were laboratory-confirmed cases. This is serious as it can contribute to drug resistance. Therapeutic efficacy for sulfadoxine-pyrimethamine (SP) against falciparum malaria during epidemic years in three of the most affected districts revealed that treatment failure ranged from 56 percent to 87 percent.

The pace of Indoor Residual Spraying (IRS) is not only very slow, but doubts have been cast over the quality of the insecticides. Sometimes the spraying pumps are poorly maintained and spare parts are unavailable. Malaria surveillance is weak, and the capacity to detect outbreaks in a timely manner is low.

Tuberculosis generally affects the poor, and the malnourished living in over-crowded spaces, which is particularly common in the context of rapid urbanisation. The prevalence of HIV/AIDS is a serious challenge, and 10 of AIDS patients contract full-blown TB every year. Resistance to drugs due to irregular and indiscriminate use is another challenge.

Nepal also needs further resources if it to achieve the Target. The financial requirement for both malaria prevention and treatment is expected to increase from Rs. 166.2 million (US\$ 2.4 million) in 2005 to Rs. 274.9 million (US\$ 3.9 million) in 2015 (NPC 2004).

GOAL 7: ENSURE ENVIRONMENTAL SUSTAINABILITY

TARGET 9: Integrate the principles of sustainable development into country policies and programmes and reverse loss of environmental resources

INDICATORS	1990	1995	2000	2004
Area under forests (percent)	37 ^a	29 ^b		
Area protected to maintain biological diversity (sq. kms)	10,948	20,077	20,077	28,585.7 ^c
Energy use per unit of GDP(TOE/mRS) ^d	34.8	29.0	28.4	29.6
Proportion of people using wood as their main fuel (percent) ^e	75	67.74	67.74	69.1
Commercial Energy/GDP (TOE/mRS) ^d	1.44	3.91	3.91	3.64

Sources: a MFSC 1988 (From aerial survey in 1978). b MFSC 1994. c DNPWC 2005. d MOF 2003/2004 and WECS 2003/2004. e CBS 1996 and 2004. NA=not available.

FORESTS AND BIODIVERSITY

STATUS AND TRENDS

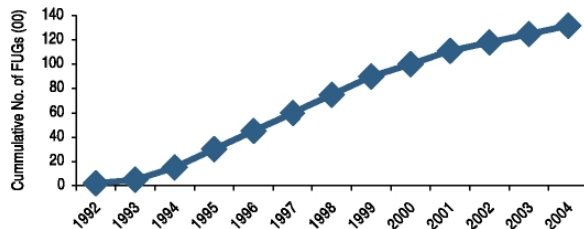
In Nepal, 29 percent of the total land area is covered by forest and 10.6 percent by shrubs (MFSC 1994). Since the shrubs have the potential to turn into forest areas, the total area under forests is 39.6 percent. The Forest Master Plan (1988) which was based on the 1978 data showed 42 percent (37 percent forest and 5 percent shrubs) of the total land covered by forest areas. The 1994 survey however, revealed that the country saw a decline in forest area, compared to that in 1978 (MFSC 1988).

Over the past few decades, community-based forest resource management (CBFRM) regimes whereby local and indigenous people are actively involved in forest, land, and water resource management have shown good results in maintaining forest cover and biodiversity richness, and experience with pioneering instruments such as participatory community-based forest management has been regionally acknowledged.

These participatory management regimes are intended to directly or indirectly address the overarching national goals of poverty reduction and sustainable development. For example, leasehold forestry regimes are believed to be in the front line in the alleviation of poverty and in restoring degraded land, while community forestry has also helped enhance forest quality and coverage. Over the years, the number of community forest user groups (CFUGs) involved in forest management has increased (Figure 7.1). Recently

however, the trend has declined because the majority of the accessible forests in the hill and mountain areas have been handed over and the government has restricted the handover of large blocks of forest in the Terai. Several studies have indicated positive impacts of community forestry, such as an increase in biomass and plant abundance, and decrease in the number of open patches inside the forests.

FIGURE 7.1: Pattern of handing over of community forests to FUGs



Altogether, there are 19,961 CFUGS involved in managing community forests throughout the country. Similarly, 2378 leasehold forest groups are managing 9000 hectare of forestlands (DoF 2005 estimate). Among the NGOs, the FECOFUN has been playing a key role in forest management and development. Different community groups involved in community forestry, leasehold forestry, buffer zones management programmes, and collaborative forest management are managing about 30 percent of the country's total forest area and are moving towards self-reliance (MFSC 2005).

A watershed management programme is also contributing to an increase in agricultural productivity through water, soil, and forest conservation initiatives. Buffer zone management programmes have made explicit efforts to link local livelihood needs with conservation needs in and around protected areas through participatory measures to enhance people's economic opportunities and reduce pressure in core areas. The current challenge is to ensure the traditional rights of indigenous, poor, and socially disadvantaged groups over natural resources in the buffer zones and protected areas of Nepal.

Given the fragile physiography of the country and the fact that the majority of the people live in rural mountainous areas, the poverty-environment-health and vulnerability nexus is very strong. The different community management regimes described above have resulted in strengthened environmental governance and livelihood enhancement through benefit sharing incentives along with enhanced access to resources. Many rural families depend on ecotourism and on the trading of non-timber forest products (NTFPs). Medicinal and aromatic plants (MAPS) provide a source of income, medicines for primary health care, and revenue for the national treasury.

Biodiversity conservation contains area of critical importance for Nepal's environment, because, it possesses a large diversity of flora and fauna, at genetic, species, and ecosystems levels (MFSC 2002). This is due to the climatic diversity in the vertical world of the Himalayas.

The area under protection in order to maintain biological diversity has increased from 10,948 sq. km in 1990 to 28,585.7 sq. km in 2004. This comprises about 19.4 percent of the country's total area, and represents all ecological zones. The protected area system includes 9 national parks (36 percent of the total protected areas), 3 wildlife reserves, 3 conservation areas, 9 buffer zones, and one hunting reserve (MFSC 2002). Due to their outstanding ecosystem and landscapes, two of Nepal's National Parks are listed as World Natural Heritage sites. Similarly, four sites are designated as Ramsar sites.

Wetlands have been recognised as one of the Nepal's most important ecosystems and are important in terms of their ecological, cultural, and economic value. Nepal contains different types of wetlands but the largest coverage is by river systems (53 percent) followed by paddy fields (43.6 percent) (MFSC 2002). These ecosystems harbour 25 percent of Nepal's biodiversity. About 172 species of the major wetland plants are listed (IUCN 1995). Out of 860 birds species found in Nepal, 193 are known to be dependent on the wetlands (Bhandari 1998). Globally significant wetland sites such as the Koshi Tappu Wildlife Reserve, Ghoda Ghodi Tal, Jagdishpur Reservoir, and Bish Hazari Tal are conserved and protected as per the specification of Ramsar sites.

Nepal has a high degree of agricultural biodiversity (crop and animal genetic resources) that is largely associated with the hills and mountains, where variation in factors such as topography, slope, aspect, and altitude allow for an enormous range of biological environment, climatic regimes, and varied ecosystems. For example, out of more than 500 species of plants that are edible, 200 are cultivated species (MFSC 2002).

SUPPORTIVE ENVIRONMENT

Nepal has a variety of enabling policies and the institutional environment to ensure environmental sustainability, which is supported by external development partners as well as NGOs. Furthermore, as explained above, various CBFMR regimes have made significant contributions to enhancing environmental sustainability as well as poverty reduction.

The Master Plan for the Forestry Sector (MPFS) provides a twenty-one-year policy and planning framework for the forestry sector. The Nepal Biodiversity Strategy (NBS 2002), reflects the national commitment to adopt a more cohesive, strategic, and comprehensive approach to conserving biodiversity and for the wise use of biological resources. Among the six priority programmes under the NBS are national forests, protected areas, wetlands, agro-biodiversity, rangelands, and mountain biodiversity. In line with the NBS vision, a landscape-based approach for biodiversity conservation is articulated in the PRSP (2002-2007) to ensure coherence between productive and protected landscapes. The SDAN (2003) provides a national vision for integrating the environment dimension in the overall national planning framework. Several regulatory and policy updates include the National Ecotourism Strategy (2004); the Buffer Zone Regulations and Guidelines - updated (2004); legislation drafted to permit the farming of common wildlife species, e.g. wild pigs, deer, and elephants (2004); the National Wetland Policy (2003); and the Herbs and NTFP Development Policy (2004).

Some specific outputs related to *in-situ* conservation achieved in the recent past are as follows:

- A National Register of plant species has been established in the Department of Plant Resources of MFSC.
- Biodiversity 'hot-spots' such as Badimalika, Phulchowki, Barandabhar and Tinjure-Milke-Jaljale forests with rich genetic resources are legally protected and managed or are recognised for conservation.
- A National Register of medicinal and aromatic plants (MAPS) was updated in 2004.
- A Central Biodiversity Information (database) and Monitoring Centre was established at the Department of National Parks and Wildlife Conservation.

Under the agro-biodiversity policy, *in-situ* and *ex-situ* conservation strategies are being adopted by the National Seed Board of Nepal, the Nepal Agricultural Research Council (NARC), and District Agriculture Offices (DAO). Furthermore, a national database and inventory for indigenous livestock has also been set up in NARC, along with a conservation action plan. MFSC, with support from development partners, has been preparing a Churia Area Programme Strategy (CAPS) which is expected to contribute to the conservation of the fragile Churia environment.

CHALLENGES

Despite the innovations on the policy and regulation front, which includes salient strategies such as the SDAN and the NBS (2002), progress in their implementation is poor as the mechanisms and capacities to translate these strategies into actions are lacking. Without a due assessment of institutional capacities and sectoral buy-in to translate policies into action, results will remain weak. Since achieving environment outcomes requires other non-environment related ministries to have the appropriate policies, capacities, and regulations in place, this sort of inter-sectoral mainstreaming is an aspect that requires stronger impetus.

Further challenges include conflicting provisions between various policies and acts. For example, the Forestry Sector Policy (2000) mentions the Collaborative Forest Management Strategy for managing the forest block of the Terai and the Inner Terai. The Forest Act, on the other hand, contradictorily stipulates that all national forests can be handed over to the FUGs. Although the LSGA has provided ownership and authority over the forests in and around the local bodies, it contains conflicting provisions, with altogether 23 Acts including Forest, Environment, and National Park and Wildlife Conservation Acts.

Institutional bottlenecks such as centralised decision making, the duplication of responsibilities, fragmented responsibilities, and the lack of an integrated framework for coordination among responsible agencies are notable. Similarly, equity in benefits sharing and lack of inclusion in community management regimes of particularly deprived ethnic communities are other key challenges.

While the primary aim of community forestry in terms of maintenance of forest cover has been by and large achieved, there are second generation issues such as good governance, livelihood strengthening, and equity aspects which need to be strengthened. The Tenth Plan advocates on these issues, in terms of redirecting the focus of the community forestry programme and setting up mechanisms for fair and equitable benefit sharing of genetic resources. The current challenge of the area is to reorient attention to livelihood promotion, good governance, and sustainable forest management.

Similarly, policies related to national parks and conservation areas have to tackle commercial interests in protected areas and buffer zones. This underlines the belief that appropriate policies and robust institutions to include local participation are necessary to affect conservation outcomes. Furthermore, having a mechanism for trans-boundary partnership to encompass ecosystem management and species conservation has long-term significance.

Rapid demographic changes and weak land planning have resulted in habitat loss. Political instability and insurgency has affected programming and planning for conservation activities, while the lack of clear scientific data on the impact of the decade long conflict on natural resources makes future planning difficult. In the absence of locally-elected structures, and in the presence of fragmented institutions, maintaining the momentum of community-led regimes for resource management remains a challenge due to issues of security and access.

ENERGY

STATUS AND TRENDS

After the initial decline during the first half of the 1990s, energy use per unit of GDP has slightly increased in the past few years to about 30 TOE per million rupees and the commercial energy component has increased steadily to about 3.64 TOE per million rupees of GDP (MOF 2004). Around 40 percent of the population has access to electricity (CBS 2001) but the gap between urban access (87 percent) and rural access (27 percent) is very large (CBS 2004). Moreover, the Nepalese are the lowest per capita electricity users in South Asia (around 70 kilowatt-hours per year).

The energy consumption in Nepal is still dominated by traditional energy which makes up 87 percent of the total energy consumption in 2004. Moreover, fuel wood accounts for almost 90 percent of the total traditional energy of 7,397 TOE. Agricultural waste and dung are the other types of traditional fuel being used in Nepal. The use of commercial energy is also increasing rapidly, particularly petroleum products at 769 TOE, and electricity at 139 TOE (MOF 2004). The proportion of households using wood as their main source of cooking fuel has increased slightly from 67.8 percent in 1995 to 69.1 percent in 2003, whereas the proportion of people using cow dung and other resources such as straw as a source of fuel has decreased from 25.8 percent to 15.7 percent during the same period. While the proportion of people using liquid petroleum gas (LPG) saw a

big jump from 0.99 percent in 1995 to 8.2 percent in 2004, the use of kerosene remains almost unchanged (CBS, 1996 and 2004).

There is an urgent need to change the energy consumption profile of Nepal, as the majority of the population still depends heavily on fuel wood. This represents a major challenge to environmental sustainability, because the fuel wood is mostly extracted from forests, causing deforestation, landslides, and erosion. The consumption of cleaner fuels, which stands at a very low level at present, needs to be increased substantially.

In Nepal, much emphasis has been placed on promoting alternative energy, especially since the early 1990s. With respect to ensuring environmental sustainability, the renewable energy initiatives have been contributing in three primary ways.

Firstly, renewable energy such as biogas and improved cooking stoves (ICS) reduces or reverses the forest depletion process. For example, it is estimated that ICS can reduce fuel wood consumption in the range of 25 percent to 40 percent (AEPC 2004). Secondly, the availability of power in the rural areas opens up a host of new income and employment opportunities through micro, small, and medium enterprises which divert or limit people who otherwise would have been expanding cultivation on marginal land or would continue selling fuel wood to earn their livelihoods. Thirdly, the renewable energies have been facilitating information and communication technologies.

Various types of renewable energy technologies have seen a steady expansion over the years. By the end of 2004, there were about 1500 pico- and micro-hydro electrification plants serving approximately 80,000 households; over 800 turbine mills, serving thousands of rural households (AEPC/CADEC 2004); more than 123,000 biogas plants installed in 66 districts with more than 860,000 beneficiaries (BSP Nepal 2005); over 150,000 ICS built with even growing demand; and approximately 2000 improved water mills installed. The trend from 2001 to 2004 in the use of these different technologies indicates a sharp rise in the number of installations of ICS, but a gentle decline in the others - micro-hydro plants, solar home systems, and biogas technology.

SUPPORTING ENVIRONMENT

The combination of grid-based and off-grid decentralised options, including both electricity and non-electricity technologies, has resulted in significantly enhanced access to modern sources of energy for rural people.

The breakthrough for the promotion of renewable energy came with the Electricity Act (1992) which created an environment conducive to community and private sector participation in hydropower development. The Ninth Plan (1997-2002) put emphasis on these new energy technologies, which was further enhanced by the 2001 Renewable Energy Subsidy Policy which introduced subsidies for the construction and rehabilitation of micro-hydropower, solar power, improved water mills, and biogas schemes. The Tenth Plan has given top priority to the renewable energy sub-sector. It has targeted to provide electricity to 12 percent of the rural population from the alternative energy sources.

Currently, a new Rural Energy Policy is being prepared. Its key objectives are the enhanced participation of communities and the private sector in rural energy development as well as the promotion of modern energy technologies in place of traditional biomass and fossil fuels.

Various multilateral and bilateral development agencies as well as NGOs have been supporting the government's efforts in this sector, with a particular emphasis on renewable energy sector in Nepal. Since 2000, under the leadership of the Alternative Energy Promotion Centre (AEPCC) established under the Ministry of Environment, Science and Technology, various projects, programmes and fund/subsidy flow have been streamlined.

Ensuring sustainable development of renewable energy services

The key challenges in this area are as follows:

- Continuity in commitment by the government and external partners to the sector will determine the sustainability of the programmes, as the financial resources required for the installation of alternative energy systems have been identified to be in the range of 2.3 billion rupees per annum.
- policy and implementation gaps in the harmonisation of off- and on-grid rural electrification programmes;
- negative impact of the ongoing conflict on the new installation as well as the operation of installed systems in some cases; and
- constraint on high quality installation and repair and maintenance of renewable energy technologies by insufficient availability of skilled human resources.

CHALLENGES

Despite some notable achievements in providing access to modern energy services to Nepal's rural population, the sector still faces major challenges. On top of the problems such as leakage of electricity which is estimated to be more than 20 percent and loss of energy and poor cost recovery, the three key challenges to the energy sector in the country are the following.

Limited access to renewable energy services of the poor, and particularly in remote areas

Major challenges that have hindered access are:

- low affordability and lack of a financial support system for the poor - capital intensive technologies like biogas and solar PV have mainly reached the rural middle class;
- lack of access to information about benefits and policies;
- lack of adequate technical /managerial support; and
- lack of awareness among the general public about the negative health impacts of indoor air pollution and other environmental and social impacts of continued use of conventional energy.

Productive end use of renewable energy in rural areas

The key challenges include:

- small local market, viz. low purchasing power of local people to consume the goods produced using alternative energy;
- inadequate transportation facility for movement of goods;
- lack of access to information about the production technology to utilise local energy resources and market information;
- lack of adequate financial support systems; and
- lack of managerial, technical, and financial skills/ expertise.

TARGET 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water

INDICATORS	1990	1995 ^b	2000 ^c	2005 ^d	2015	
					Target	Will development goal be reached?
Proportion of population with sustainable access to an improved water	46 ^a	70	73	81	73	Likely
▪ Rural	43 ^a	68	71	79	72	
▪ Urban	90 ^a	96	86	93	95	
Proportion of population with sustainable access to improved sanitation	6 ^e	22	30	39	53	
▪ Rural	3 ^e	18	25	30	52	
▪ Urban	34 ^e	67	80	81	67	

Sources: a Nepal Family Health Survey 1991. b CBS 1996. c MoH, NDHS 2001. d CBS 2003/04.
e Nepal State of Sanitation Report (Colombo Resolution 1990)

STATUS AND TRENDS

While the MDG target aims to increase "sustainable access to safe drinking water," this is difficult to assess, due to wide variations and definitions in water supply. The available data was derived from various surveys which used different criteria. If 'access to drinking water' is examined, Nepal has been making a rapid progress in this area, as presently 81 percent of the total population has access to improved water sources, compared to only 46 percent in 1990.

¹¹ "An improved water source" means piped water, tube wells, well, hand pump, borehole, dug wells or natural springs.

Given the importance of adequate water supply and sanitation, there has been significant progress in a relatively short space of time. During the Water Supply and Sanitation Decade (1981-1990), for example, the population with access to a protected water source rose to 36.7 percent. However, according to a recent survey, out of the 5000 water points in 22 hill districts, only 21 percent are functioning as designed, 56 percent require major repair, and 21 percent need complete rehabilitation (DWSS/WAN 2003). This suggests the dimension of the problems of the water supply system and warrants scrutiny.

Overall, sanitation coverage increased substantially from 6 percent in 1990. The NLSS 2003/04, the most recent survey data available, found that the percentage of households with access to toilets was 39 percent. With all the sectoral players participating, National Sanitation Week alone prompted the construction of 60,000 toilets within a short period (DWSS 2004).

However, it must be noted that significant disparities exist in access to water and sanitation, in spite of the rapid expansion of the last fifteen years. In Nepal, the richest quintile is 13 times more likely to have piped water in their homes than the poorest quintile (39 percent vs. 3 percent), and are nearly eight times more likely to have improved sanitation (79 percent vs. 10 percent) (UNICEF 2005, based on NLSS 2003/04). In addition, there is a considerable degree of geographical disparity, as shown in Map 7.1. It should also be noted that in Nepal, especially in urban areas, having access to improved water sources does not mean that water is always available in sufficient quantity, as many households do not receive a regular supply, particularly during the dry season (UNICEF 2005). The reliability and service level elements of water access need to be carefully assessed.

Over the years, the gap between the urban and rural areas has been narrowed in terms of access to water and sanitation coverage. For water supply, the rural coverage has been showing steady progress and reaching the Target is likely. On the other hand, progress in urban areas has stagnated, due to the rapid population increase in urban centres and the inability of the urban system to keep up with growing demand. For sanitation coverage, most households in urban areas have toilets, and progress has been on track. In rural areas, coverage is still low and accelerated efforts are needed to meet the MDG target.

As for water quality, the national standards for assessing water supply, including its safety and sustainability, have now been introduced. By these standards, 5 percent of the population currently has access to a high-quality water supply, 20 percent to a good quality water supply, with 75 percent relying on a basic-quality one (DWSS 1997). Nevertheless, many so-called 'safe' water sources may be contaminated through the seepage of wastewater around the outlet, contamination at the source, or contamination during transmission. According to a survey by the Department of Water Supply and Sewerage, 55 percent of tubewells in 20 Terai districts were microbiologically contaminated (DWSS 2002).

Arsenic contamination, which occurs naturally in the groundwater of the Terai, has also been a growing concern in many Terai districts. A recent survey has indicated arsenic contamination even in the Kathmandu Valley. The National Arsenic Steering Committee

reported that 15 percent of the 339,515 tube wells have arsenic levels above the WHO standard and 3 percent above the Nepal standard. Even by the Nepal standard, about 300,000 people are using arsenic-contaminated water. By WHO standards, the figure for the number using arsenic-contaminated water is as high as 1.5 million. If bacterial contamination were considered, the population using unsafe water would be far greater (UNICEF 2005). Thus, if the strict definition of access to safe drinking water were applied, Nepal's coverage could be considerably lower.

As for wastewater, thus far, most of the institutional arrangements over wastewater management have been focused in the Kathmandu Valley. The valley's wastewater management infrastructure consists of treatment plants, pump stations, collector mains, and interceptors. Due to inadequate management, most of these plants and equipment are either out of operation or are only partially operational. Four out of the five treatment plants in the valley are out of operation. As a consequence, raw sewage is being discharged directly into water courses polluting them, damaging the environment, and increasing the risk of the spread of disease.

Solid waste makes up 83 percent of the total waste generated in the country, of which agricultural waste is 11 percent and industrial waste 6 percent. Increasingly, solid waste and plastic litter are a visible environmental problem. Urban households generate the most solid waste in the country, at 0.48 kg per capita per day. In 1999, three million urban residents of 58 municipalities generated a total 426,486 tonnes of waste, out of which Kathmandu's share was 29 percent (HMG/ JICA 2004). Medical waste alone in the valley is generated at the rate of 1.7 kg per day per bed, out of which infectious waste is generated at a rate of up 0.48 kg per hospital bed per day. Thus, the valley's estimated 3905 hospital beds generate up to 1,312 kg of infectious waste per day. Most of this waste is either dumped as ordinary garbage or burned in ordinary kilns (ENPHO 2000).

SUPPORTIVE ENVIRONMENT

The aim of the National Water Plan (2002-2017) was to meet the increasing demand for drinking water and for sanitation. According to this plan, by 2017 the entire population will have access to a water supply, of which 27 percent will have medium- to high- quality water supply, while a full 100 percent will have access to sanitation facilities. The plan also addresses urban sewerage and wastewater treatment related to drinking water, as well as sanitation.

The revised Rural Water Supply and Sanitation National Policy 2004 clearly indicates that the government and local bodies will regulate, monitor, and facilitate the implementation of rural water and sanitation plans and programmes. The role of the line agencies is to provide policy guidance and technical back-up while NGOs will assist community user committees in formulating and implementing projects, managing funds, carrying out pilot schemes, and recommending policy and programme modifications.

The PRSP (2002-2007) sees the problem of final disposal as the major challenge in solid waste management, especially in the Kathmandu Valley. It also emphasises infrastructure

development as the long-term solution. A major initiative, the Melamchi Water Supply Project, is aimed at meeting the medium-term needs for water supply of the Kathmandu Valley.

The lead agency in the water and sanitation sector is the Department of Water Supply and Sewerage (DWSS) under the Ministry of Physical Planning and Works. The Department directly executes large rural water supply schemes funded directly by the government and the Asian Development Bank (ADB) under the Fourth Rural Water Supply and Sanitation Project. They also execute urban schemes under the ADB-funded Small Town Water Supply Project. The World Bank also funds rural water supply projects through the Rural Water Supply and Sanitation Fund Development Board (RWSSFDB) and more recently it has been playing key role in providing water supply and sanitation services in the rural areas. The Ministries of Health, Education and Local Development are also involved in efforts complementing those of DWSS. Some initiatives include putting the subject of sanitation into secondary school courses and introducing environmental education at the primary level. Grants have also been provided to village development committees for drinking water and sanitation work, resulting in some promising local initiatives (Box 7.3).

DWSS is also the lead agency for sanitation. The National Committee for Sanitation Action (NCSA) coordinates the sanitation activities of the numerous agencies working in the sector, advises on policy and strategic issues, and plans and manages the activities under the National Sanitation Action Week. An example of the collaborative effort promoted by the NCSA to develop a strategy to accelerate latrine coverage is indicated in Box 7.4.

Various HMG/N organisations and institutions are involved in solid waste management (SWM) at the policy and organisational level. The Solid Waste Management and Resource Mobilisation Centre supports the Ministry of Local Development to: (a) develop appropriate legislation; (b) develop environmental guidelines; (c) deal with landfill site development issues; (d) provide financial support wherever appropriate in all aspects of solid waste management; (e) provide technical support to municipalities; (f) enhance the capabilities of municipalities; and (g) act as a link between the ministry and municipal bodies. Local bodies such as the municipalities assume the core operational responsibility of managing solid waste in their own jurisdictions.

CHALLENGES

The increasing demand for water for drinking, industry, and irrigation have outstripped the improvement rates in water supply and sanitation facilities. As a result, major towns and cities in the hills are facing acute shortages. The CBS study (2005) carried out in Kathmandu shows that 59 percent of the surveyed households do not have an adequate water supply from the piped water line, and on average, water is available only four days a week. In many cases, water quality deteriorated due to a lack of treatment plants and poor supply network. There are no proper sewerage networks in the rural areas or even in the municipalities except in core areas of the municipalities in the Kathmandu Valley. Existing as well as newly-emerging towns are likely to face a scarcity in drinking water and sanitation.

Ensuring water quality is also a major challenge in Nepal. As indicated earlier, because of source contamination, even piped drinking water is unsafe in many areas almost throughout the year. Nationally, 30 percent of the households reported incidences of diarrhoea, dysentery, jaundice, and typhoid or cholera. Among children under five years of age, the prevalence of diarrhoea was 20.4 (MoH/New ERA ORC MACRO 2002). Nearly 3 percent of the groundwater supply of drinking water in the Terai is contaminated with unacceptable levels of arsenic and some contamination has been found in groundwater in Kathmandu as well. Even if the water source is not contaminated, drinking water is often contaminated at the household level, for example because unclean containers are used or water becomes contaminated during storage. Improving the management and treatment of drinking water at the household level is an appropriate option for the country.

Kathmandu lacks a planned wastewater management infrastructure. The CBS study (2005) also states that two-thirds of the households in the Kathmandu Valley have access to a sewage facility. Almost all domestic wastewater and industrial wastes are discharged directly into the Bagmati and Bishnumati rivers without treatment throughout the year. Essentially, the rivers are turned into open sewers during the dry season. Sewerage service coverage of these plants is limited, considering the population of Kathmandu, and its operation cost is high and difficult to sustain.

While experience with rural water supply indicates that community participation helps to make drinking water and sanitation initiatives cost effective, the situation in the urban areas has been almost the reverse. The water supply systems in the urban areas have not even been able to recover the costs. In addition, they suffer from both an inefficient distribution system and a high level of leakage.

Sanitation has always been a low priority programme area, never receiving the attention and resources to make any significant improvements, although there are indications this is changing. During the past two to three years the NCSA, under the leadership of DWSS, has been effective in raising awareness about the importance of sanitation and facilitating a collaborative effort among a large number of agencies. Promoting sanitation through schools is an emerging strategy that has the potential to significantly increase coverage. The major challenge is to convince the various agencies to adopt a common approach and allocate adequate resources to reach the MDG targets.

The MDG Needs Assessment Study has identified the intervention packages that would enable the fulfilment of the MDG. The study estimated a resource gap of Rs. 137.398 billion (US \$1962.83 million) in investment from 2005 to 2015 for drinking water and sanitation. It is certain that drinking water will require the largest amount of resources. At the same time, the stress will have to be not only on increasing coverage but also on improving the quality of coverage. The solid waste management and sanitation sub-sector has not received adequate attention, in resources and institutional reforms, as it is overshadowed by the needs of water supply.