Equity in Health in Nepal: A study report

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Published by
Center for Health Policy Research and Dialogue(CHPRD)
Kathmandu, Nepal

Computer Layout & Printout : Yadhav aryal
(Jaygurudev printing house Pvt. Ltd.
Putalisadak, Kathmandu, Nepal)

Government of Nepal
Ministry of Health and Population

Tel No. 4-262590
Fax No. 977-1-4262802
Ramshahpath
Kathmandu, Nepal

Ref. No.

Foreword

Equity is of paramount importance in health and development. Many of our policy and strategy documents include vision for achieving equity in health, however, we have not been able to adequately operationalize the vision into programme of actions .For doing so we must be able to understand and gain consensus on addressing two issues. The first issue is Equity for what? i.e. health, access, utilization, financing and expenditure. The second issue is Equity among whom? i. e. income, wealth class, caste and ethnic group, geography gander etcetera. There is always a policy dilemma in deciding how much inequity is inequitable.

Responding realistically to this dilemma is possible through extensive policy debate and dialogue and getting insight into what our society judge fair and what level of health or ill health it considers avoidable or unavoidable. In order to do so we need sound evidence base on the above two issues which could be used as basis for generating debate and dialogue for setting equity oriented objectives, targets designing implementation systems and monitoring indicators for equity in health.

In this context, this study on "Equity in Health" conducted by "Center for Health Policy Research and Dialogue (CHPRD)" which is a private sector institution has provided us with long felt need of evidence of the level and types of inequity in health in Nepal in three areas namely, socioeconomic determinants, health system and health outcomes related to MDG indicators which could be used for policy dialogue for designing equitable health system and achieve equity in Health outcomes.

We all know that New Nepal has a vision of creating an inclusive society without discrimination and has included "Basic Health as Human Right" in its Interim Constitution .The findings and recommendations contained in this document will be useful for operationalize the constitutional provision of basic health for all the people of Nepal by designing socially inclusive and equitable health system without discrimination.

Finally, I wish to thank and congratulate everyone who contributed to this study particularly the CHPRD for conducting this study as their own initiative, which is of national interest.

Sincerely yours

Dr. Dirgh Singh Bam
Officiating Secretary

Acknowledgements

We wish to acknowledge our grateful thanks to all who supported this study. Our speci thanks goes Dr. Bishnu P. Pandit, secretary of the Ministry of Health and Population fi his valuable inputs and to Dr. Samlee Plianbanchang; Regional Director WHO/SEAR(WHO representative and other WHO staff, Nepal and regional office, SEARO wh provided technical and financial support to this study. We wish to express our appreciatic and thanks to staff of NEW ERA and MACRO International for prompt response to ou queries and extending their help in further analysis of DHS data. Similarly we also wis to gratefully acknowledge the help and support of CBS staff in providing us support fc further analysis of NLSS data. Last but not the least we wish to the thank coordinato advisors and all the reviewers listed in the annex who reviewed the draft and provide valuable input for finalization of the report.

Equity in Health in Nepal: A study report

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Executive Summary

Equity in Health is an ethical concept grounded in the principle of distributive justice and consonant with human rights principle. Like most concepts equity in health cannot be directly measured. There is no universally agreed definition of equity.

World Health Organization (WHO) includes Equity in Health as a notion where the entire populations should enjoy the highest level of health in Alma Ata Declaration in 1978[1] and the same declaration also mentions that existing gross inequalities in the health status of the people are unacceptable.

Government of Nepal has shown very high level of political commitment for health in its policy and strategy documents like Three Year Plan (2008- 2010), NHSP (2004-2009) and is committed to achieve MDGs[2]. The government has invested significant amount of resource in health; currently a significant increase reaching to 7 percent of National Budget (2007/08) has taken place. The most recent National Health Account (2003-2004) shows that 62% of the expenditure comes from "out of pocket expenses "(OOPS)[3]. The DHS 2006 shows improvement in IMR and U5MR from 64 and 91 per 1000 live births in 2001 to 48 and 61 per thousand live births in 2006 respectively. Maternal mortality rate has also come down to 281 per 100,000 live births from 539 per 100000 live births in 1996. However the access is not equitable. About twenty two percent of population still doesn't have access to even the basic health care services. Similarly, malnutrition is still prevalent in over forty percent children under five, and there is emerging threat of human Immunodeficiency Virus (HIV) /Acquired Immunodeficiency Syndrome (AIDS). A significant level of inequity in health outcomes still exists in Nepal. Life expectancy is 74 years in the capital, but only 44 years in the mountainous district of Mugu. Similar differences have been seen in IMR between geographical regions, economic status, and educational level as reflected in 2006 NDHS.

The reduction of health inequalities is a challenge for many national and international health organizations including Ministry of health in Nepal. These challenges can be considered as opportunities for reorienting research, collecting evidence on equitable distribution, present health equity issues for wider public debates, review health policies and programs and devise innovative approaches for equitable access to health to all its citizens in the spirit of social justice. It is in this context that the Center for Health Policy Research and Dialogue has undertaken this study. This study is the first step taken by the Center to utilize the vast amount of existing high quality secondary data, which are scattered in various places to develop a database and analyse them to study for various level and types of inequalities and disparities in health in Nepal.

This study has been conducted under a conceptual framework, which studies pathways affecting equity in health in Nepal. These includes socioeconomic determinants, health system, geographical location and last but not the least social stratification by caste, ethnicity and gender which is highly prevalent in Nepal.

Various methodologies and statistical packages have been used to further analyze existing high quality data from Department of Health Services (DHS), Nepal Living Standard Survey (NLSS), District Health Profile, Health Management Information System (HMIS), Human Development Reports, and report from Department of Water Supply and Sanitation (DWSS). Details of data collection methodologies and analysis are included in the full text.

Association between social and other determinants such as Income level, education and human development index (HDI), water supply and sanitation coverage with health outcomes at National and district level have been studied.

Performance of health system has been assessed by utilizing and adapting WHO Framework for Performance Assessment of Health System with focus at the district level and differences between service coverage, health infrastructure per population, human resource per population, per capita public health expenditure between districts have been measured.

Equity in health outcome has been measured using selected indicators included in MDG in Maternal health, Child health, Nutrition and HIV/AIDS by using stratifiers such as Geographical location, Gender, Socioeconomic status and groups, and Caste and ethnic distribution and statistical analysis has been done to see whether differences are statistically significant. Trend analysis has been done to see whether the gap between the most advantaged and the most disadvantaged has been increasing or decreasing .In depth analysis has been done to get insight to questions such as do wealth quintiles make difference in the utilization of services by educational level of the mother? time trend of utilization among various ethnic groups, poverty levels and educational status over ten years. How is service utilization -affected by the place of residence in regions? Are Dalits; the most socially excluded caste group in Nepal, (just being Dalits) really not utilizing MCH at delivery? Which is strong barrier; educational status of mother or place of residence? Is one ethnicity disadvantaged across all (or most) maternal and child health indicators? How different indicators do compare across wealth quintiles? Which indicator reveals the greatest disparities? And what are the relative gaps in the indicators over the years among different groups.

Summary of main findings and key conclusions are as follows;

Disparities in socioeconomic determinants affecting health

Much of the profound inequity in peoples' health is influenced by socioeconomic determinants. Factors such as education, access to clean drinking water, sanitation, and a good start to life are just some of the social determinants, which affect health. Hand washing especially with soap is considered as a simple and highly effective means to avoid exposure to food and water borne diseases such as diarrhea. It was found that even such basic needs are not fulfilled in Nepal and many poorer people are suffering from diseases which are preventable as compared to the richer ones .It was also found that there were great disparities between disease prevalence, access, utilization and health outcome by levels of poverty and education

Political commitment of achieving Equity in Health not operational zed

Study of existing policy and strategy documents of the Government of Nepal shows that there is vision and high level of political commitment for providing equitable access to health services within the spirit of "Basic health as human right " Government of Nepal has taken major initiatives such as abolition of user fees in Health Posts (HPs) and Sub health posts (SHPs), free treatment in low HDI districts s and implementing Equity and Access program under the Safe motherhood program. However these programs are not planned on the basis of evidence based data, which show the type, and extent of disparities among various groups. These documents have not adopted clear operational definition of "equity in health" or "equitable access to health services" in Nepal neither they have adopted equity based targeting, implementation and equity monitoring.

Inequitable distribution of health infrastructure

The size of the population in a geographic area is the primary indicator of needs for health services and should be considered along with a range of other indicators of relative need such as the demographic composition of the population; amounts of sickness; the level of deprivation and poverty, the communities' ability pay for health care costs; and their level of dependence on public sector health services, roads and other factors which affect on health such as transportation infrastructures while designing and allocation of health infrastructures.

It was found that health infrastructures were allocated according to the political divisions of the country and did not take into account any of the above-mentioned factors. Most of the secondary and tertiary care facilities were available in capital and other cities, while primary health care infrastructure were available below the district level in rural areas as shown by the hospital population ratio and other health facility population ratio. There were extremely few private health infrastructures in lesser-developed regions and in rural areas.

Disparities in distribution in numbers and type of HRH

The human resources for health are the key actors who can provide equitable access of health services to the population. Analysis on the HR population ratio shows imbalance across the districts. Doctor population ratio was best in Kathmandu and worse in Midwest and Far western region.

Disparities in access and utilization

It was found that eighty percent of people in the richest quintile access health facility within half an hour compared to 50 percent among the poorest quintile. Similarly, majority of the poorest section of the community seek health services from community level health workers, SHP and HP whereas richer seek health services from hospitals Only 40 percent of the people access health facility within half an hour in Mountain compared to 80 percent in Terai..

Public sector Health resource inadequate with disparities in distribution

Government of Nepal has been steadily allocating more resources to health still is only 12-13 dollar per capita, 60 percent is from" out of pocket "and it is still much less than the recommendation of 24-34 dollar per capita from Commission on Macroeconomic and Health (CMH WHO 2000).

Resources are more concentrated in capital and other larger centers. District health system was grossly under funded. There were disparities in Per Capita Public Health Expenditure (PPEH) among districts. Allocation seemed ad hoc and incremental. Several high HDI districts were getting more per capita PPEH compared to low HDI district, which did not indicate fairness in financing. Regarding out of pocket expenditure, it was found that poor people spend less compared to richer ones implying unmet health needs, and possibly resulting to poor quality health services.

Health information system not adequate for monitoring equity and quality
Though HMIS produces good quality data on service statistics for monitoring progress against the targets set by the Ministry of Health, it doesn't capture the inequity in service provision. There are high quality district level data, which indicate disparities between the districts, but these data are not further analyzed to see the level of disparities, type of disparities etc. Similarly, information on ethnicity, poverty status etc are not captured by the existing system. Large scale surveys like DHS are analyzing nationally representative sample but they do not have analysis on important stratifiers like caste/ethnicity. There are as yet no systems put in place which looks into quality of care, client satisfaction and other qualitative data which indicate the circumstances and factors contributing to the disparities

Improving trend in MDG indicators, disparities and relative gaps in decreasing trend
Further analysis of MDG indicators 4, 5 and HIV/AIDS and nutrition showed significant level of disparities within the context of significant improvement in past 10 years. In the child health indicators, there was virtually no gender disparity. However, there were disparities by caste, ecological regions, wealth quintiles, residence and ecological regions. Among child health indicators, lowest disparities were found in immunization and the highest in nutritional status. Among maternal health indicators, ANC was affected most by the level of education. Among the caste groups, Dalits seem to be the most disadvantaged and privileged Janajati seemed to be most advantaged. Low level of education seemed to be stronger barrier than the place of residence for ANC, SBA and HIV/AIDS awareness. However, place of residence was stronger barrier than education in case of FP and accessing health facilities It was found that the relative gaps between the most advantaged and the most disadvantaged were on decreasing trend between 2001 and 2005. These are very positive developments seen during last five years indicating increasing access of preventive services to socially excluded and poor people

The recommendations made based on the above findings are as follows:

- Operational definition of equity in health needs to be formulated for Nepal through intersectoral consultations with involvement of several related sectors and adopted so that all the stake holders in health have the same understanding and existing political commitment for providing equitable access to health services can be operationalzed and monitored.

- As most of the inequities in people's health are socially and economically determined, multisectoral interventions like education, water and sanitation, housing etc should be considered while designing health strategies especially targeting the poor. Strategies for linking health with poverty alleviation programmes should be developed for increasing access of poor particularly to curative services.

- Environmental sanitation, hygiene promotion- and in particular hand washing-, and water supply should receive higher priority within the health strategies as they impact on IMR, U5MR and contribute significantly to disease burden in adults and children.

- Environmental disease burden should be assessed and appropriate strategies should be designed to reduce the burden.

- Reorienting of existing health policies and strategies in Nepal to pro equity policies needs to be considered. Pro equity policies have to find right balance between efforts to build or and expend existing institutions of health care, effectively reducing the barriers, while identifying and targeting those groups that would otherwise be excluded without special attention.

- "Characteristic targeting", "Direct targeting", and, "Disease specific targeting" should be used in combination for achieving equitable health outcome by addressing the needs of the poor with specific attributes which can cause further deprivation as well as by targeting to the specific needs of particular disease or condition.

- To remove disparities in access, utilization and health outcomes, as a component of pro-equity policy demand side barrier such as cultural, social, distance etc need to be identified and corrective steps taken along with "Free Health care policy" which tries to address the need of the poor from supply side.

- As access to health service is determined by distance and communication infrastructure, the present health care infrastructure, which is compatible with, political divisions should be revisited and additional facilities should be added in areas where they are inadequate by population density and distance.

- Need based formula should be developed for allocation of financial resources, human resources and for development of health infrastructure based upon level of poverty, geographical terrain, road transport infrastructure and other parameters so that people living in the remote disadvantaged districts can have access to services which are comparable to their advantaged counterpart living in better served districts.

- Steps should be taken for improving deployment and retention of doctors, nurses and other health forces to reduce existing imbalances in Human resource. The compulsory posting of doctors who studied using scholarship should be supplemented with incentive packages which might include career and skill development, dependant educational allowance, housing and improved communication in isolated areas.

- Equity related information should be collected by appropriate periodical survey to supplement MIS data.

- Information on resources and services spent from private sectors, NGOs and INGO sectors should be made available and considered while planning pro-equity policies and appropriate public private mix of equitable health system should be designed.

- Qualitative studies need to be undertaken to understand circumstances causing disparities as well as and demand and supply side barriers for certain social and ethnic groups which prevent them from accessing the services

- Socially inclusive health strategies should be developed designing health promotion and BCC massage targeting disadvantaged groups, and through involving those disadvantaged groups in planning and designing services delivery at local level.

Chapter 1

Introduction

1.1 Background

Concept of Equity in Health

Equity in Health is an ethical concept grounded in the principle of distributive justice and consonant with human rights principle. Like most concepts equity in health cannot be directly measured. There is no universally agreed definition of equity.

World Health Organization (WHO) includes Equity in Health as a notion (in Alma Ata Declaration in 1978[4]) where the entire populations should enjoy the highest level of health and the same declaration also mentions that existing gross inequalities in the health status of the people are unacceptable .In a widely cited1992 paper on the concepts and principles of equity in Health, Whitehead[5] defined health inequities as differences in health that are unnecessary, avoidable, unfair and unjust .In operational terms and for the purpose of measurement ,equity in health can be defined as absence of disparities in health and its key socioeconomic determinants that are systematically associated with social advantage or disadvantage. Health inequalities systematically put populations who are disadvantaged because of several reasons at further disadvantage with their health[6].

Health inequality is defined as variations in health status across individuals in a population. Health inequalities exist largely because people have unequal access to society's resources, including education, health care, job security and clean air and water – all factors that society can influence[7].

Inequalities that are *unfair* (that arise from social injustices) and *avoidable* are considered inequities[8]. Health disparities exists *between* the richest and poorest countries in the world and between richest and the poorest districts and communities within any country.

International Society for Equity in Health highlights an actionable definition of equity in policy and actions as "Active policy decisions and programmatic actions directed at improving equity in health or in reducing or eliminating inequalities in health[9].

As there is no universally agreed definition of Equity, every society must develop its own definition of equity in order to take action to reduce inequities.

Equity in health services implies that the resources and services of health sector are distributed and delivered in accordance to the needs of the populations.

While the rhetoric of equity is very well developed, there is often a failure to set equity-oriented objectives and action plans in their policies and programs of many countries including Nepal. This may not only be due to a lack of will on the part of policy makers but also because of the many barriers that hinder priority setting and planning. Planners have not always had access to appropriate data on social differentials and the needs

and capacities of people to improve them. The translation of priorities into strategies and actions is at best based on the information available to planners, and the perceived costs and impacts of possible interventions.

International context of equity in health

Health inequities have long been a focus of national and international health organizations. For decades, much of the concern about health equity found expression in the movement for primary health care (PHC), launched at the International Conference on Primary Health Care at Alma Ata in 1978. Despite the explicit commitment to PHC and the concept of equity and social justice made by the world's governments in the Alma-Ata Declaration, and by many bilateral and multilateral institutions, the goal of 'Health for All' has not been achieved. Indeed, evidence exists of a widening gap in health gains between poor and rich countries and between the poor and rich within countries. At the 1998, meeting commemorating the 20th anniversary of the Alma Ata declaration, it was agreed that a more pragmatic evidence-based approach was needed to deal with health inequities[10].

Equity in the Nepalese context

Socioeconomic context

Nepal, a landlocked, mountainous country, has a population of 24 million and a per capita income of US$.300. Thirty percent of the population lives below the poverty line[11]. It is a multi racial, multi-religious society segregated into castes, tribes and ethnic groups with over 100 language and dialects. The country has a different topography and limited infrastructure; 85 percent of the population is rural, and lives on average three hours walk from the nearest dirt road. The adult literacy rate is 54.8 percent, with female literacy at 42.8 percent reflecting women's lower social status[12]. Nepal has a recent history of political instability and civil conflict since 1996, which was ended in 2006.

Health Development context

Over the past two decades, there has been commendable progress in the establishment of preventive and curative health care infrastructure like sub health posts (SHPs), health posts (HPs), and primary health centers (PHCs), district hospitals, zonal and regional hospitals and central level super-specialty hospitals. At the grass root level there are health workers and strong force of about 50,000 Health Volunteers who are providing services particularly preventive health services[13]. Similarly, there has been significant growth of the private sector with establishment of Medical Colleges, Nursing homes, and diagnostic imaging and laboratory services in various parts of the country. All these facilities have increased access to services. Currently 78% of people[14] can access health facility within half an hour travel time as per Health Management Information System (HMIS) data. However, there is no disaggregated data available to show which caste or ethnic groups are accessing more than the others and similarly it is not known whether or not the poor are excluded from accessing the health services.

Government of Nepal has developed three year plan (TYP)- 2008- 2011 which has strategies to implement 'Free Basic Health Care' as Human right as included in the Interim Constitution of Nepal- 2006 and Health Sector Reform Strategy (HSRS) with an underlying intention to move the health sector towards strategic planning and a Sector Wide Approach (SWAp). The National health sector plan (NHSP-IP) 2004- 2009 has given highest priority to essential health interventions and is committed to achieve MDGs[15]. The government has invested its own resource in health; currently a significant increase reaching to 7 percent of National Budget (2007/08) has taken place. The most recent National Health Account (2003-2004) shows that 62% of the expenditure comes from "out of pocket expenses "(OOPS)[16]. The outcome of the collective effort of all has been reflected in terms of reduced mortality and increased life expectancy in the recently published Nepal Demographic Health Survey 2006 report. NDHS 2006 shows improvement in IMR to 48 U5MR to 61 per thousand live births from 64 and 91 per 1000 live births respectively in 2001. Maternal mortality rate has also come down to 281 per 100,000 live births from 539 per 100000 live births. However the access is not equitable because 22 percent of population still doesn't have access to even the basic health care services (NDHS 2006). Similarly, malnutrition is still prevalent in over forty percent children under five, and there is emerging threat of human Immunodeficiency Virus (HIV) /Acquired Immunodeficiency Syndrome (AIDS). A significant level of inequity in health outcomes still exists in Nepal. Life expectancy is 74 years in the capital, but only 44 years in the mountainous district of Mugu. Similar differences have been seen in health outcomes such as IMR between geographical regions, economic status, and educational level as reflected in 2006 NDHS.

Health as Human Right context

Since April 2006, conflict has ended in Nepal. "Vision of an inclusive society, where people of all race and ethnic group, gender, caste, religion, political belief, social and economic status live in peace and harmony, and, enjoy equal rights without discrimination" as outlined in the Interim Constitution has been stated as guiding principal for policies plans and programs of the Ministry of Health and Population (MOHP) in its 10 point plan[17]. Even though 'Health as Human Right 'has been accepted in principle by many countries including Nepal since 1948, the Interim Constitution of Nepal 2063 (2006) has enshrined and declared the state's commitment and responsibility to people's health for the first time in the history of Nepal and has included Basic Health as Human right.

The present government has initiated important policies targeted towards increasing access to basic health services by the poor such as providing free emergency and inpatient services to the poor patients in District Hospitals, in 35 low HDI districts, removed user fees in Health posts and Sub health posts.

1.2 Rationale of the Study

The above mentioned information indicate that though progress has been made in health in Nepal despite the prevailing poverty and difficulties in access due to several reasons, the outcomes are inequitable. It is generally known that inequitable health system is also contributing to the inequitable health outcomes. However there are

no such data which have been analyzed in sufficient detail to compare which districts get more resources for health in terms of human and financial resource, and whether the distribution is rational in relation to district socio economic status to provide equitable access to basic health services in the districts.

Government of Nepal is committed to provide equitable access to Basic health services to its people and has taken major initiatives such as abolition of user fees in HP and Sub health posts, free treatment in low HDI districts s and implementing Equity and Access program under the Safe motherhood program. However these programs are not planned on the basis of evidence based data, which show the type, and extent of disparities among various groups.

These initiatives are operational because there is high level of political will and commitment for health and were initiated on the basis of general information available from census, DHS and other small scale surveys The DHS which is the most representative and reliable data didn't include analysis particularly related to caste and ethnicity and other social inclusion related information at the time of starting this study. Some analysis has been done since then. Lack of disaggregated data in the HMIS, the inadequacy of the broader picture as regards social exclusion in health, poverty levels and health status, health services utilization pattern by various groups for whom targeted programs are being implemented are some of the challenges for monitoring these very important programs. Efforts are being taken to collect disaggregated data through HMIS. However, this will take some years before such data are available through routine HMIS.

The reduction of health inequalities is a challenge for many national and international health organizations including Ministry of health in Nepal. These challenges can be considered as opportunities for reorienting research, collect evidence on equitable distribution, present health equity issues for wider public debates, review health policies and programs and devise innovative approaches for equitable access of health to all its citizens in the spirit of social justice

Data available in Nepal come from institutions- the service providers- rather than from the communities that government is meant to represent and serve. Routine institutional data seldom capture the complex realities of communities, let alone the differentiated realities of different segments of the population.

It is in this context that the Center for Health Policy Research and Dialogue has undertaken this study. This is the first step taken by the center to utilize the vast amount of existing data, which are scattered in various places to develop a database and analyse for various level and types of inequalities in health in Nepal.

It is expected that findings of this study will help government and development partners in Nepal to provide evidence based national level as well as district level data and baseline information for designing Equitable health system, making health system

inclusive, responsive to the peoples needs and to targeting and planning health services which will result in equitable health outcomes and achieve MDG goals.

Further studies including qualitative studies to understand the circumstances and barriers leading to inequalities and to propose strategies to address those will be done as a next step.

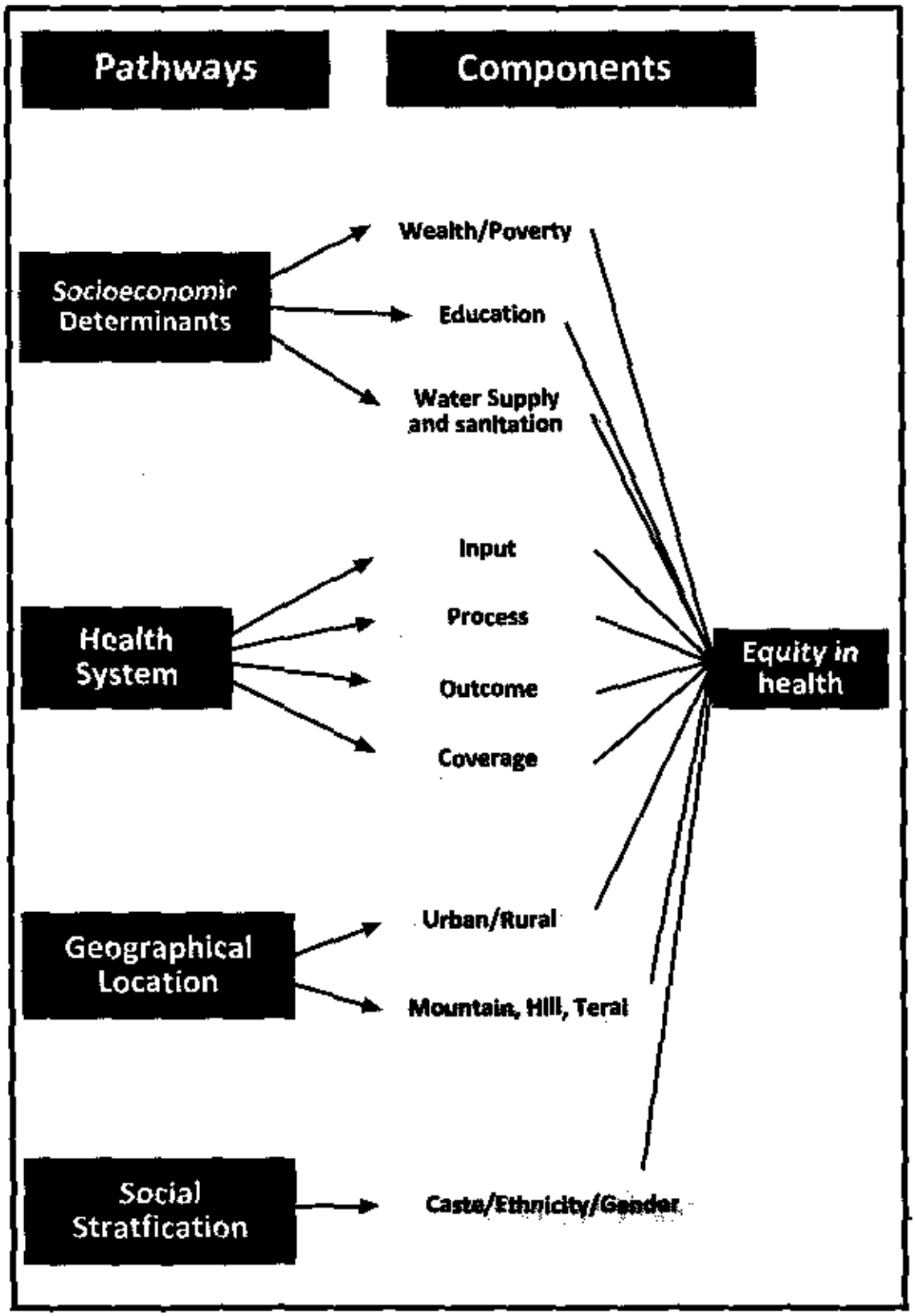
1.3 Conceptual framework of the study

It is generally known that remedies for health inequities must come not only from health sector but also from broad social policies and interventions that address potential health gaps. There are several complex pathways potentially acting in concert to exacerbate or propagate health inequities, and probably differing in the relative strength of their components within different population's. Literature search shows that several frameworks have been designed at various times by various researchers for studying equity which are tailored to meet specific aspects related to equity as per the needs of a particular situation or setting. Some examples are as follows:

- Eight steps framework for policy oriented monitoring health and health determinants[19].
- Social determinants framework[20].
- Case studies identifying determinants of concentration of high mortality[21].
- Health care reforms framework measuring equity implications[22].
- Comparative study of health of poor and non poor[23].

Most common determinants which affect equity in health are socioeconomic determinants, political and policy context for health and health system, environment in which people live and work and last but not the least, social stratification of populations. In the context of Nepal, four broad pathways namely socioeconomic determinants of health, health system, geographical locations and social stratification i. e. geographical regions, gender, socioeconomic groups, caste and ethnic distribution are relevant which determine equity in health and have been used in the conceptual framework for the study. The conceptual framework and pathways are reflected in a diagrammatic form.

Conceptual Framework Pathway for Equity in Health in Nepal



1. 4 Objectives of the study

Overall Objective

- To study equity in socio economic determinants, health system inequalities and relate how these factors influence on equity in health outcomes particularly related to MDG 4, and 5.

Specific Objectives

- Study the association between social and other determinants such as income level, education and human development index (HDI), water supply and sanitation coverage with health outcomes at National and district level and compare disparities between regions and districts,

- Assess performance of Health System with focus at the district level and measure equity by studying whether there are disparities between the health infrastructure, human resources, financing, process of care, access, coverage, among districts and health information system for monitoring equity.

- Measure equity in selected Health outcome indicators included in MDG particularly 4 5 and HIV/AIDS among population with emphasis on geographical regions, gender, socioeconomic groups, caste and ethnic distribution

Chapter 2

Methodology

Various methodologies and statistical packages have been used to analyze and present data in user friendly way. Different types of data and indicators were needed to achieve each of the specific objectives. Details of data collection methodologies and analysis have been presented accordingly:

To achieve specific objective 1

"To study the association between social and other determinants such as income level, education and human development index (HDI), water supply and sanitation coverage with health outcomes at the district level and comparison between districts", following methodologies were used

Further analysis of data from Human Development report (2004), UNICEF Report on Situation of women and children in Nepal 2006, District health profile 2005 (UNDP 2004), Census 2001, water supply and sanitation coverage data from DWSS (2007) and HMIS data from the DOHS (2005/06) were done Association between the socioeconomic determinants and health outcomes were studied and districts were compared to see which district is more disadvantaged than the other.

To achieve specific objective 2

" Assess performance of Health System with focus at the district level and measure equity by studying whether there are disparities between the health infrastructure, human resources, financing, process of care, access, coverage, among districts and health information system for monitoring equity"

The health system performance at the district level was measured by adopting WHO Health System Performance Framework[24] (Murray and Evans, 2003) and measured four dimensions of health system namely input and resources, health system functions i.e. provision of care, which includes health infrastructure, human resources, health financing and the results which include coverage, and the outcome or impact.

INPUT
- Policies
- Strategies
- Resource

FUNCTIONS
- Provision
- Financing

INTERMEDIATE RESULT
- Access to health facility distance and time
- Coverage of selected MCH MDG indicators

OUTCOME
- IMR
- MMR

As regards input we have studied resource allocation as well as policy inputs that are the basis for resource allocation in our study. Data from HMIS, FMIS, LMIS of the DOHS, other reports of MOH, NLSS data, National health accounts data from latest NHA 2003-4 and district health profile (UNDP 2004) were further analyzed. Inter districts comparison were made on the health system performance indicators such as per capita public health expenditure, health worker population ratio, number of health facilities per district, access and utilization of health services, types of provider, out of pocket expenditure incurred by various groups of populations for accessing health care, coverage of MCH services and IMR at District level.

Regarding the data on finance, National Health Account and data available from FMIS was used. For further analysis of finance data at the district level, data published by the Ministry of Health and Population in the Performance Evaluation Report, MoHP, 2004 which includes data on financing at district level for all 75 districts were used. Existing system for collecting health related information from perspective of equity monitoring have also been studied.

To achieve specific objective 3

"Monitor equity in selected Health Outcome indicators included in MDG Goals and targets among population with emphasis on Geographical, Gender, socioeconomic groups, caste and ethnic distribution "

To achieve this objective, methodology developed by UNICEF and Columbia University which is contained in the document "Monitoring Health Equity in MDGs: A practical guide" CESIN and UNICEF January 2006, was used for monitoring this component The guide provides a method for analyzing indicators across a number of social strata including wealth, ethnicity, education, religion, sex and geography. This methodology uses DHS and Multiple Indicator Cluster Survey (MICS) data and can be easily adapted for other surveys. The methodologies include both single and simultaneous stratification. For this component we further analyzed DHS data from 1996, 2001, 2006 and National Living Standard Survey 2004 data.

Data analysis was done by using SPSS 13 version; Microsoft Excel and STAT 6 version to calculate the following health outcomes and process indicators.

For the stratification of data by the caste and ethnicity, we have adopted the classification recommended by the Nepalese Federation of Dalits and Indigenous Nepalese (Annex 7).

1. Health impact, outcome and process indicators particularly relating to MDG 1, 4 and 5 and HIV/AIDS

- IMR
- Immunization coverage (BCG, DPT3, Measles)
- Skilled attendance at delivery
- ANC - 4
- CPR (Contraceptive Prevalence Rate)
- Percentage of Stunting/ Wasting among Under 5 children
- Knowledge of HIV/AIDS and its Prevention

2 Constructing stratified tables showing selected MDG indicators and stratifiers such as education, caste and ethnicity, residence, wealth by quintile and gender

3 Further analysis were done and tables and graphs were done to show the following

- Is one caste or ethnicity disadvantaged across (or most) indicators?
- How immunization, CPR, ANC visits compare across wealth quintiles.
- What is the health service utilization pattern by various caste and ethnic group?
- Proportion of underweight children by different social stratifiers
- Trend in disparities (relative gaps) in indicators over the past ten years by selected stratifiers.

The study results are presented in three separate chapters as per the three specific objectives i.e.

- Equity in Socio-economic determinants and health outcomes
- Equity in Health System
- Equity in Health Outcomes

Limitations of the study

This study as per design and methodologies, further analyzed high quality secondary data from large scale, nationally representative surveys, and from published reports from reliable sources only from government and UN agencies.

We have used the latest available reports from government sources regarding HRH and health infrastructure which may be slightly different from what will be available in future for the current year.

Chapter 3

Equity in socioeconomic determinants and health outcomes

3.1 Socioeconomic determinants and Health in Nepal

Social determinants of health are factors in society or in living conditions that affect people's health, for better or for worse, throughout life.

Much of the profound inequity in peoples' health within and between countries is socially determined. Factors such as education, housing, transport, employment, working conditions, money, clean drinking water, sanitation, and a good start to life are just some of the social determinants of health. Throughout the world, poor people and those from socially disadvantaged groups get sicker and die sooner than people in more privileged social positions. This is true for Nepal as well which is shown in following table which shows that there is higher incidence of preventable conditions like diarrhea, fever and injury among poorer people than the richer.

Table 1 Percentage distribution of acute illness by gender and poverty

Stratifiers	Diarrhea	Fever	Respiratory	Injury	Others	Total
Gender						
Male	13.1	42.9	8.9	5.9	29.1	100
Female	9.9	39.7	6.5	3.8	40.1	100
Poverty Quintile						
Poorest	19.5	42.2	7.0	5.9	25.5	100
Second	10.7	46.8	9.6	4.5	28.4	100
Third	12.7	39.5	7.9	3.7	36.3	100
Fourth	9.6	39.9	6.6	5.3	38.6	100
Richest	7.1	39.2	7.4	4.9	41.4	100

Source: NLSS-II, CBS

The table 2 shows that the poor people though they suffer more than the rich, they don't report to the health facility. It might be due to the lack of accessibility, lack of willingness to proper health seeking behavior, etc. These inequalities are unfair and are preventable. Similarly, in the table, female seems utilizing more services than males but it might be due to the fact that males utilize services mostly from private facilities and higher centers in comparison to females. These data indicate the need for further study in these areas.

Table 2 Percentage distribution of acute illness in health facilities by gender, poverty and ecological zones

Stratifiers	Male	Female	Average
Ecological zones			
Mountains	9.3	9.8	9.5
Hills	11.4	12.6	12.0
Terai	14.5	14.2	14.3
Poverty Quintile			
Poorest	11.2	9.6	10.4
Second	11.3	11.6	11.4
Third	12.7	14.4	13.5
Fourth	14.6	14.4	14.5
Richest	14.3	16.1	15.2

Source: NLSS-II, CBS

For studying the effect of socio economic determinants on health at district level we have analyzed disparities by selected socioeconomic indicators such as (Human Development Index (2004), Gross Domestic Product (PPP US$) – 2004, Life Expectancy at Birth, Literacy rate (Total literacy rate and Female literacy rate) - CBS 2001, and Gender Empowerment Measure (GEM) – 2004) and looked up how they impact on health as measured by IMR and Life expectancy. (District level data for all the 75 districts are included in the annex 3)

The average HDI is the highest for WDR (0.5) followed by EDR (0.48), CDR (0.47) and MWDR and FWDR (0.39). Similarly, Literacy rate, and GEM all are the highest for WDR. It shows that for all the socioeconomic indicators WDR is in the best position compared to other regions. IMR shows negative correlation with the higher value for socioeconomic determinants. Similarly, life expectancy at birth shows positive correlation with higher value for socioeconomic determinants.

Table 3: ***National and regional socioeconomic profile***

Regions	HDI	LEB	IMR	Literacy Rate (%)		GEM
				Total	Female	
National	0.47	61.00	64.40	54.80	42.80	0.39
EDR	0.48	64.45	53.92	54.64	43.93	0.37
CDR	0.47	62.97	60.21	50.85	39.57	0.37
WDR	0.50	63.97	53.25	59.74	49.81	0.41
MWDR	0.39	55.21	99.13	43.07	29.53	0.35
FWDR	0.39	54.46	104.52	45.90	29.20	0.32

Source: *HDR 2004, District Health Profile 2005*

Human Development Index is 0.65 for Kathmandu (the highest), 0.6 for Bhaktapur, 0.55 for Rupandehi and 0.30 for Mugu (the lowest). The Life Expectancy at Birth (LEB) was the highest in Bhaktapur (74 years) followed by Kaski (70.80 years), Kathmandu (69.53 years) and so on whereas it was the lowest in Mugu (44.10 years) followed by Bajura (45.70 years) and Kalikot (46.70 years).

A large variation was noted in IMR among the districts, which were 173.80 per 1000 live births in Mugu and 24 per 1000 live births in Bhaktapur. Similarly it was 26 per 1000 live births in Lamjung and Kaski and 153 per 1000 live births in Kalikot. Regarding the literacy rates, it was found to be the highest in Kathmandu both for total (77.20%) and female (66.60%) literacy rates. The total literacy rate was however lowest in Humla (27.10%) and the female literacy rate in Mugu (9.30%). The Gender Empowerment Measure (GEM) was the highest in Manang (0.59) followed by Mustang (0.53) and the lowest in Pyuthan (0.29). A large gap of almost half (50%) was observed in between the highest and lowest among the districts and it shows the grave situation of inequities among the districts.

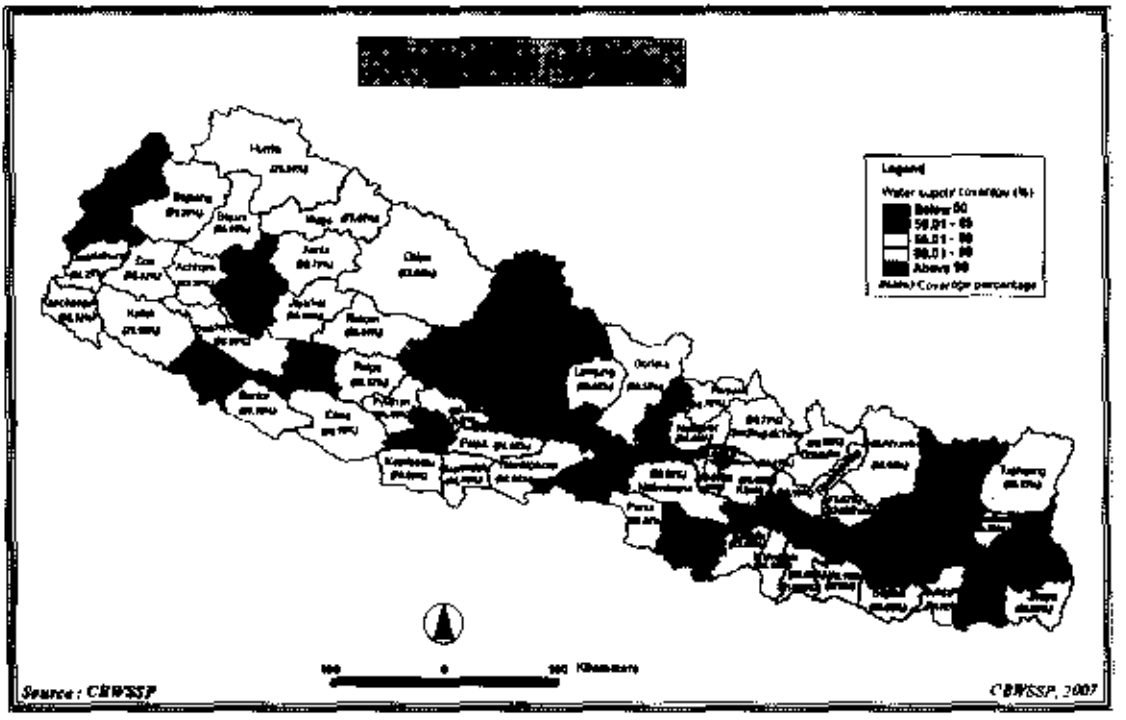
Pearson's correlation coefficient was also analyzed to explore the correlation between socio-economic variables with indicators i.e. IMR and significant negative correlation was found with Female literacy rate, total literacy rate, and GEM. Among these also the strongest correlation was with female literacy rate ($r = 0.613$ at $p = 0.01$) and the poorest was with the GEM. (See detail district level data in Annex 4)

3.2 Water supply and sanitation

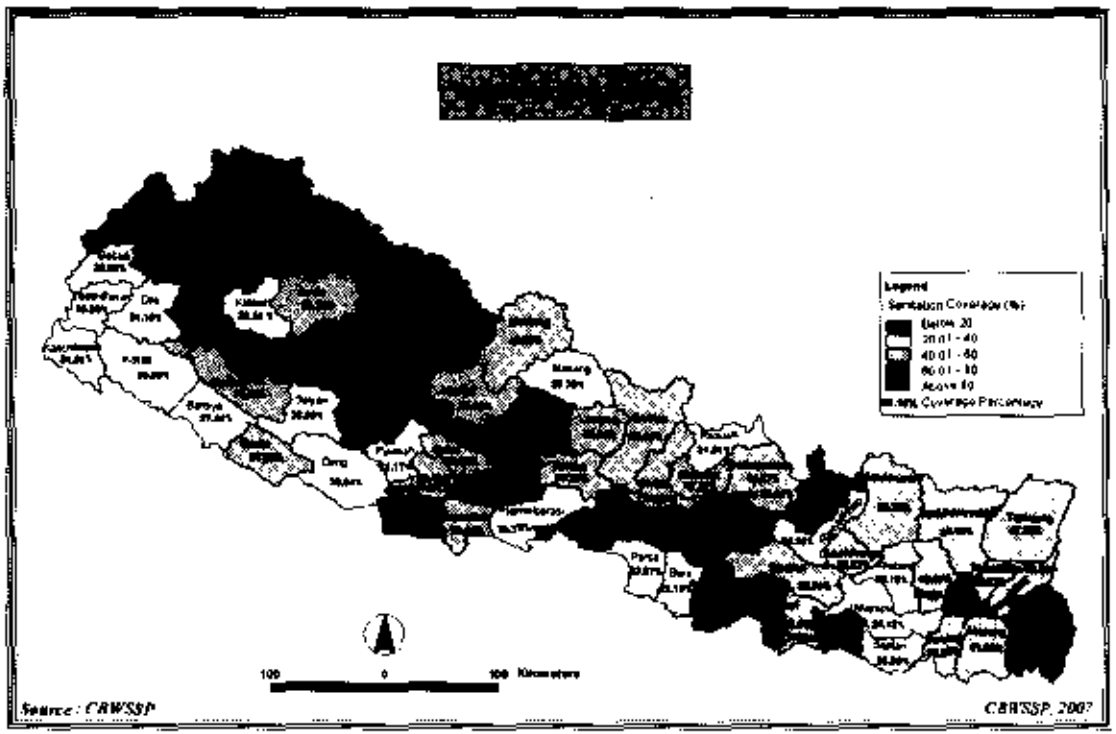
Safe drinking water and adequate sanitation are basic human necessities, and continuous access to these services is people's right. Yet, many Nepalese are deprived of water and sanitation (WSS) facilities despite the government and non-government efforts. Nepal Demographic and Health Survey 2006 report the national drinking water coverage of the country at 82 percent. A large proportion of people belonging to poor and excluded groups, those living in areas beyond the sources or scarce in ground water resources still have not been able to receive drinking water facilities.

The status of basic sanitation in the country is in worse condition. According to the Nepal Demographic and Health Survey 2006 only 42 percent of the population in Nepal use improved latrines and a majority of them do not adopt good hygiene practices. Lack of access to improved facilities of water and sanitation coupled with very low awareness has resulted in suffering of people with various infectious diseases in large numbers every year and has been a cause for untimely deaths of many.

The profile of water supply for the year 2007 according to Community Based Water Supply and Sanitation Project (CBWSSP), Department of Water Supply and Sanitation, GoN is as follow[25].



Similarly, the district wise sanitation coverage for the year 2007 according to the survey of CBWSSP is as follows:



It is known that the water supply and sanitation is linked to the hygienic practice that in turn affects disease prevalence. Hand washing especially with soap is considered as a simple and highly effective means to avoid exposure to food and water borne diseases such as diarrhea. Frequency of hand washing, access to water supply and sanitation is correlated with the incidence of diarrhea and IMR as shown by following table:

Incidence of diarrhea, frequency of hand washing and IMR

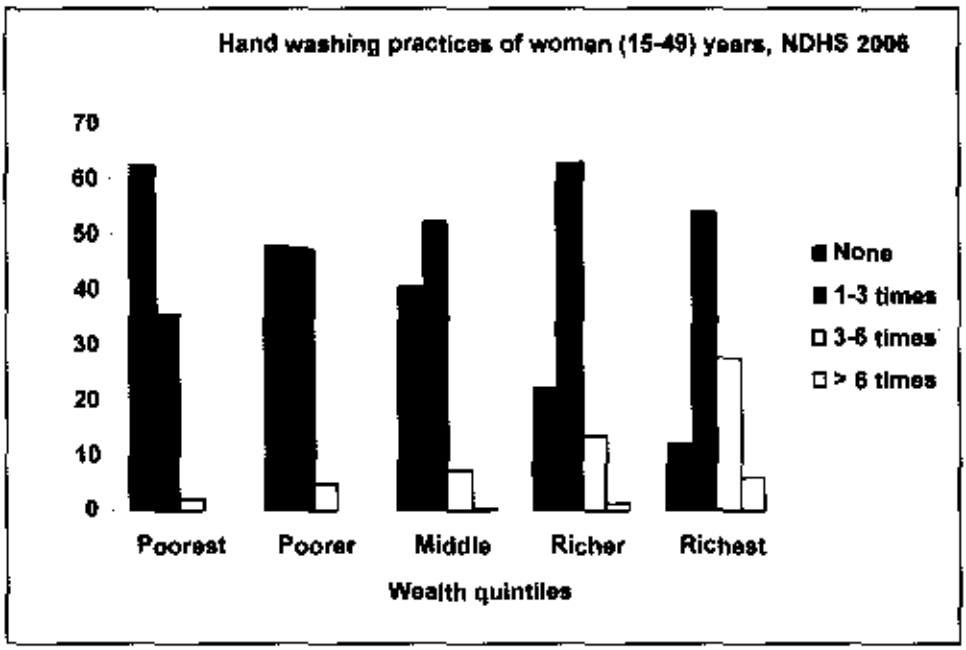
Table 4 Correlation of hygiene and sanitation status with IMR

Development Region	Population with access to water	Toilet coverage	Incidence of Diarrhea among five/1000	IMR	Use of soap	Frequency of hand washing
EDR	74.80	44.60	259	53.00	67.50	2.20
CDR	82.08	40.50	218	60.00	64.30	2.20
WDR	81.56	50.93	205	53.00	74.10	2.40
MWDR	60.20	23.40	260	99.00	55.90	1.80
FWDR	61.82	19.52	239	104.53	51.20	1.70

Source: *District health profile UNDP 2002, DHS 2006*

Hand washing practices are further analyzed by socio economic status, caste and ethnicity and level of education as shown by following figures:

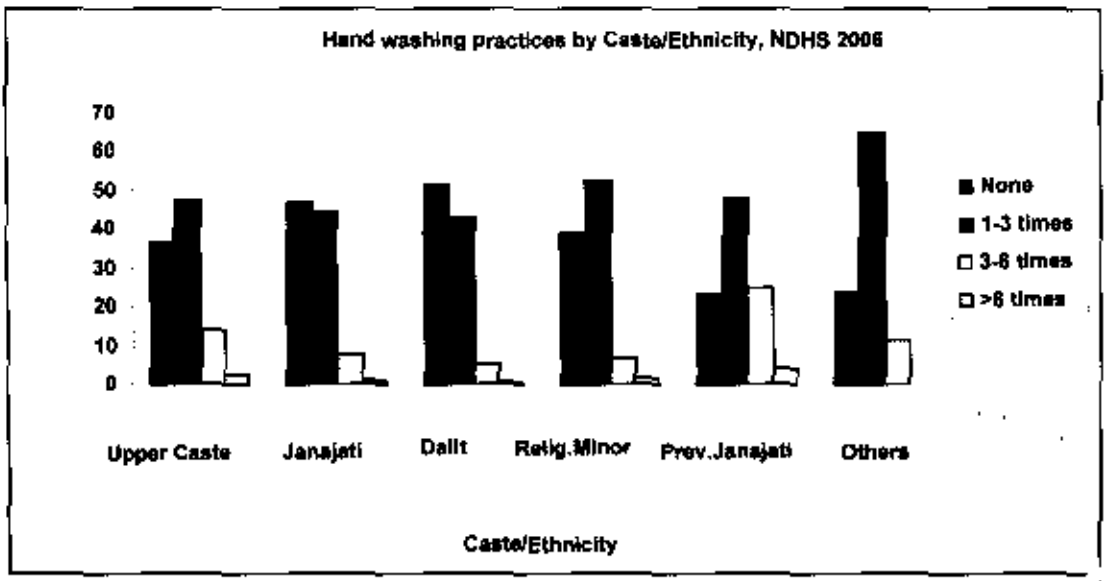
*Figure 1 : **Hand washing status of women (15-49) years by their economic status***



***Source:** NDHS 2006, further analysis by CHPRD*

The figure 1 shows that the poorest section of the population usually do not maintain their personal hygiene by hand washing (more than 60% none versus zero % more than 6 times). It increases with the economic status and the richest section of population wash their hands more frequently (> 6 times) than others.

*Figure 2 : **Hand washing status of women (15-49) years by the caste/ethnicity***

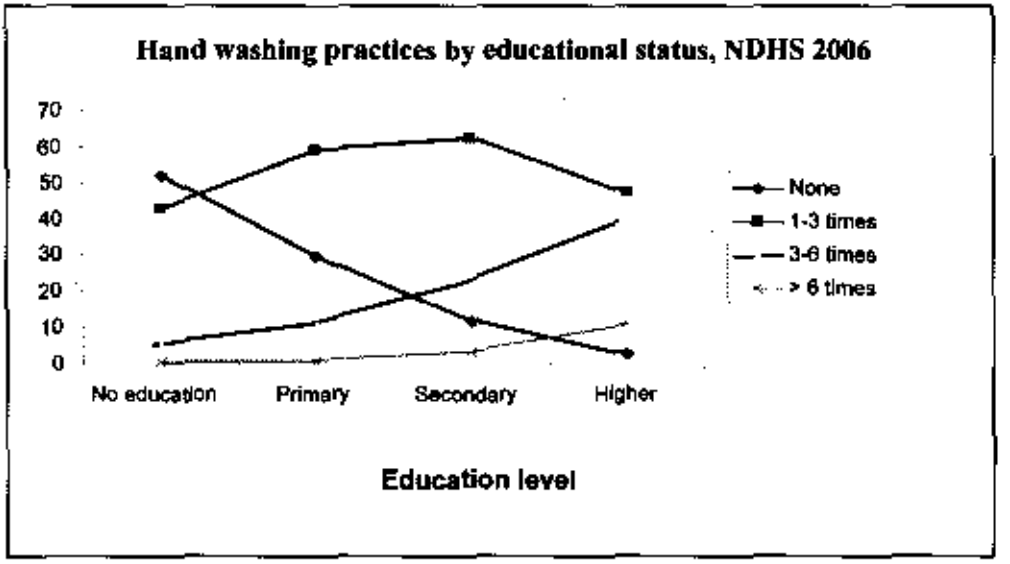


***Source:** NDHS 2006, further analysis by CHPRD*

Similarly the figure 2 indicates that the fact that the hygiene practice is not only the economy related issues but also depends upon social factors such as caste and ethnicity of the people in Nepal.

The data displayed in the figure 3 shows that there is direct relationship between the educational status of people and the personal hygiene practices. The frequent hand washing practices (3-6 times and > 6 times) is seen among those with higher educational status.

Figure 3 : **Hand washing status of women (15-49) years by their educational status**



***Source:** NDHS 2006, further analysis by CHPRD*

The data indicates that income level, education, cultural practices and availability of water supply and basic sanitation should also be considered for effective diarrhoeal disease prevention, which will reduce IMR and help achieve MDGs. These findings also indicate that synchronized multisectoral effort along with health interventions targeted at poor and uneducated will contribute towards equitable health outcomes.

Chapter 4

Equity in Health system performance

Health system comprises of all organization, institutions and resources whose primary purpose is to improve health (WHR 2003). The health care system refers to institutions and resources involved in delivering health care to individuals. The goal of developing an equitable health system is regarded universally as the biggest challenge for policy makers and planners. The distribution of health resource i.e. human, financial and infrastructure within public sector and between public sector and private sector demonstrate large variations and could be regarded as inequitable. Despite the health reforms taking place over the last decade, inadequate progress has been made in Nepal in building equitable health system.

Operational framework for measuring health system performance is of vital importance for enabling equitable health system at National level as well as district level. There are several frameworks used around the world for measuring health system performance including WHO framework for health system performance as conceptualized in World Health Report 2000[26, 27, 28, 29]. Taken together, these frameworks are a rich source of ideas and approaches. Various frameworks have taken various approaches ; for example, included goals related to health, health inequities, coverage, financing, allucative efficiency, technical efficacy, and cost containment. However, the most pragmatic approach for developing countries such as Nepal is to start from the consideration of which indicators are readily available and construct a performance assessment, which indicates adequacies or inadequacies of available measures and key factors influencing health system performance.

In this study, we used the pragmatic approach and started from measuring available indicators. We adapted WHO framework and worked into input, health system functions, intermediate results such as access and coverage and finally how they impact on health outcomes as indicated by IMR.

Framework for performance assessment of health system

In this study, we also assessed health policies and strategies, which form the basis of input, i.e. resource allocation at least from public sector and tried to examine the equity concern in health policies and strategies. Out of the health system functions, we studied inequalities in several aspects of service provision, public, private health services, human resources, and health financing and health information system.

Similarly in the intermediate results we measured following:

- Access to health facilities
- Utilization of health services
- Distance and the time taken to reach health facilities and
- Service coverage specially related to MDG 4, 5 and HIV/AIDS

4.1. Input

Review of Health policies and strategies in Nepal as regards equity focus

National Health Policy 1991[30] in its objectives includes 'Increasing access to basic health services to the rural people' specifically targets women and children and with emphasis on targeted efforts to the marginalized communities. However the policy does not ensure mechanisms of social inclusion in the planning and implementation of the health policy.

Second long term health plan 1997-2017[31] regards health as a human right and emphasizes the need to improve health of the population and provide equitable access, particularly the most vulnerable group of women and children, rural population, the poor and the marginalized but the mechanisms for identifying the excluded group and providing services to them is not included.

The objectives of the 10th Five-year plan (2002-2007) and the PRSP, focuses on poverty reduction and among other included targeted approach to benefit women, socially excluded groups, and aims to empower them.

The vision of the NHSP (2004-2009) is to provide equal opportunity for quality health services and the Health Sector Reform Strategy includes ensuring access to EHCS by the poor and vulnerable and has outlined social inclusion strategies.

Since April 2006, conflict has ended in Nepal and peace has prevailed. Government of Nepal has made political commitment for health of the people at the highest level by declaring "Basic Health as Human Rights" in the Interim Constitution of Nepal 2063 (2007) for the first time in the history of Nepal.

The objective of the 'Three-year interim plan' is to provide equal opportunity to all its citizens for accessing quality health services through special programs targeted to low-income group. It also includes programs to operationalize the constitutional provision of 'Free Basic Health Service to all' starting with the poor and socially excluded living in the low HDI districts, women, people living in geographically difficult regions where all the health indicators are low and also includes measures to mitigate the mental and physical problems for the conflict victims.

The goal of the Three year plan (TYP) to bring about improvement in the health status of all the Nepalese population with provision of equal opportunity for quality health care services to all through an effective and equitable health system and thus develop healthy and capable human resource for national development

These policy documents indicate that over the years, there has been gradual increase in awareness regarding the provision of equitable access to health services which culminates in three year plan that aims to operationalize the concepts of health as human right.

Resource for Health from public sector

Total health expenditure accounted for 5.45 percent of GDP in 1994/95[31], the figure increased to 5.7 percent in 2002/03. Unprecedented increase has been realized in growth of health budget in 2007/08. The health budget as a percent of the national budget increased from 6.4 in 2006/07 to 7.2 in 2007/08. The health budget increased by 31.1 percent in fiscal year 2007/08 for the scaling up of the existing programs and provisions of new programs and initiatives such as free medical care to poor, maternity incentives schemes and construction of health facilities. The health budget increased disproportionately in the fiscal year 2007/08, in which national budget increased by 17.4 percent whereas health budget increased by 31.1 percent. These figures indicate that attempts are made to match resources as per political commitments; however, the resources are inadequate to meet the needs of providing equitable access to health services.

Table 5 Health budget as a percent of national budget

Health Budget	Total National Budget (Billion NRs)	Health Budget	Share %
2006/07	143.91	9.23	6.40
2007/08	169.00	12.09	7.16
Change	25.08	2.87	7.16
Change in %	17.43	31.08	

Source: MoHP/HSRSP/RTI, 2007

4. 2. Health system Functions

4.2.1. Health Provision – Infrastructure

The health system is based on the administrative, political and developmental regions. Nepal is divided into 5 developmental regions, 75 districts, 58 municipalities, 3913 Village Development Committees (VDCs) and 205 electoral constituencies. VDC is the lowest political unit run by the elected local government. There is one sub health post at the VDC level. Similarly, a group of VDC comprises one Ilaka or sub district. There is one health post per Ilaka. There is one PHC in each of the electoral constituency where there are no hospitals. There is provision of at least one district hospital in each of the 75 districts.

In the Ministry of Health and Population, there are altogether three departments namely Department of Ayurveda, Department of Drug Administration and Department of Health Services responsible for service provision in the country. The Department of Health Service is one of them. The overall purpose of DoHS is to deliver preventive, promotive, and curative health services throughout the country. According to the institutional framework of the DoHS and MoHP, Nepal has four tiered health system below the district level for providing primary health care. Institutions above

district also provide specialized care. The Sub Health Post (SHP) from an institutional perspective is the most peripheral institution for providing basic health services. The SHP is the point of first contact. It also acts as the contact point for the volunteer cadres like 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 acts as referral, which is shown in the organogram below. This referral hierarchy has been designed to ensure that the majority of population receives public health 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 center to the periphery.

The Organizational Structure of the Department of Health Services, MoHP

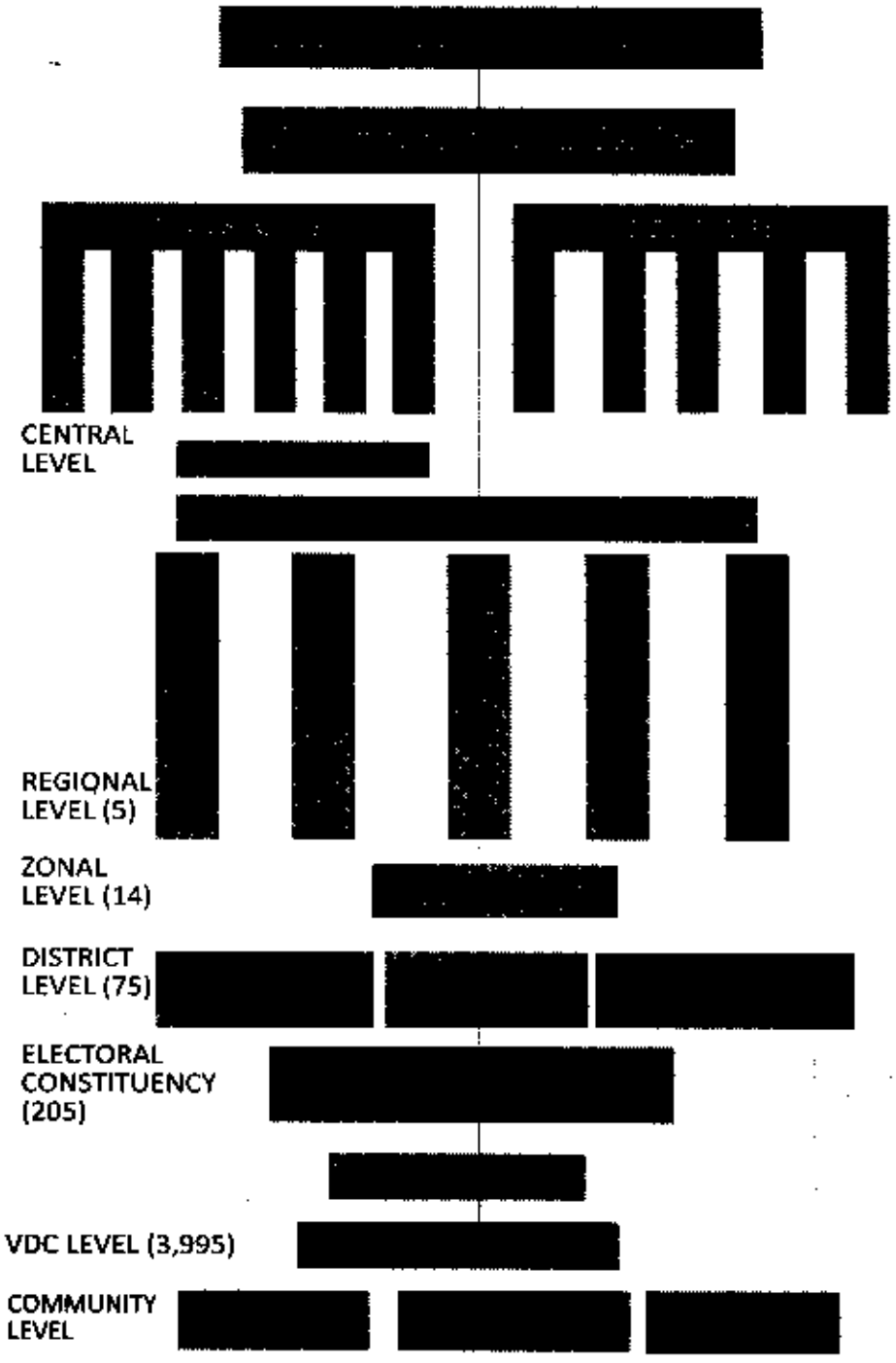


Table 8: Distribution of other health facilities by population ratio

Developmental Region	Other Health Facility/Population Ratio
Eastern	2463
Central	2039
Western	1676
Mid western	1720
Far western	2162
National	10060

*Source: Dr. Baburam Marasini, 2003. * Other health facility includes PHC, HP and SHP*

Human Resource

The number of health workers available in a country is a key indicator of that country's capacity to provide health care. It is necessary to consider the composition of health workforce in terms of skills and training levels. Migration of health care workers is an issue, which needs to be further studied. The internal movement of the workforce to urban areas is common to all countries. The international migration is also an important issue, which needs consideration from the perspective of measuring equity and fairness in distribution of human resources. Since human resource ultimately deliver health care, it is necessary to examine human resources situation specially the disparities in distribution by number and type of HRH, which can provide indication of how equitable services is being provided by the health system. In this study we have collected information on number and distribution of physicians registered in the Nepal Medical Council by 2007, which is 7500. Out of which only about 1600 have been employed in public sector in MOH and the rest are working in private and other sectors, doing postgraduate training, working in others sectors and some especially younger groups have migrated to other countries. In addition, there are ten medical colleges and three dental colleges, which are consumer of large number of physicians. Large number of expatriate physicians especially in Basic Science and other non-clinical areas are also employed in the private medical colleges.

It is generally known that in Nepal, there is very high rate of mobility and turnover especially among doctors employed in Public sector. The records are not updated and not available through public sources. Private sector human resource information is not available easily. Therefore, we have relied on latest available published sources of data for further analysis and determination of disparities.

Table 9: Distribution of Physicians by sectors

Description	Number	Percentage
Public Sector	1603	42
Private and NGO Sector	1144	30
Solo or Group Practice	123	3
Residency or training	310	8
Not Active or retired	80	2
Expert Physicians	580	15
Total	3845	100

Source: Dr. Babu Ram Marasini, 2003

In addition to the physicians, there are other categories of health workers employed in the health sector in Nepal. Following table gives the estimation of overall human resource situation in Nepal.

Table 10: Number of Health Workforce by Categories

Description	Number	Percentage
Doctors	3845	16
Nurses and Midwives	9000	36
Paramedical and other health workers	12000	48
Total	24845	100

Source: Dr. Babu Ram Marasini, 2003

The distribution of physicians by Developmental region is as follows;

Table 11: Distribution of physicians by development regions

Developmental region	Physicians in public sector	Physicians in other sectors	Total physicians	Total population	Population per physician
Eastern	362	42	404	5889467	14,578
Central	224	247	471	6795105	14,427
Kathmandu Valley	709	497	1206	1604363	1,330
Western	155	251	406	4997463	12,309
Mid western	88	100	188	3242206	17,246
Far western	70	7	77	2283307	29,653
National	1608	1144	2752	24,811,912	9016

Source: Dr. Babu Ram Marasini, 2003

It can be seen that the best doctor population ratio is seen in Kathmandu valley followed by Western Region. The worst situation is in Far western region. . This ratio is consistent with the number of health facilities .The number of health facilities is lowest in the Far western region from both public and private sector.

Human resources in district health system

As District health system is of vital importance because it provides health services to almost eighty-five percent of the rural population, we have further looked into the health worker population ratio under the District Public Health services.

Health worker population ratio by categories of health workers and regions under District Health Services is as follows:

Table 12: ***Health worker population ratio by categories of health workers and regions under District Health Services***

Regions	Health Worker Category	HW/population ratio
Eastern Development Region	Doctor	1:43000
	Nurse/Midwives	1:3000
	Paramedical	1:2900
Central Development Region	Doctor	1:47000
	Nurse/Midwives	1:3900
	Paramedical	1:3000
Western Development Region	Doctor	1:36000
	Nurse/Midwives	1:3300
	Paramedical	1:2700
Mid - Western Development Region	Doctor	1:37000
	Nurse/Midwives	1:2900
	Paramedical	1:2200
Far - Western Development Region	Doctor	1:40000
	Nurse/Midwives	1:3700
	Paramedical	1:2800

Source: *District Health Profile, UNDP 2004*

The table 12 shows that the doctor population ratio under the district public health system is much worse than the average national figures in all the regions. The worst ratio is in the Central Region. However Kathmandu valley has the best Doctor Population ratio on an average. These findings and disparities indicate that most of the doctors are working either in secondary or in tertiary care facilities and in Private sector and as such not available to the district health system, which generally serves large masses of the rural population. Similarly, it can be inferred from this table that the district health system is much better served by the paramedical staffs, nurses and midwives who are providing Primary Health Care and essential health services and explain the good coverage of immunization, family planning, antenatal care, as well as improving IMR and U5MR as shown by NDHS 2006.

4.2.2. Financing

Financing health in Nepal comes from private out of pocket expense, public sector i.e. from the government, donor resources and NGO sources .As there are no published authentic source to indicate NGO/private resources, we have further studied the National Health account (2006) which includes information up to fiscal year 2003-/04 d and NLSS (2004) data on health financing.

Comparison of Household and Per capita Health expenditure

Household (out of pocket) expenditure is the biggest source of health expenditure in Nepal, it accounts for 62 percent of Total Health Expenditure (THE). Government is the second biggest source of funding, accounting for 17 percent of THE followed by official donors (10%) and international not for profit agencies (11%).

Table 13: Sources of funding 2000/01-2002/03 (in million)

NS Code	NNHA Sources of Healthcare Funding	2000/01	2001/02	2002/03
NS1	General government	3,519	4,680	4,195
NS2	Private (household)	13,099	14,572	15,569
NS9	Rest of the World (EDPs)	5,335	4,707	5,149
	Total	**21,953**	**23,959**	**24,913**
Share of Sources				
NS1	General government	16.00	19.50	16.80
NS2	Private (household)	59.70	60.80	62.50
NS9	Rest of the World (EDPs)	24.30	19.60	20.70
	Total	**100**	**100**	**100**

Source: Prasai et al. (2007)

Household Expenditure on Health Care

Out-of-pocket (OOP) payments are the principal means of financing health care throughout Nepal, it accounts for 62 percent of THE. . Nepal Living Standard Survey (NLSS) 2003/2004 reveals the follow scenario:

*Table 14: **The per capita household expenditure on health in a months stratified by the wealth** index*

Quintiles	Modern medicines and health care (code=237)	Traditional medicines and health care (code=238)	Total health expenditures
Poorest quintile			
Mean expenditure per person NRs	10.34	0.41	10.75
Share of household budget spent on health (%)	2.52	0.10	2.63
2nd quintile			
Mean expenditure per person NRs	19.60	1.00	20.56
Share of household budget spent on health (%)	3.19	0.16	3.35
3rd quintile			
Mean expenditure per person NRs	34.20	1.14	35.34
Share of household budget spent on health (%)	4.07	0.14	4.21
4th quintile			
Mean expenditure per person NRs	62.10	2.10	64.20
Share of household budget spent on health (%)	5.09	0.17	5.26
Richest quintile			
Mean expenditure per person NRs	253.29	2.25	255.54
Share of household budget spent on health (%)	7.20	0.06	7.26

Source: NLSS-II, CBS (2004)

OOP budget shares indicate that the better-off individuals spend a larger share of their budget on health care. The richest individuals, on an average, spend 7.2% of the household budget on health care, while the poorest spend only 2.6 %. The richest spend

25 times more than what the poorest spend on health care. It is evident from the table 8 that share of health expenditure increases with the increase of income.

In general it can be concluded that better-off individuals can respond to health problems with the purchase of health services while the poorest of the poor though they suffer most as shown by earlier data cannot afford to divert resources from their very constrained budgets which indicate that poor people have to compromise either in quantity or in quality of services.

Disaggregation of household expenditure by gender shows women spent less share of their household budget on health care in comparison to their male's counterpart except in the richest quintile. In fact women of child bearing ages need more expenditure than males but in practice, a male of aged 16-50 years spend NRs. 59.00 in a month on health care compared to NRs. 53.78 in case of a female of same age group. This indicates the inequality in the distribution of health care expenditure. Table 15 shows the details of the household expenditure by gender and age groups.

Table 15: ***The per capita household expenditure on health in a month stratified by age and sex***

Age groups	Males	Females
0-5 years		
Mean expenditure per person NRs	48.78	49.45
Share of household budget spent on health (%)	5.01	5.08
6-15 years		
Mean expenditure per person NRs	64.98	57.14
Share of household budget spent on health (%)	5.66	4.98
16-50 years		
Mean expenditure per person NRs	53.78	59.00
Share of household budget spent on health (%)	3.65	4.00
Over 50 years		
Mean expenditure per person NRs	69.44	58.95
Share of household budget spent on health (%)	4.45	3.78

Source: NLSS-II, CBS

Resource allocation and Financing

The resource allocation at the sectoral level has been basically guided by past performance, project requirements in terms of time and obligation and absorptive capacity of the sector. Similarly, more recently absorptive capacity of the districts and prevalence of a diseases and general performance of a district have been used as criteria for resource allocation.[34]

Per Capita Public Health Expenditure by ecological belt

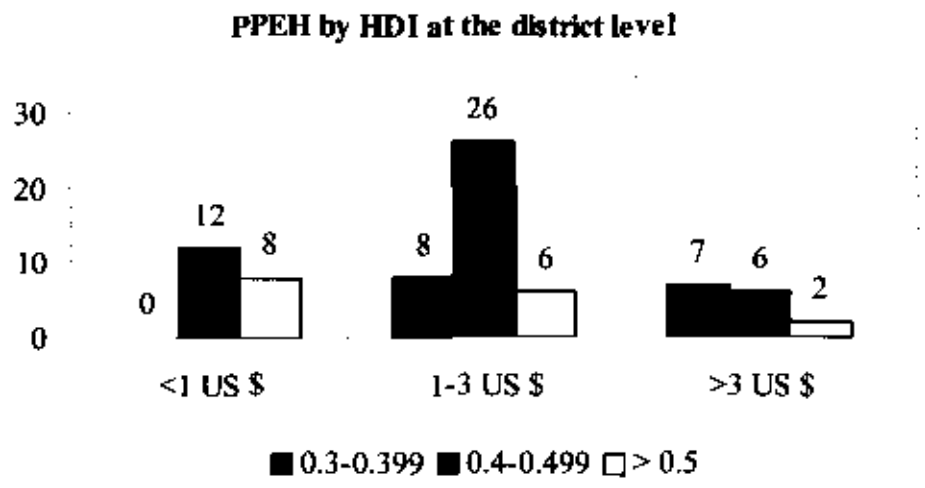
The national average per capita public expenditure varies in mountain, hill and Terai. The public expenditure in Terai is Rs.100 in 2005/06 compared to Rs.156 in Hill and Rs.261

in Mountain Prasai et. al., HSR-SP/RTI, 2007. The distribution seems equitable because of the need for higher cost of transport and personnel in the mountain region.

Per Capita Public Health Expenditure by district and developmental region

The Human Development Index is a composite index, which includes literacy, life expectancy and per capita national income and thus HDI status provides some indirect indication of the paying capacity of the population for the health services in that particular district the HDI, PPEH and GDP for all the districts are included in Annex 5. Therefore, it implied that logically, for attaining fairness in financing districts with higher HDI should be having lesser PPEH and district with low HDI should be having higher level of PPEH. Analysis of Per capita Public Health expenditure at the district level with Human Development Index it reveals as shown in figure 5.

Figure 4 : ***Resource allocation at district level by HDI values***



Source: *Further analysis of Performance Evaluation Report, MoHP 2004*

The figure shows that though some attempt has been made to allocate more resources to remote districts and attain fairness in financing, the pattern is not consistent. The high PPEH in Kalikot, Mugu, Manang and Mustang seems fair. However, there are some high HDI districts for which PPEH is also higher and some low HDI districts are getting lower PPEH, which also seems unfair.

Table 16: ***The district wise allocation and comparison of PPEH with***

Districts with HDI range	Districts with range of PPEH in (US $)			
	<1$	1-3$	>3$	Total
0.3-0.399	0	8	7	15
0.4-0.499	12	26	6	44
> 0.5	8	6	2	16
Total	20	40	15	75

Source: *Further analysis of Performance Evaluation Report, MoHP 2004*

Similarly, though some low HDI districts are also getting more PPEH, which seems fair, some higher HDI districts are getting more PPEH, which seems unfair allocation. However in all the allocation total amount of PPEH at district level is inadequate compared to the Commission on Macroeconomics and Health (CMH) recommendation of 24-34 dollars. In this context, though health is regarded as one of the fundamental human right, the resource allocation for health sector has neither been adequate nor fair.

Therefore, efforts should be made to increase overall spending in health sector and for fair allocation. Only HDI criteria may not be adequate because of transportation cost and unavailability of private and other sector providing health services in remote areas.

Health Information System

Health information system is one of the very important components of health system. Health information system should be sensitive enough to show the level of disparities in health infrastructure, level of services provided, type of services, type and number of human resources and amount of resources spent on health at various level i.e. at the level of institution, district, region and national level. It should also be able to indicate which groups are accessing services and which are left out. In this context, the health information system in Nepal is examined from equity perspective and the findings are as follows:

- **Management Information System (MIS)**

  MIS in Nepal is well developed and contains vast amount of data on service statistics. It contains coverage data of all the programs run by MOHP at National, regional and district level. So far it does not analyze data by caste and ethnicity. However, some pilot studies are going on for future inclusion of caste and ethnicity in MIS. Other components of MIS are Logistic Management Information System, which collects information on logistics and supply side of health system at various levels.

- **Financial Management Information System (FMIS)**

  Financial Management System data monitors the amount of resource allocated to districts, regions, and programs at central level and spending of the resources. However, it is extremely complex and does not integrate all the resources going to districts for various programs. Therefore, it is difficult to assess whether resource allocation is equitable or not.

- **Other sources of Health Information**

DHS Surveys

Periodic DHS surveys done every five years are very good source of data to supplement MIS data. Over the years DHS has evolved and collects selected data by regions, sub regions and national level and also analyzes data by wealth quintile. Further analysis of

DHS 2006 data has been done in this study and also subsequently by New Era, which include variables such as caste and ethnicity also. These further analyses give indication of the extent of social exclusion in Nepal.

Census

Census is the most important data for estimating population and other vital information. Census also provides very high quality data on population, demography, births, deaths, and ethnic and caste related information, socio economic status, level of education and data on other sectors. The census is carried out every 10 years. However, census does not contain health service related information.

Vital Registration System

Vital registration system is the most important system that reports birth and death. The system has been operational in Nepal. The progress so far is very slow and data is not complete. This system has not received the priority and importance it deserves.

Study of existing information in Nepal indicates that available data sources in Nepal provide reasonably good indication of process indicators against the set targets quantitatively. However, quantitative data does not give full picture of the circumstances leading to inequitable health outcomes. Areas such as identifying access, quality of services, client satisfaction, social inclusion and data related to health and poverty are not captured by the system. Both the existing monitoring system and information management system are not designed for equity targeting. Similarly, it is also not designed to monitor distribution of health resources, infrastructure and human resources necessary for designing health system, which provides equitable access to its population.

4.3. Intermediate results

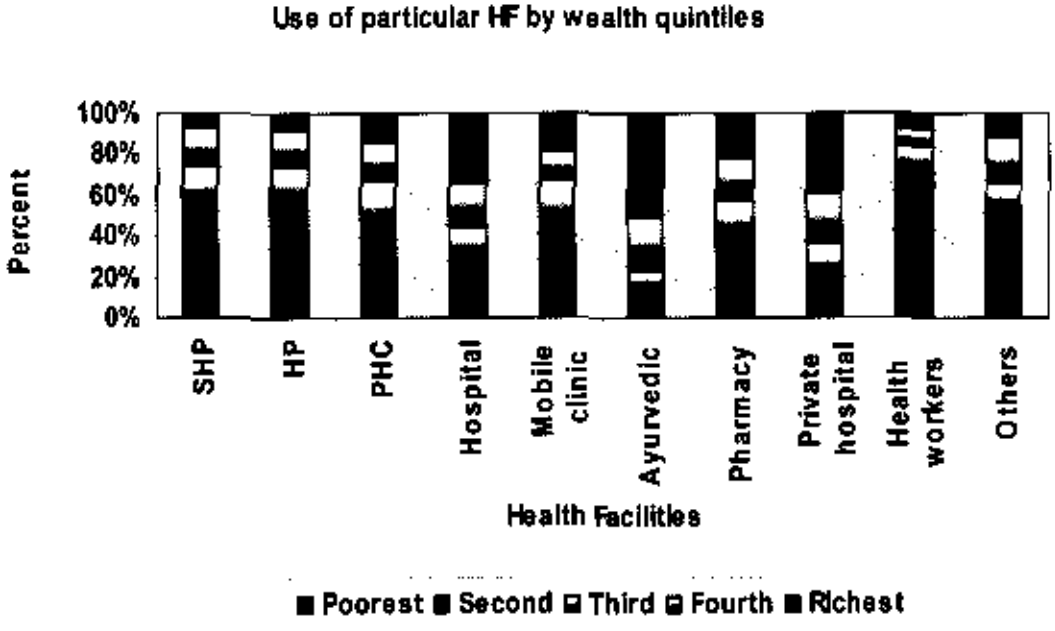
4.3.1. Access and utilization

Access is analyzed in terms of the geographical accessibility by travel time, and the use of particular types of the health facility by poverty levels of people.

Utilization of particular types of the health facility by the Wealth quintiles

The figure 5 reveals that majority of the poorest section of the community seek health services mostly from community health workers followed by the Sub health posts and the health posts rather than the hospitals, and PHC. In contrast, large section of the rich people seeks health care services from hospitals (government or private). In this context the abolition of user fees at HP and SHP is an important step towards providing equitable access of health services to the poor. .

Figure 5 : ***Health seeking behavior***

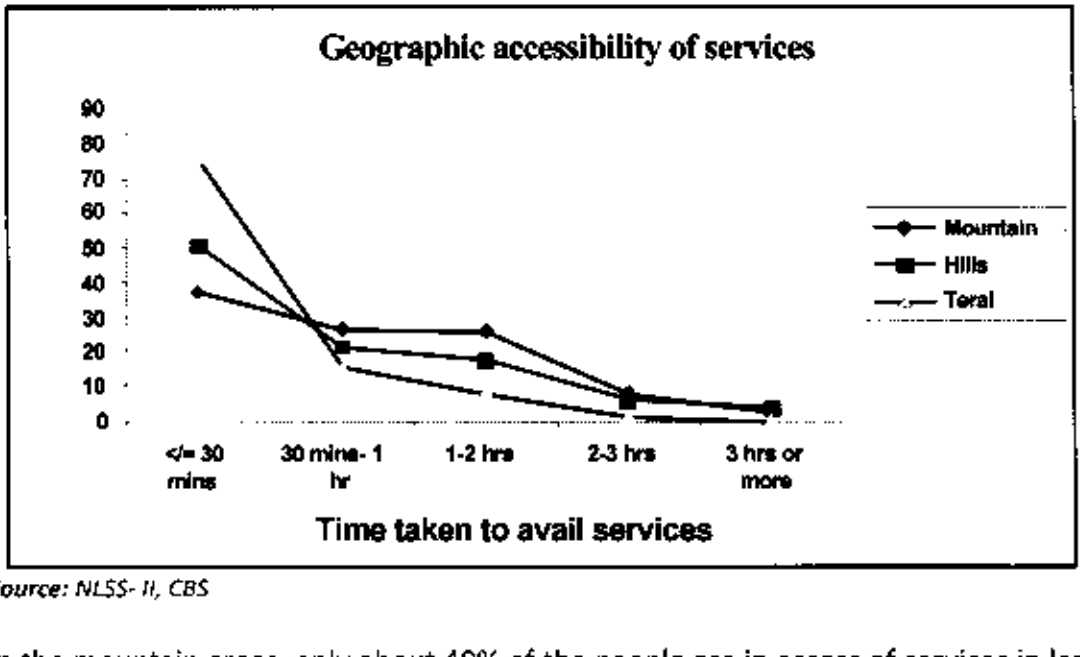


Source: NLSS- II, CBS

Geographical accessibility of the available services by certain stratifiers

The figure 6 reveals that there is problem in accessing health services in the mountain, and hilly region of the country in comparison to the Terai region.

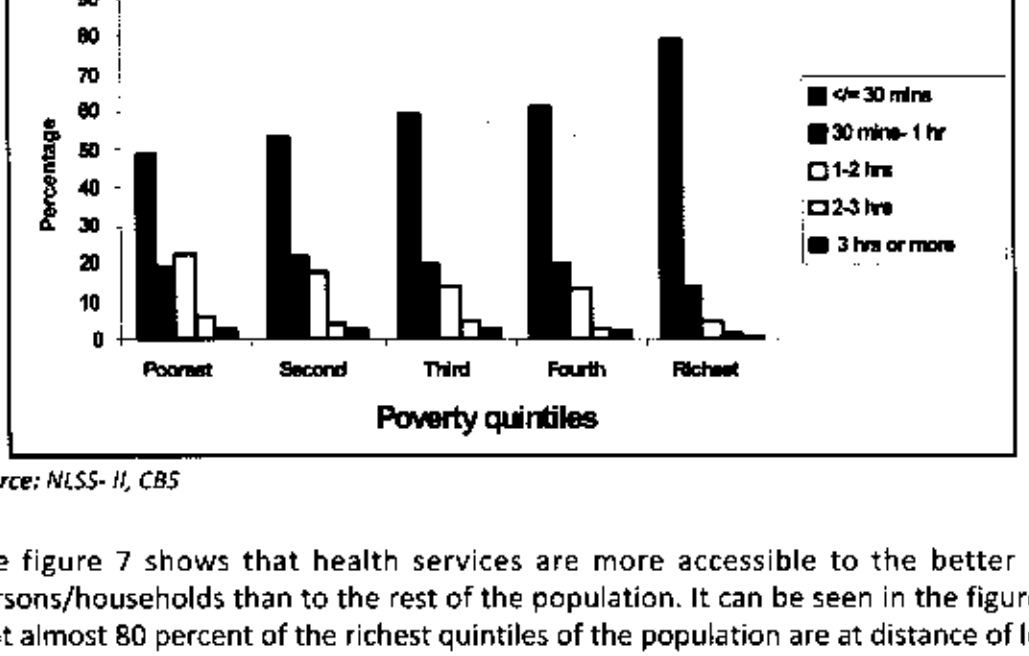
Figure 6 : ***Service accessibility by eco belt***



Source: NLSS- II, CBS

In the mountain areas, only about 40% of the people are in access of services in less than of 30 minutes, which contrasts to around 50% in the hill and almost 80% in the Terai regions.

Figure 7 : ***Service accessibility by the poverty quintiles***



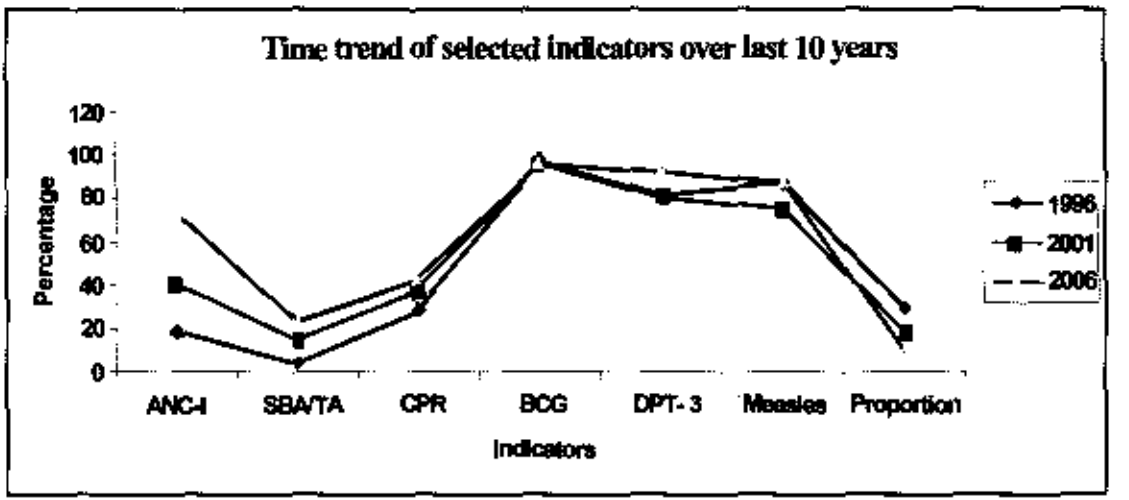
Source: NLSS- II, CBS

The figure 7 shows that health services are more accessible to the better off persons/households than to the rest of the population. It can be seen in the figure 7 that almost 80 percent of the richest quintiles of the population are at distance of less than 30 minutes and only around 50 percent of the poorest are at this distance.

Trends in the utllization of health services

Over the past ten years period, significant changes can been found in the utilization of the maternal and child health services in Nepal.

*Figure 8 : **Trend in utilization of services over 10 years***



***Source:** Annual Report, DoHS 2005/2006, further analysis by CHPRD*

In the year 2006, the ANC-I service users have been increased from around 20 percent in 1996 to almost 80 percent, skilled attendance at delivery from less than 10 percent to more than 20 percent, and CPR from around 30 percent to 40 percent. (See Annex 7 for district wise utilization and coverage of the services). This increasing trend is in all the groups and has been further analyzed in the following sections.

Chapter 5

Equity in MDG indicators 4, 5, HIV/AIDS and Nutrition

In this study we have analyzed indicators and targets related to Maternal and child health, nutrition and HIV AIDS by stratifiers such as caste, ethnicity, region, residence, health and wealth quintiles and levels of education .We have further analyzed the data to ascertain whether wealth quintiles make difference by educational level of the mother, time trends, how service utilization affected by place of residence. As 'Dalits' are one of the most socially excluded caste in Nepal, we have further studied to see Dalits just being Dalits not utilizing the services, which is the stronger barrier; educational status of the mother or the place of residence. We have also studied to see whether one caste is disadvantaged across all or most of the indicators, how different indicators compare across wealth quintiles and which indicators reveal the greatest disparities .The results are as follows:

5.1 Maternal Health status by the process indicators: service coverage

Though Antenatal care is not included in the list of performance indicators, we have included in our study because, antenatal care that a mother receives during her pregnancy is important for the well being of both the mother and her child and gives indication regarding the contact of the mother with health services.

5.1.1. ANC- IV statuses by all the stratifiers

The frequency of ANC is important in assessing the quality of antenatal care services that is being provided to the women in community. In the context of Nepal four times ANC visit is regarded as the minimum numbers of visit that is prescribed for every women during her pregnancy. That is the reason for further analyzing ANC-IV visits.

Time trend of ANC statuses over last ten years

In the last ten years significant achievement has been made in regard to the ANC service utilization although it is not sufficient. The following figure reveals that in the 1996, almost 44% of the women were using ANC services and among them, just 11% have had the required ANC visits i.e. ANC-IV but in 2006, the situation has reversed. Almost 74% of the women have visited at least one times ANC and around 30% of them had made the required ANC visits.

Table 17 shows that ANC- IV status of mother varies with various factors like caste/ethnicity, groups, place of residence of women, their educational statuses, wealth index, region, ecological regions and so on.

Table 17: ANC-IV status by all the stratifiers

Stratifiers		Years					
Class	Levels	1996		2001		2006	
Caste		Freq	%	Freq	%	Freq	%
	Upper Caste	199	15.8	286	20.7	507	40.30
	Janajati	90	7.1	212	11.1	348	26.20
	Dalit	14	9.3	54	8.2	204	19.20
	Relig.Minor	24	9.3	24	9.1	35	17.80
	Prev.Janajati	68	34	81	41.3	81	57.20
	Others	112	9.1	32	9.4	24	29.30
	P- value		***0.000***		***0.000***		***0.000***
Groups							
	Madeshi	51	6.20	101	9.20	325	25.10
	Non-Madeshi	344	14.80	449	15.80	841	31.90
	Others	112	9.10	34	9.80	32	23.50
	P- value		***0.287***		***0.000***		***0.000***
Regions							
	Eastern	87	9.40	197	17.90	266	30.20
	Central	238	16.60	236	15.40	414	31.10
	Western	115	13.10	172	18.80	211	27.90
	Mid west	47	6.70	45	6.40	128	24.80
	Far west	19	4.40	40	8.00	179	30.70
	P- value		***0.001***		***0.000***		***0.000***
Ecological regions							
	Mountain	18	5.30	22	6.10	60	17.60
	Hill	255	13.70	302	15.20	517	30.80
	Terai	234	10.70	365	15.20	621	30.30
	P- value		***0.000***		***0.000***		***0.000***
Residence							
	Urban	97	34.80	161	48.60	278	51.90
	Rural	410	10.00	528	12.00	920	26.10
	P- value		***0.071***		***0.000***		***0.000***
Wealth quintile							
	First	NA	NA	57	4.80	101	10.50
	Second	NA	NA	51	5.10	174	20.20
	Third	NA	NA	110	11.90	224	27.60
	Fourth	NA	NA	157	17.00	285	38.00
	Fifth	NA	NA	314	44.30	415	60.30
	P- value				***0.000***		***0.000***
Educational status							
	No education	258	7.40	265	7.70	380	16.10
	Primary	90	17.60	70	10.20	264	35.60
	Some secondary	126	36.00	250	44.00	347	53.50
	SLC and above	33	73.00	38	54.60	206	87.00
	P- value		***0.000***		***0.000***		***0.000***

*Source: **NDHS 1996, 2001, and 2006, further analysis by CHPRD***

The use of ANC services for four or more times in their last pregnancy is significantly different from one caste to another in both the years 2006 and 2001 though it was less in 1996. Women from the privileged Janajati and so called upper caste are almost 3 times more likely to receive ante natal care services for four or more times. The ANC-

IV service utilization trend over the last ten years shows improving trend difference.

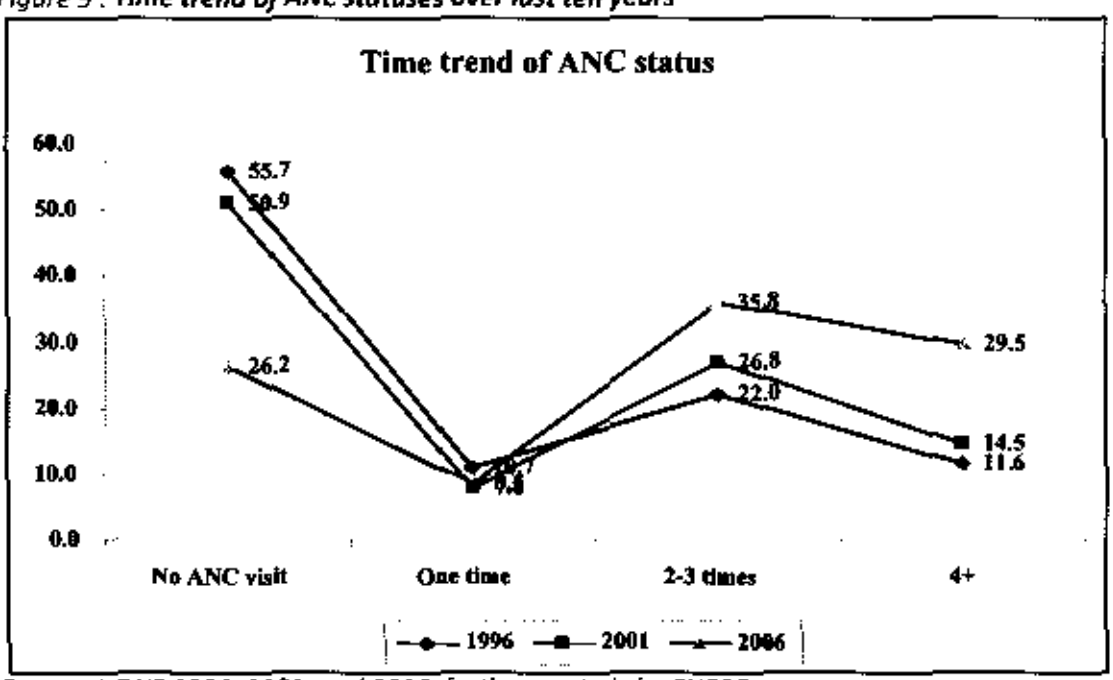
The use of antenatal care services for four or more times is significantly different (p= 0.000) among the Madhesi and Non-madhesi women in the year 2001 and 2006. In the year 2001, only about 9 percent of women from Madhesi community had received four or more antenatal visit in comparison to the 16 percent Non-madhesi however in the year 2006 the gap is reduced.

The use of antenatal care services for four or more times is strongly related to the mother's level of education. Women with SLC and higher level of education are more than five times more likely to receive ANC-IV (87 percent) than women with no education (10.5 percent) in the year 2006. It is even higher in the years 2001 and 1996; 10 and 8 times respectively. Almost half of the women in urban areas have received four or more antenatal care services both in the years 2006 and 2001 but that in the rural area is less than half and one third respectively.

The gap of the first and the fifth quintiles in utilizing antenatal care services for four or more times in the year 2001 and 2006 are almost 10 times and 6 times respectively.

Time trend of ANC statuses over last ten years

*Figure 9 : **Time trend of ANC statuses over last ten years***



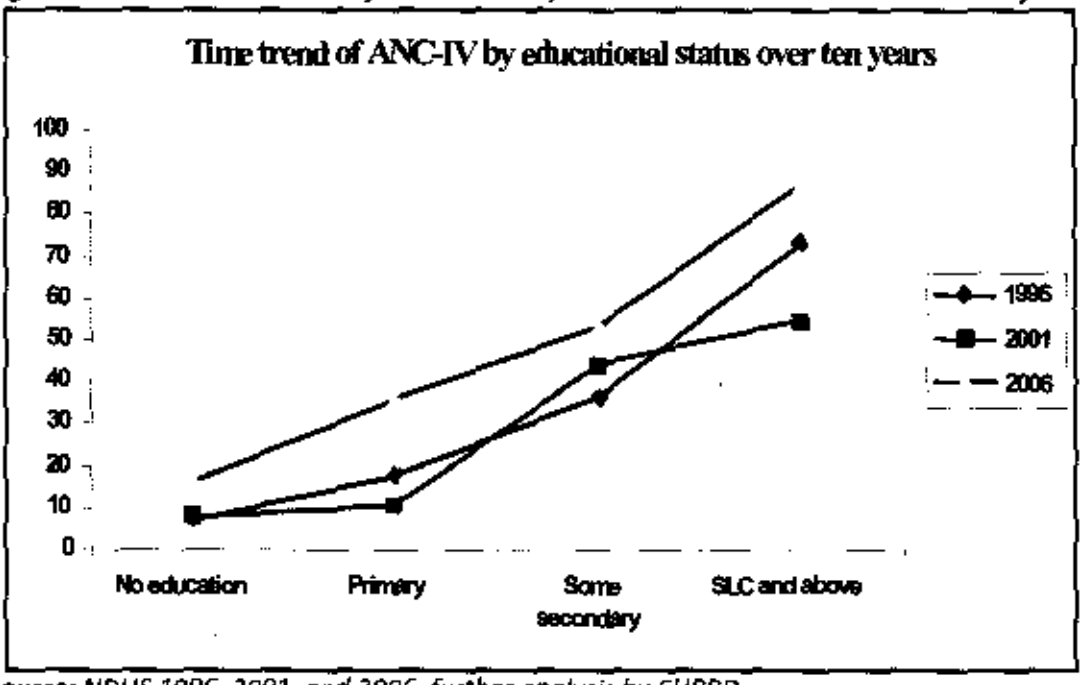
***Source:** NDHS 1996, 2001, and 2006, further analysis by CHPRD*

The figure 9 shows that in the last ten years significant achievement has been made in regard to the ANC service utilization. The following figure reveals that in the 1996, almost 44% of the women were using ANC services and among them, just 11% have had the required ANC visits i.e. ANC-IV, 2006. Almost 74% of the women have had visited

at least one times ANC and around 30% of them had made the required numbers of the ANC visits.

Further analysis of the trend of ANC in relation to the educational status of women reveals following scenario:

Figure 10 : Time trend of ANC- IV by educational status over ten years



***Source:** NDHS 1996, 2001, and 2006, further analysis by CHPRD*

It can be seen from the above graph that utilization of antenatal care has been increasing in women with all level of education including among those with no education. The increase has been maximum in the primary education group.

These data have been further analyzed to see how two forms of social determinants might interact and the issues which have been further analyzed and their findings are as follows:

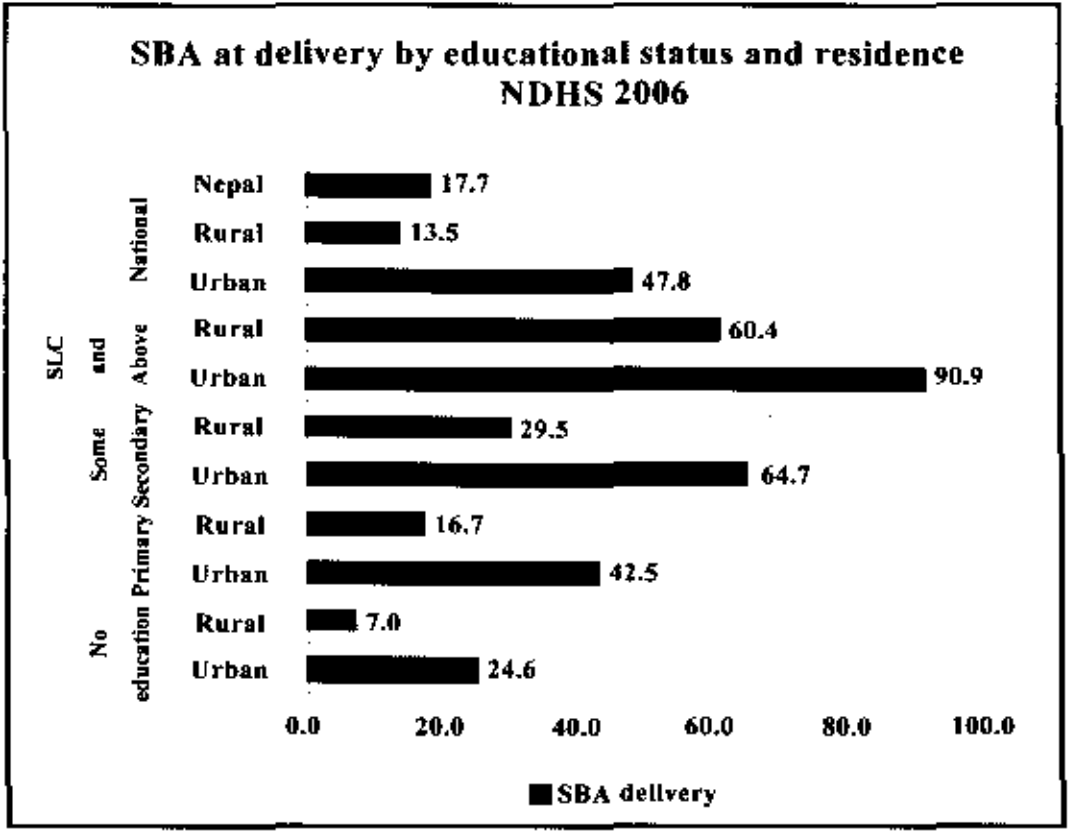
Do wealth quintiles make difference in the utilization of ANC services by educational level of the mother?

Figure 11 show that there is a further gap in the utilization of ANC services among women with various level of education determined by their wealth quintiles.

Almost ninety percent (87 percent) of the mother with the educational level of SLC and more are utilizing ANC-IV services, only about 50 percent of them with same level of education from the poorest wealth quintiles are utilizing it in 2006. Almost 7 % of women in the lowest wealth quintile with low education are utilizing ANC compared to

30% in the wealthiest quintile. These findings indicate that lack of education is the bigger barrier than wealth status.

*Figure 11 : **ANC-IV coverage by educational status and wealth quintiles of women***



***Source:** NDHS 1996, 2001, and 2006, further analysis by CHPRD*

5.1.2. Deliver care

The delivery services are provided to protect the life and health of the mother and her child by ensuring the delivery of baby safely. Though it is universally recognized that every pregnancy is at risk, some risks of mortality can be reduced by ensuring proper medical attention under hygienic conditions during delivery that prevents/ reduces risk of complications and infections that may cause death or serious illness either to mother or to the baby or to the both through skilled attendance at delivery and institutional delivery.

Place of delivery by all stratifiers

*Table 18: **Status of institutional delivery by all the stratifiers***

Stratifiers		Years					
Level	Classes	1996		2001		2006	
	Eastern	67	7.20	142	8.80	199	16.60
	Central	162	11.30	237	10.30	437	24.20
	Western	66	7.40	103	8.20	179	17.40
	Mid west	19	2.70	30	2.80	96	13.60
	Far west	17	3.90	42	5.70	68	8.50
	P-value		*0.000*		*0.000*		*0.000*
Eco belt							
	Mountain	7	2.00	17	3.20	31	6.30
	Hill	168	9.00	246	8.60	473	20.90
	Teral	156	7.20	291	8.20	476	17.00
	P-value		*0.000*		*0.000*		*0.000*
Wealth quintiles							
	First	NA	NA	36	2.00	61	4.30
	Second	NA	NA	40	2.60	109	9.30
	Third	NA	NA	64	4.60	135	11.90
	Fourth	NA	NA	101	7.70	214	21.70
	Fifth	NA	NA	314	32.70	461	55.00
	P-value				*0.000*		*0.000*
Caste/Ethnidty							
	Upper Caste	133	10.60	229	11.50	400	24.00
	Janajati	56	4.40	161	5.80	249	14.10
	Dalit	10	6.50	46	4.60	171	11.10
	Relig.Minor	11	4.40	25	5.90	35	12.20
	Prev.Janajati	58	29.00	70	26.90	87	47.90
	Others	62	5.00	23	4.70	38 3	9.10
	P-value		*0.000*		*0.000*		*0.000*
Terai Groups							
	Madeshi	31	3.80	94	13.90	222	12.30
	Non-Madeshi	238	10.20	107	6.40	706	19.80
	Others	62	5.00	329	8.00	51	29.30
	P-value		0.000		0.000		0.000
Residence							
	Urban	122	43.80	183	40.60	323	47.80
	Rural	209	5.10	372	5.70	657	13.50
	P-value		*0.000*		*0.000*		*0.000*
Educational status							
	None	132	3.80	192	3.70	264	7.90
	Primary or less	55	10.70	105	10.80	190	18.90
	Some secondary	111	31.80	218	28.60	293	34.60
	SLC and Above	33	72.20	39	56.00	233	67.40
	P-value		0.000		0.000		0.000

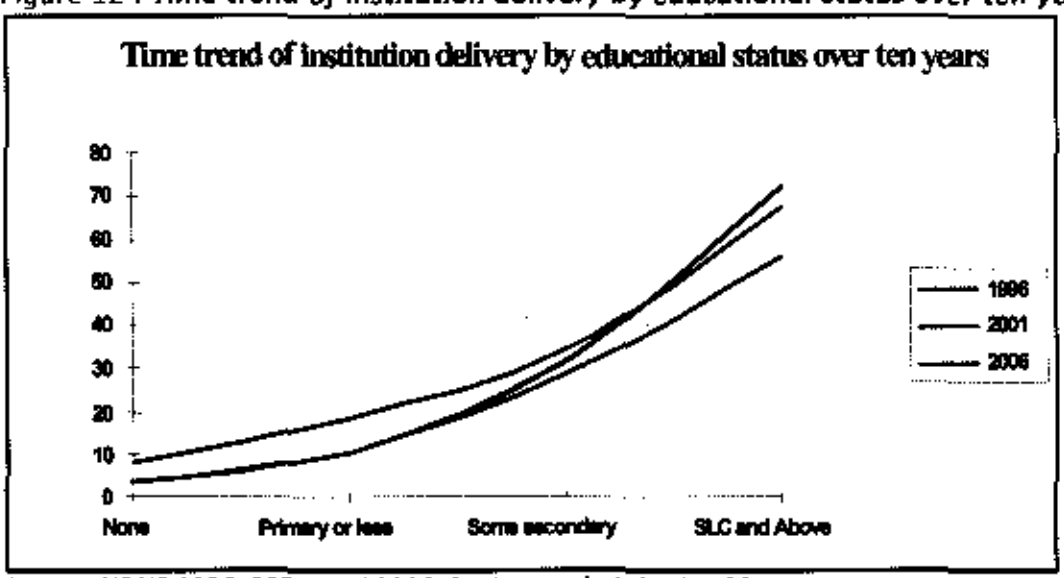
Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Table 18 shows the status of institutional delivery varied from one caste/ethnicity, place of residence, region, wealth quintiles and their educational status to another.

Regarding delivery at institutions, there has been improvement by all stratifiers. Far-Western region improved from 2.7 in1996 to 8.5 in 2006. Similarly, the institutional delivery in the mountain increased from 2 percent in 1996 to 6 percent in 2006. Regarding improvement by wealth quintile, the lowest quintile improved from 2 percent in 2001 to 4 percent in 2006 compared to 32 percent among highest quintile to 55 percent. Dalits improved from 6 percent in 1996 to 11 percent in 2006. Surprisingly, among women with SLC or above has decreased from 72 percent in 1996 to 67 percent in 2006. This needs further investigations.

The trend of the institution delivery over the last ten years by caste shows that the progress made is invariably large for privileged Janajati and others in the year 2006 in comparison to others although it is higher in all the caste/ethnicity. The percentage of women who had delivered their baby at the health institution is 67.4 among those whose educational status is SLC or more and it is only 8 percent for the illiterate (uneducated) women in 2006. It was 56 percent and 3.7 percent in the year 2001 and 72.2 percent and 3.8 percent in the year 1996 respectively. It shows that the gap is narrowing over the course of time, which is further illustrated by the figure 15.

*Figure 12 : **Time trend of institution delivery by educational status over ten years***



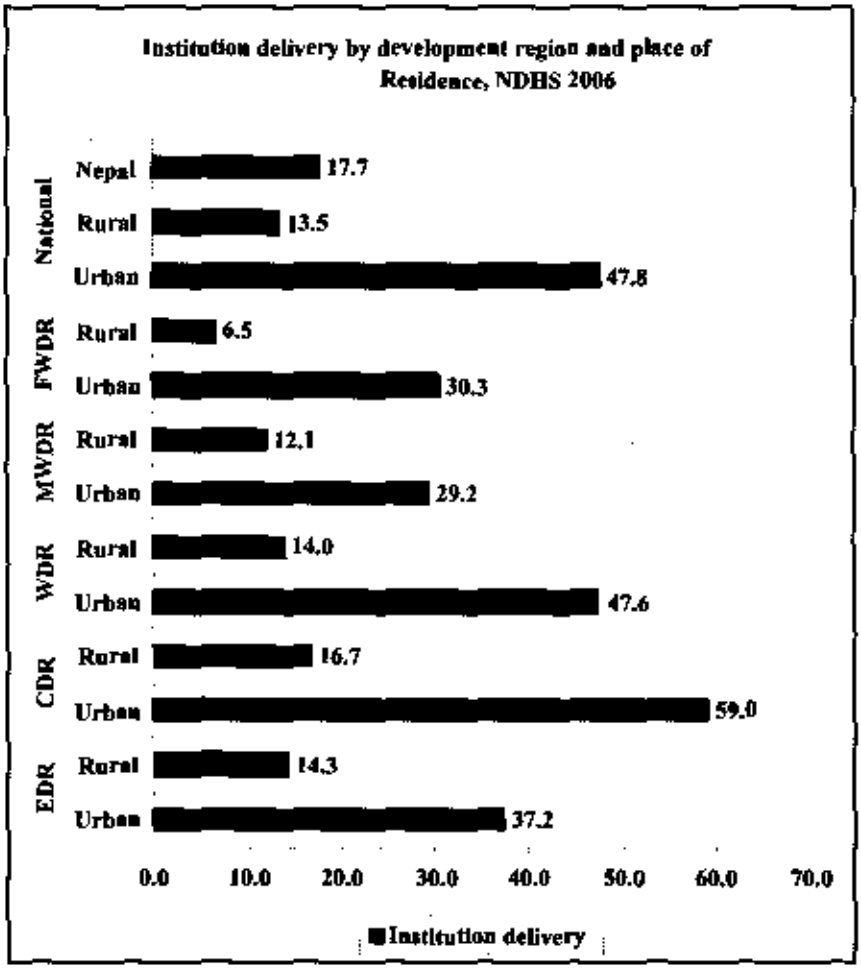
***Source:** NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Similarly, the institutional delivery is better in the hilly region (almost three times to the mountain), in comparison to others and is in the increasing trends in all regions.

The decision for choosing the place of delivery is strongly related to the place of residence of the mothers. Women in urban areas are almost four times more likely to deliver their baby in the health institution than in rural areas in the year 2006 and it was almost eight times in the year 2001 which indicates improvement among rural women.

How is service utilization -affected by the place of residence in regions?

*Figure 13 : **Institution delivery by region and residence***



***Source:** NDHS 1996, 2001, and 2006, further analysis by CHPRD*

In the figure 13, it can be seen that the inter-regional gap in the institutional delivery status is large. Only 6 percent of the rural women in Far Western regions are supposed to delivering their baby in the health institution whereas 30 percent of the women in urban areas even in Far Western Region are delivering their baby in institution. It suggests that if the services are accessible in the rural areas also (as in urban areas); there is greater likelihood of utilization of the services.

SBA/ TA by all stratifiers

Delivery care from a trained provider during delivery is recognized as critical for the reduction of maternal and neonatal mortality. Babies delivered at home are usually more likely to be delivered without assistance from a health professional, and vice versa.

Table 19 Status of the Skilled/trained Birth Attendants during delivery by all the stratifiers

SBA by all the stratifiers							
Level	Classes	1996		2001		2006	
	Eastern	92	10.00	214	13.30	206	17.20
	Central	175	12.20	297	12.90	448	24.70
	Western	75	8.50	146	11.50	207	20.10
	Mid west	28	4.10	43	4.10	100	14.20
	Far west	22	5.10	57	7.70	77	9.60
	P-value		*0.000*		*0.000*		*0.000*
Eco belt							
	Mountain	10	2.90	21	3.90	34	7.10
	Hill	186	10.00	314	10.90	514	22.70
	Terai	197	9.10	422	11.80	489	17.50
	P-value		*0.000*		*0.000*		*0.000*
Wealth quintiles							
	First	NA	NA	47	2.60	68	4.80
	Second	NA	NA	54	3.50	119	10.00
	Third	NA	NA	103	7.40	140	12.40
	Fourth	NA	NA	146	11.10	226	23.00
	Fifth	NA	NA	407	42.50	484	57.80
	P-value				*0.000*		*0.000*
Caste/Ethnicity							
	Upper Caste	154	12.30	319	16.00	427	25.60
	Janajati	69	5.40	220	7.90	253	14.30
	Dalit	15	9.40	67	6.60	192	12.40
	Relig.Minor	15	5.90	31	7.30	38	13.10
	Prev.Janajati	61	30.70	82	31.50	91	49.90
	Others	78	6.40	38	7.80	38	39.10
	P-value		0.000		0.000		0.000
Terai Groups							
	Madeshi	39	4.70	153	9.20	230	12.70
	Non-Madeshi	276	11.80	452	10.90	755	21.20
	Others	78	6.40	40	78.00	53	30.20
	P-value		0.000		0.026		0.000
Residence							
	Urban	129	46.50	226	50.30	342	50.60
	Rural	263	6.40	531	8.10	695	14.30
	P-value		0.000		0.000		0.000
Educational status							
	None	156	4.50	269	5.20	274	8.20
	Primary or less	78	14.50	137	14.10	208	20.60
	Some secondary	128	36.70	301	39.60	310	36.60
	SLC and Above	35	77.20	49	70.30	245	71.14
	P-value		0.000		0.000		0.000
National		**393**	**9.0**	**757**	**10.8**	**1037**	**18.7**

Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

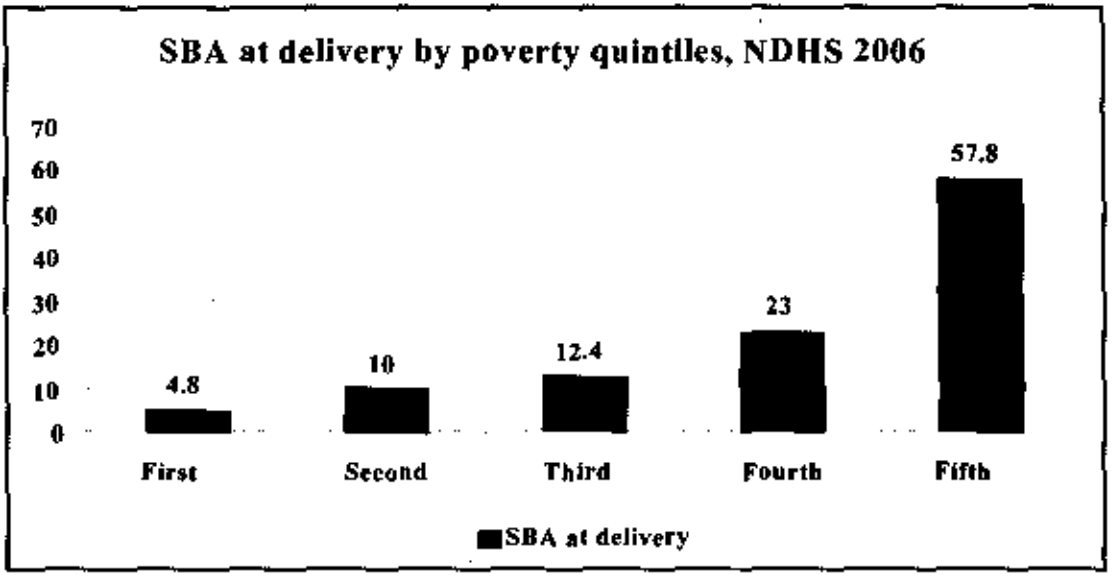
Table 19 shows that the percent of home delivery attended by the skilled/trained service provider varies from one to another region in the country. It is the highest in the central development region.

In the mountains, it is almost one third (7.1 percent) of that in the hills (22.7 percent) in the year 2006 however it is increased by almost 2 times from that in the year 1996 (2.9 percent).

The percentage of births assisted at delivery by SBA/TA is invariably high in the urban areas (50.6 percent versus 14.3 percent in the year 2006), which is most probably due to the high institutional delivery status. It has increased in the rural areas from 6.4 percent in 1996 to 14.3 percent in 2006 in comparison to that in the urban areas (from 46.5 percent to 50.6 percent).

In the figure 14, SBAs are more likely to be used in the delivery of women from the fifth quintiles (57.8 percent) in comparison to that of the poorest women (only 4.8 percent).

Figure 14 : ***Status of the Skilled/trained Birth Attendants during delivery by wealth quintiles***

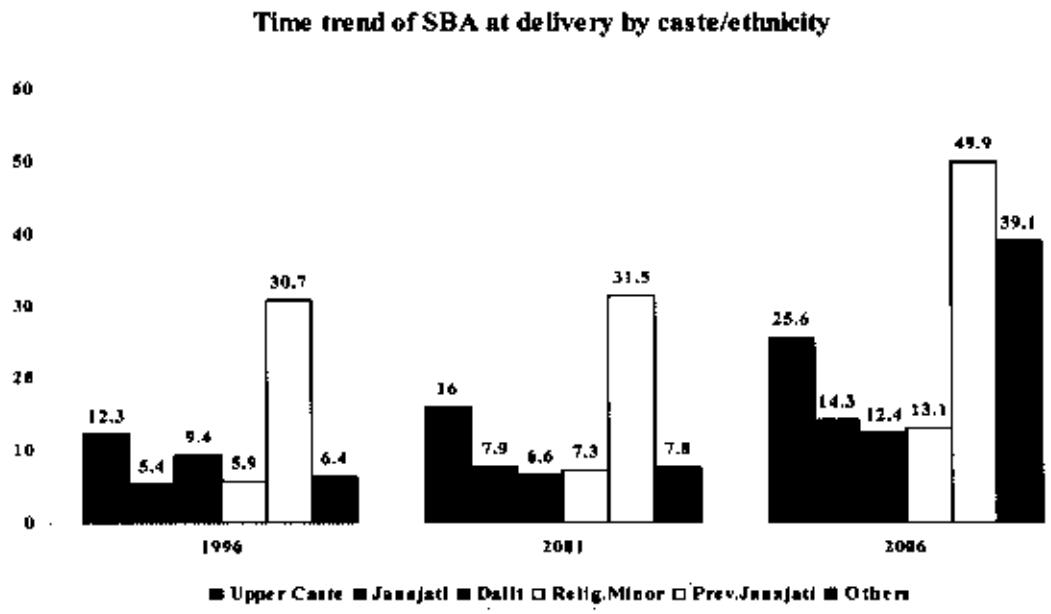


Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

There is strong relationship between the caste/ethnicity of the women and the SBA at the delivery. Only about 12 percent to 14 percent of the Dalits, Religious minorities and Janajati women were attended by the skilled/trained birth attendants whereas it is 50 percent in the Privileged Janajati and 26 percent in the so called upper caste in 2006.

Among the Madhesi, only 12.7 percent women are using SBA at delivery in comparison to the 21 percent among Non-madhesi however it is still a great achievement among them from the year 1996 when it was 4.7 percent, which is further illustrated by the following graph.

Figure 15 : ***Time trend of SBA at delivery by caste over ten years***

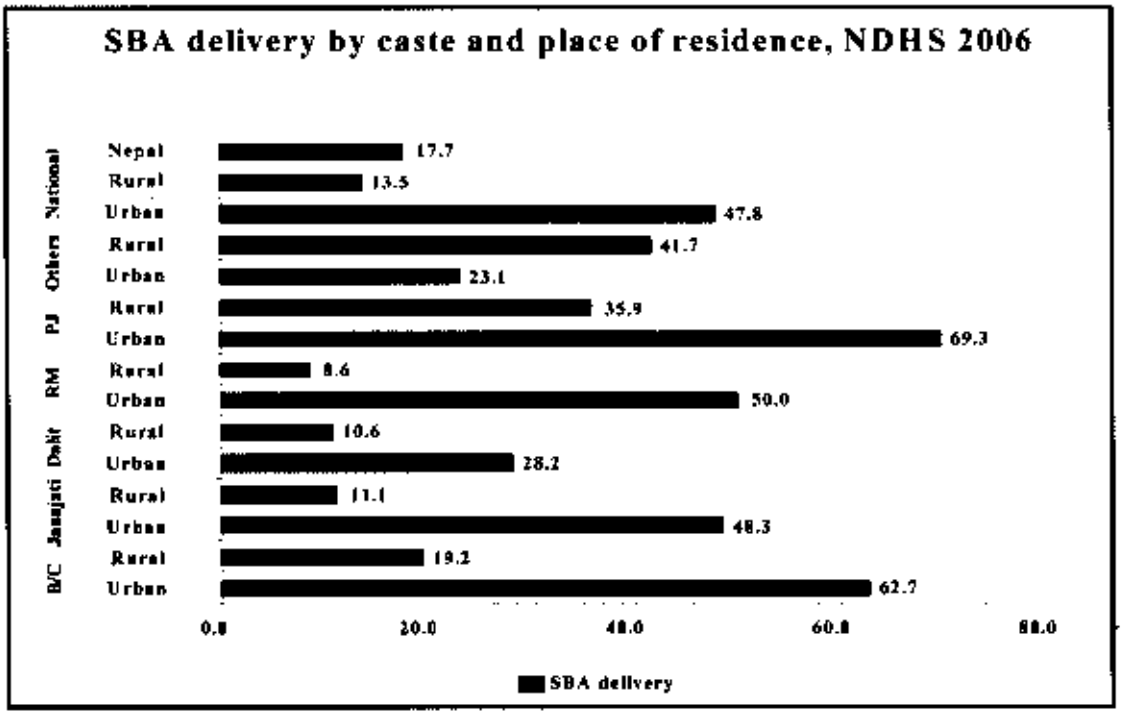


Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Are Dalits (just being Dalits) really not utilizing SBA at delivery?

The figure 16 reveals whether the Dalits just being Dalits are really not utilizing SBA at delivery or there are other factors that are making these groups not utilize the services.

Figure 16 : ***SBA at delivery by caste/ethnicity and place of residence***



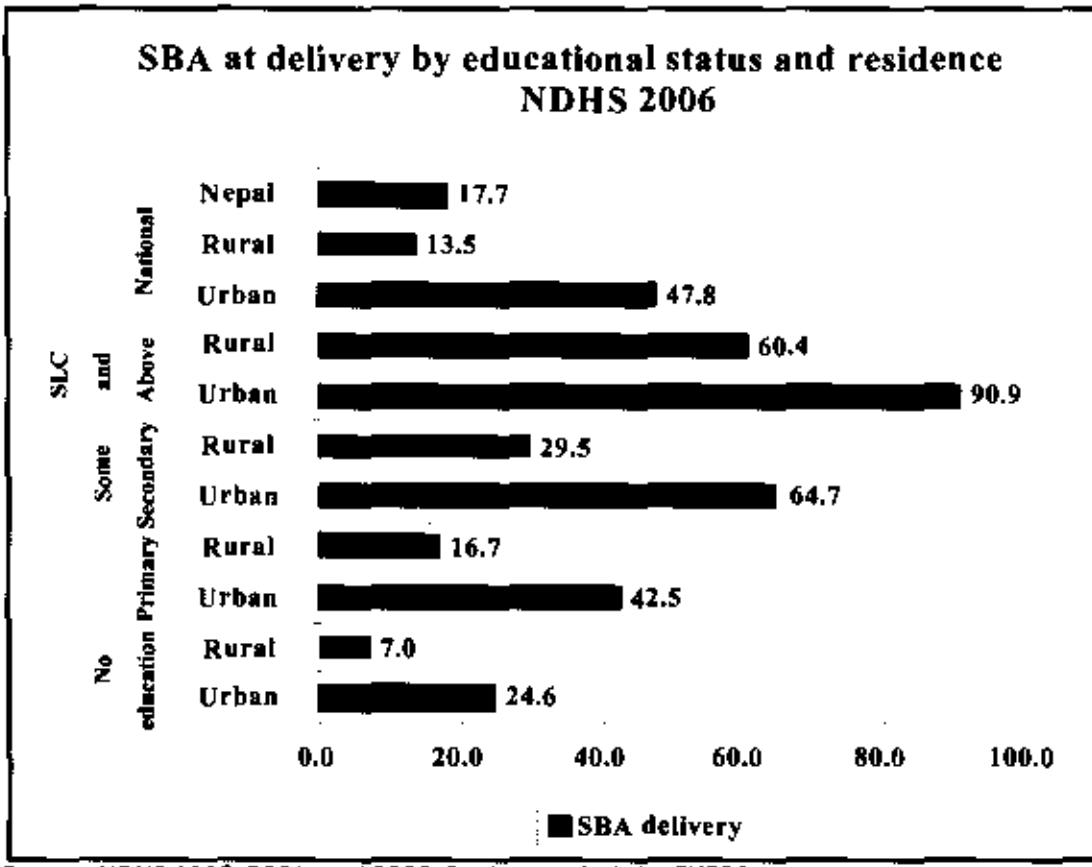
Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

The figure shows that Dalits in the urban areas are utilizing less Skilled Birth Attendants at delivery (28 percent) than privileged Janajatis (36 percent) in the rural areas which is much higher than the national average which is 17 percent and also higher than Bramhin/Chhetri in rural areas which is 19 percent only. These data shows that it is the availability and accessibility of SBA that determines utilization rather than caste/ethnicity.

Which is strong barrier; educational status of mother or place of residence?

There is a large gap in the deliveries attended by SBA/TA in between the uneducated women and women with educational level of SLC or more.

Figure 17 : ***SBA by educational status and place of residence***



Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Among the uneducated women it is only 8.2 percent in 2006 whereas it is almost 71 percent among the women with educational level of SLC or more. However there is positive change over the last ten years among the uneducated women (8.2 percent from 4.5 percent) whereas it is negative change among the women with SLC and more (71.14 percent from 77.2 percent).

In fact, the educational status of women has greater role in the utilization of SBA however there would be many other factors like geographical distance, greater costs associated with it, unavailability of services etc. that may compound the barriers to access

SBA in the community. Figure 17 show that in the urban areas, almost 25% of even uneducated women are utilizing the SBA at delivery whereas in the rural areas it is only 7 percent. Similarly, in the rural areas, only 60 percent of women whose educational level is of SLC and more are attending SBA at delivery compared to 90% in the urban areas.

5.1.3. Birth Preparedness Practices- 2006

Though birth preparedness is not included in the list of MDG process indicators, birth preparedness is an effort to make every pregnancy and delivery safe. The fact that every pregnancies faces risk demands timely access to skilled care during pregnancy, childbirth and post partum period. Birth Preparedness has been a very important factor in ensuring safe delivery. Too, often, however their access to care is impeded by three delays i.e. delays in deciding to seek care, delay in reaching to care (facilities) and delays in receiving care. Birth preparedness is believed to reduce two out of three delays in getting delivery services (Department of Health Services, 2006a). Therefore we have included this component in our study. Birth preparedness is analyzed by several stratifiers as reflected in table 20.

In the year 2006, almost 46 percent of the women had not done any preparation at all during their last pregnancy in the past five years. When the developmental regions are analyzed, the condition is worse in the western part of the country. Birth Preparedness is less likely to be done by uneducated women by almost ½ times than those who had the educational level of SLC and more. Similarly, women in first quintile are less likely to adopt Birth Preparedness compared to the women in the fifth quintiles.

Table 20: Specific Birth preparedness by all stratifiers

Stratifiers		Preparations done for									
		Money		Transportation		Blood donor		Health workers		SHDK	
Level	Classes	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
	Upper Caste	456	36.30	21	1.70	5	0.40	22	1.80	133	10.60
	Janajati	475	35.80	19	1.50	NA	NA	78	5.90	135	10.20
	Dalit	402	37.90	8	0.70	NA	NA	30	2.80	70	6.60
	Relig.Minor	73	38.70	2	1.00	NA	NA	6	3.40	15	8.10
	Prev.Janajati	70	50.00	5	3.40	5	3.80	6	4.10	11	8.20
	Others	31	38.30	2	2.40	NA	NA	2	2.30	4	5.40
	P-Value		*0.04*		*0.094*		*0.000*		*0.000*		*0.009*
	First	169	17.70	1	0.10	NA	NA	18	1.90	44	4.60
	Second	280	32.60	4	0.40	NA	NA	41	4.80	91	10.60
	Third	323	40.00	5	0.60	NA	NA	33	4.10	87	10.80
	Fourth	334	44.80	24	3.30	1	0.10	19	2.50	85	11.50
	Fifth	402	58.60	23	3.30	10	1.50	33	4.80	62	9.00
	P-Value		*0.000*		*0.000*		*0.000*		*0.002*		*0.000*
	Eastern	443	50.10	25	2.90	2	0.30	32	3.70	98	11.10
	Central	553	40.50	17	1.30	7	0.50	23	1.80	97	7.40
	Western	179	23.70	11	1.40	NA	NA	21	2.80	46	6.20
	Mid west	129	25.10	1	0.20	1	0.20	12	2.20	57	11.10
	Far west	224	38.30	2	0.30	1	0.10	56	9.50	70	12.00
	P-Value		*0.000*		*0.000*		*0.220*		*0.000*		*0.000*
	Urban	279	52.40	12	2.20	8	1.50	20	3.80	35	6.60
	Rural	1228	34.90	45	1.30	3	0.10	124	3.50	333	9.50
	P-Value		*0.000*		*0.074*		*0.000*		*0.783*		*0.031*
	Mountain	77	22.60	2	0.60	1	0.20	7	2.10	22	6.60
	Hill	522	31.10	15	0.90	8	0.50	33	2.00	134	8.00
	Terai	908	44.60	39	1.90	3	0.10	104	5.10	213	10.40
	P-Value		*0.000*		*0.013*		*0.184*		*0.000*		*0.007*
	Madeshi	576	44.90	17	1.30	NA	NA	86	6.70	136	10.60
	Non-Madeshi	873	33.10	37	1.40	10	0.40	54	2.00	228	8.70
	Others	58	43.70	2	1.80	NA	NA	4	3.10	5	3.60
	P-Value		*0.000*		*0.973*		*0.068*		*0.000*		*0.013*
	No education	688	29.30	11	0.50	1	0.10	65	2.50	140	6.00
	Primary	279	37.60	10	1.40	NA	NA	23	3.10	75	10.10
	Some secondary	353	51.70	18	2.20	0	0.00	38	4.50	116	17.00
	SLC and Above	187	66.30	17	4.90	10	2.80	18	5.10	39	13.30
	P-Value		*0.000*		*0.000*		*0.000*		*0.000*		*0.000*

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Further analysis of Equity in Maternal health Status

Is one ethnic group disadvantaged across all (or most) maternal health indicators?

Table 21 shows that Dalits ethnic group is consistently well below the average level and is the most disadvantaged in all the indicators whereas Privileged Janajati seems the most advantaged.

Table 21: ***Maternal Health indicators by ethnic groups***

	ANC-IV	Institution delivery	SBA	BPP (at least one)
National Average	29.50	17.70	18.70	54.20

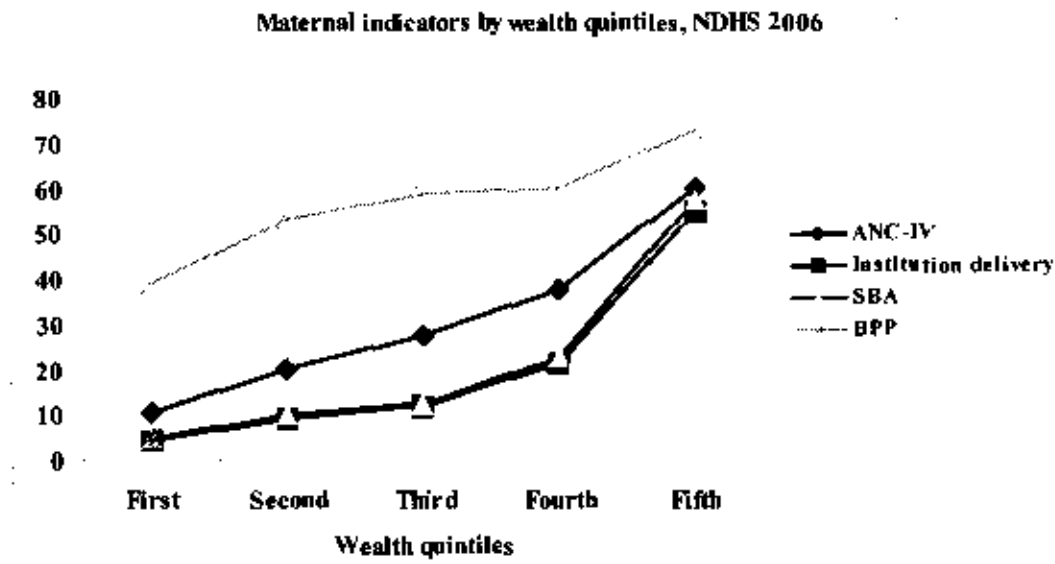
Source: *NDHS 2006, further analysis by CHPRD*

The Bramhin/Chhetri; so called upper caste group seem relatively advantaged but is still behind the privileged Janajati (Newar and Thakali) and others in most of the indicators.

How do different indicators compare across wealth quintiles

The following figure establishes the fact that there is a big gap in the maternal health status of women who are from the poorest wealth quintiles and those who are from the richest quintiles however the size of these differentials varies depending upon the indicator.

Figure 18 ***Maternal health indicators by the wealth quintiles***



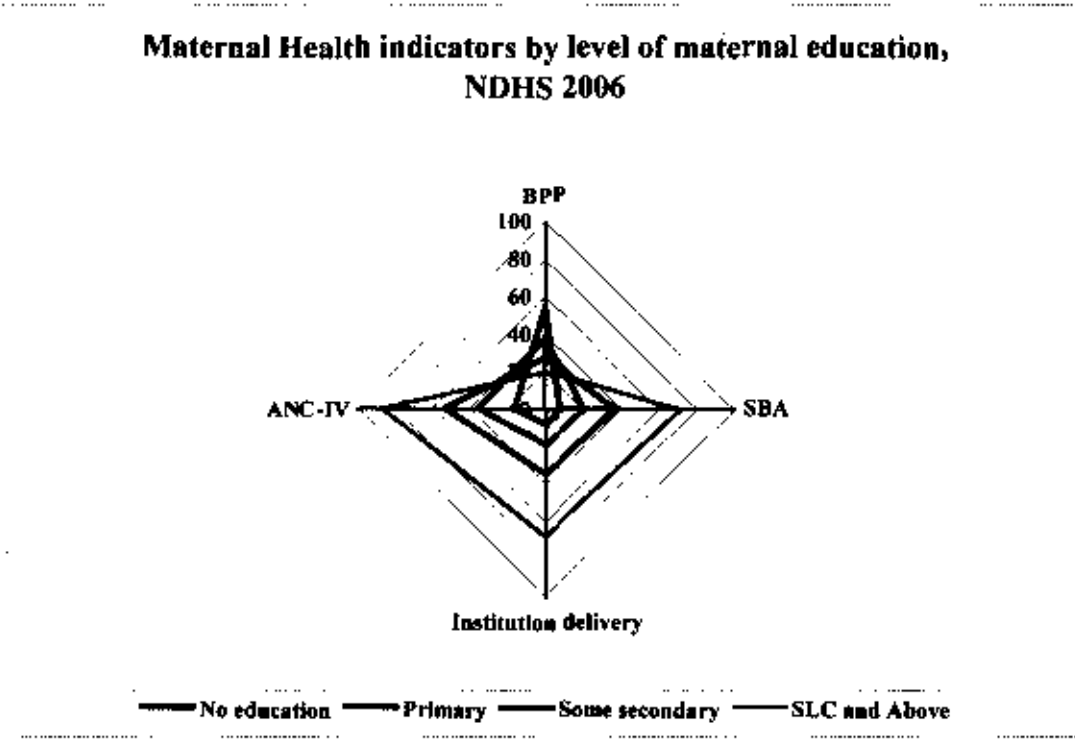
Source: *NDHS 2006, further analysis by CHPRD*

In the graph, almost all indicators show steeper gradients except for BPP. The institutional delivery and SBA are close almost at the same level, which is the evidence that the trend of institutional delivery increases skilled attendants at delivery.

Which indicator reveals the greatest disparities in maternal health?

Among the four indicators of maternal health, utilization of ANC-IV service seems to be affected the greatest by the level of education. Among the women whose educational status is SLC and more, ANC-IV services utilization is invariably high (> 80 percent) in comparison to those who are illiterate (<20 percent). Similarly, SBA, institutional delivery, and BPP are higher among women with higher level of education.

Figure 19 : ***Maternal health indicators by level of their educational statuses***



Source: *NDHS 2006, further analysis by CHPRD*

5.2. Child Health status by the process indicators: service coverage

5.2.1 Immunization

The MDG target for child health is a 2/3rd reduction in under five mortality and 1/3rd reduction in Infant mortality by 2015 AD. Though the process indicators included in the list for Nepal include DPT3 and measles immunization, we have included BCG also, which is an indicator for access to services for children.

Table 22 shows that the immunization coverage is in the increasing trend over the last ten years especially in the Far Western region where it was around 50 percent for all the antigens (BCG- 59 percent, DPT3- 38 percent, and Measles- 49 percent) in the year 1996. In 2006, coverage of all antigens is around 80 percent in all regions. The Mid Western region seems to be the most disadvantaged.

In comparison to the mountainous and hilly areas, the coverage of all the antigens is better in Terai region. In case of measles, it is more prominent.

The children from privileged Janajati group are more likely to be immunized than the Dalits children. Though the immunization coverage is 100 percent among the privileged Janajati group, it is 89 percent in case of Dalits for BCG and 85 percent for DPT3. The variation in the coverage by group reveals that the gap is small in between the Madhesi and Non-Madhesi groups, and place of residence. However, there are significant gaps in the coverage by educational status of mothers. Children of educated mother are more likely to be immunized than those of none educated especially in case of measles.

Though, immunization services in Nepal is totally free, the gap in the immunization status of children by their wealth quintiles is however noticeable. It is almost by 21 percent in measles and DPT3 and 13 percent in BCG between the richest and poorest wealth quintile in 2006. The variation is also highly significant at (p=0.000). These data indicate that much more targeted efforts should be done to attain universal immunization by reaching the poorest of the poor.

Table 22 ***Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to immunization card or mother's report, by all the stratifiers***

Stratifiers		Years								
		1996			2001			2006		
		BCG	DPT3	Measles	BCG	DPT3	Measles	BCG	DPT3	Measles
Regions	Levels									
	Eastern	80.80	57.70	63.30	92.50	81.00	78.40	94.00	90.90	88.00
	Central	77.80	52.00	54.80	84.90	67.30	65.10	93.10	87.00	81.00
	Western	81.20	62.50	56.80	84.80	73.10	68.00	97.80	96.20	89.30
	Mid west	70.60	51.00	55.80	81.70	74.00	76.20	88.40	82.30	84.00
	Far west	59.20	37.70	49.10	69.60	63.20	67.30	92.30	84.30	83.80
	P-value	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.06*
	Mountain	64.90	44.00	49.80	78.00	66.90	72.80	88.10	76.80	74.50
	Hill	77.10	59.10	62.60	83.30	76.80	73.40	90.50	86.30	83.90
	Terai	76.80	49.90	52.00	86.50	68.90	68.20	97.10	93.60	88.30
	P-value	*0.32*	*0.04*	*0.01*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*0.00*
	Male	74.20	54.90	59.20	86.10	74.20	73.10	94.80	90.20	87.10
	Female	77.70	52.20	54.00	83.00	70.20	68.70	91.70	87.20	82.80
	P-value	*0.22*		*0.02*	*0.35*	*0.07*	*0.12*	*0.10*	*0.27*	*0.10*
	First	NA	NA	NA	74.90	62.10	61.10	84.70	75.30	73.20
	Second	NA	NA	NA	81.50	68.90	67.80	94.70	88.10	84.90
	Third	NA	NA	NA	89.20	72.30	69.60	97.40	96.00	87.40
	Fourth	NA	NA	NA	90.70	80.20	79.90	96.60	93.90	91.20
	Fifth	NA	NA	NA	92.60	85.30	83.20	97.00	96.60	94.40
	P-value				*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Upper Caste	80.00	61.00	66.70	84.80	79.90	80.10	95.70	91.90	90.00
	Janajati	77.40	59.20	62.80	86.00	76.90	74.00	92.70	87.20	86.80
	Dalit	75.40	39.80	47.70	83.60	55.60	54.90	89.20	85.40	74.70
	Relig.Minor	54.70	29.10	25.00	67.00	43.40	46.30	96.30	86.20	77.30
	Prev.Janajati	87.90	75.00	78.10	97.80	87.70	87.50	100.00	96.20	96.20
	Others	72.30	42.10	42.90	82.00	56.60	51.70	100.00	100.00	92.40
	P-value	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
	Madeshi	69.50	44.70	48.20	86.50	66.60	63.80	95.40	91.60	83.40
	Non-Madeshi	80.00	62.20	66.10	84.70	77.60	76.70	92.30	87.50	85.60
	Others	72.30	42.10	42.90	82.90	57.40	52.80	100.00	91.00	86.60
	P-value	*0.00*	*0.00*	*0.00*	*0.23*	*0.00*	*0.00*	*0.01*	*0.30*	*0.09*
	Urban	87.50	77.20	77.20	88.40	78.20	80.60	95.70	93.40	88.90
	Rural	75.30	55.20	55.20	84.20	71.70	70.00	93.10	88.20	84.50
	Educational status									
	No education	72.07	48.79	53.00	79.70	64.30	63.50	90.10	82.20	77.70
	Primary or less	88.33	69.00	66.00	94.40	87.80	84.60	94.70	94.40	89.20
	Some secondary	97.60	79.00	87.00	98.00	94.40	92.70	100.00	99.40	95.40
	SLC and above	100.00	100.00	100.00	100.00	100.00	100.00	99.30	99.00	99.30
	P- Value	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Does literacy status of mother affect the immunization of children?

Table 23 shows that children from richest quintiles are immunized more in comparison to that from the poorest quintiles. Though there is no significant difference in the immunization status of children for BCG by the literacy status of mother, it is significant for DPT3 and measles. Among the children of literate mothers the coverage for all the antigens are around 90 percent but among the illiterate it is less.

*Table 23: **Immunization status by wealth quintiles and mothers' literacy statuses***

Wealth quintiles	Literacy	BCG	DPT3	Measles
First	**Illiterate**	82.91	70.85	69.35
	Literate	90.91	91.07	87.27
	P- value	***0.103***	***0.001***	***0.005***
Third	**Illiterate**	96.00	93.60	81.60
	Literate	100.00	100.00	97.47
	P- value	***0.084***	***0.018***	***0.000***
Fifth	**Illiterate**	96.43	96.43	89.66
	Literate	97.66	96.88	95.35
	P- value	***0.551***	***0.633***	***0.215***

***Source:** NDHS 2006, further analysis by CHPRD*

5.2.2. Nutritional status

Nutrition is included in MDG goal of eradicating extreme poverty and hunger and the indicator is the prevalence of under weight children. Malnutrition is the direct result of insufficient food intake or repeated infectious diseases or a combination of both. It can result in an increased risk of illness and death and can also result in a lower level of cognitive development. As a measure of under weight we have used HT/Age,Wt/Age and Wt/Ht

In the table 24, each of three nutritional indicators is expressed in standard deviation units (z- scores) from the median of the reference population. Children whose height-for-age z score is below minus two standard deviations (-2 SD) from the median of the reference population are considered short for their age (stunted) and chronically malnourished. Similarly, children whose weight-for-age is below minus two standard deviations (-2 SD) from the median of the reference population are classified as underweight and children whose z scores for weight-height index are below minus two standard deviations (-2 SD) from the median of the reference population are considered to be thin fro their height (wasted).

Table 24 ***The percentage of under five children classified as malnourished according to three anthropometrics indices of nutritional status: stunting, wasting and underweight by all the stratifiers***

Stratifiers		Years								
Class	Levels	1996			2001			2006		
Regions		Ht/Age	Wt/Ht	Wt/Age	Ht/Age	Wt/Ht	Wt/Age	Ht/Age	Wt/Ht	Wt/Age
	Eastern	38.3	10.20	38.00	44.60	7.80	41.00	40.30	10.10	32.90
	Central	50.9	10.10	48.20	52.30	12.50	51.70	50.00	13.80	38.20
	Western	50.0	11.20	47.70	50.30	7.00	44.70	50.40	10.90	38.50
	Mid west	51.0	11.90	48.80	53.80	8.20	52.20	57.90	11.60	43.40
	Far west	53.2	16.50	56.30	53.70	11.20	54.60	52.50	16.70	43.70
Eco belt										
	Mountain	56.60	13.60	53.20	61.20	6.20	49.90	62.30	9.40	42.40
	Hill	48.70	9.30	44.40	52.70	5.70	45.30	50.30	8.40	33.20
	Terai	46.90	12.60	48.20	47.10	13.40	50.60	46.30	16.60	42.30
Wealth quintiles										
	First	NA	NA	NA	NA	NA	NA	61.60	11.50	47.00
	Second	NA	NA	NA	NA	NA	NA	54.90	15.20	46.00
	Third	NA	NA	NA	NA	NA	NA	50.40	15.20	41.70
	Fourth	NA	NA	NA	NA	NA	NA	39.80	12.80	31.00
	Fifth	NA	NA	NA	NA	NA	NA	30.90	7.00	18.80
Residence										
	Urban	35.40	5.80	29.80	36.70	8.20	330	36.10	7.50	23.10
	Rural	49.30	11.60	48.10	51.50	9.70	49.40	51.10	13.30	40.70
Educational status										
	None	52.40	12.20	51.10	54.90	10.80	53.10	57.70	14.70	46.60
	Primary or less	40.00	8.40	36.20	43.00	8.20	41.00	16.20	8.40	31.10
	Some secondary	28.30	7.80	39.20	34.70	5.30	31.30	7.60	11.40	24.00
	SLC and Above	15.30	4.70	14.40	27.90	3.00	21.90	5.10	7.70	11.00
Sex										
	Male	46.60	12.30	45.8	49.20	10.60	46.10	49.00	12.90	37.50
	Female	50.20	10.20	48.0	51.80	8.70	50.50	49.60	12.30	39.70
	National	48.40	11.20	46.9	50.50	9.60	48.30	49.30	12.60	38.60

Source: NDHS 1996, 2001, and 2006

The Table 24 shows that over the last ten years there has been only some improvement in reduction of the percentage of underweight children from 47 percent in 1996 to 38 percent in 2006. However, other indicators like weight for height and height for weight are almost static.

The nutritional status of eastern regions is better that those of the others in the year 2006 by all the indicators (stunting, wasting and underweight) and the status of stunting is the lowest in terai however both wasting and underweight are the highest for it.

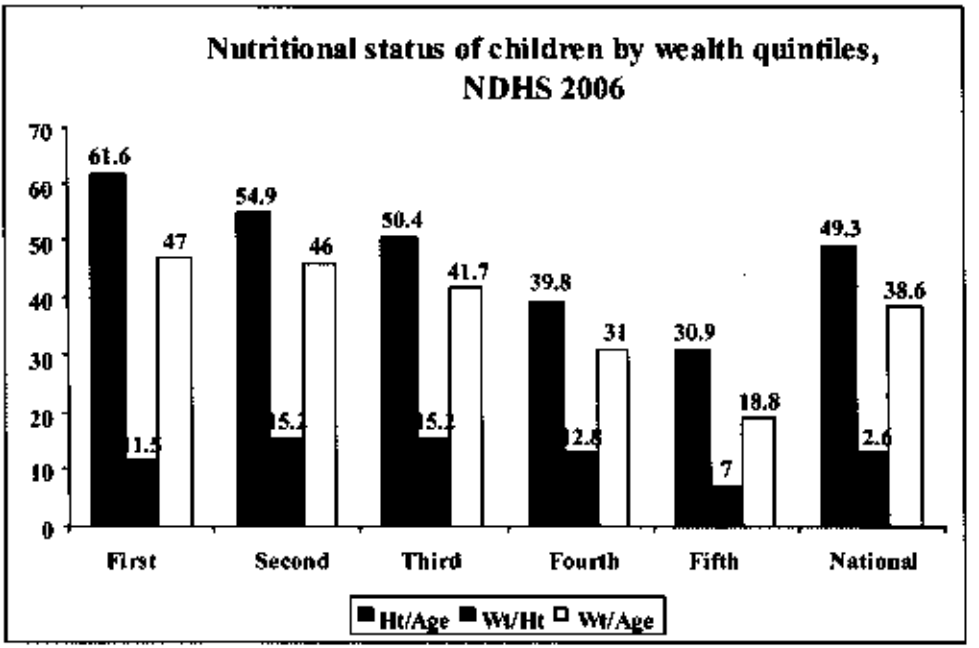
Though there is no statistically significant difference in the nutritional status of male and female children, there is again noticeable difference in the nutritional status of children in urban and rural area i.e., (stunting; 36.1 percent and 51.1 percent, wasting; 7.5 percent and 13.3 percent, underweight; 23.1 percent and 40.7 percent) in 2006.

The nutritional status of children increases dramatically with the lower educational status of the mothers of the children. The percentage of wasting and underweight among the children whose mother's educational status is SLC and more are 5.1 percent, 7.7 percent and 11 percent in 2006 and it is 57.7 percent, 14.7 percent and 46.6 percent among the children whose mothers are illiterate.

Nutritional status by wealth index

There is the large gap in the indicators by the wealth quintile (figure 20). Children from the poorest wealth quintile are almost twice more likely to be wasted, stunted and underweight as well. Among the richest quintiles, only about 31 percent of the children are stunted, 7 percent are wasted and 19 percent are underweight for their age whereas it is 62 percent, 15 percent and 47 percent respectively for the poorest.

Figure 20 ***Nutritional statuses of children by wealth quintiles***



Source: *NDHS 2006, further analysis by CHPRD*

Equity status in child health: A glance

Is one ethnicity disadvantaged across all (or most) health indicators?

It is generally considered that when the universal coverage is achieved, there will be fewer gaps in service utilization by caste, wealth, education and so on. Immunization in Nepal is very near towards attaining universal coverage, however, there are still some noticeable gaps.

Table 25 shows that Dalits group are the most disadvantages across all the immunization indicators. Privileged Janajati seems to be the most advantaged group.

Table 25: ***Child Health indicators by ethnic groups***

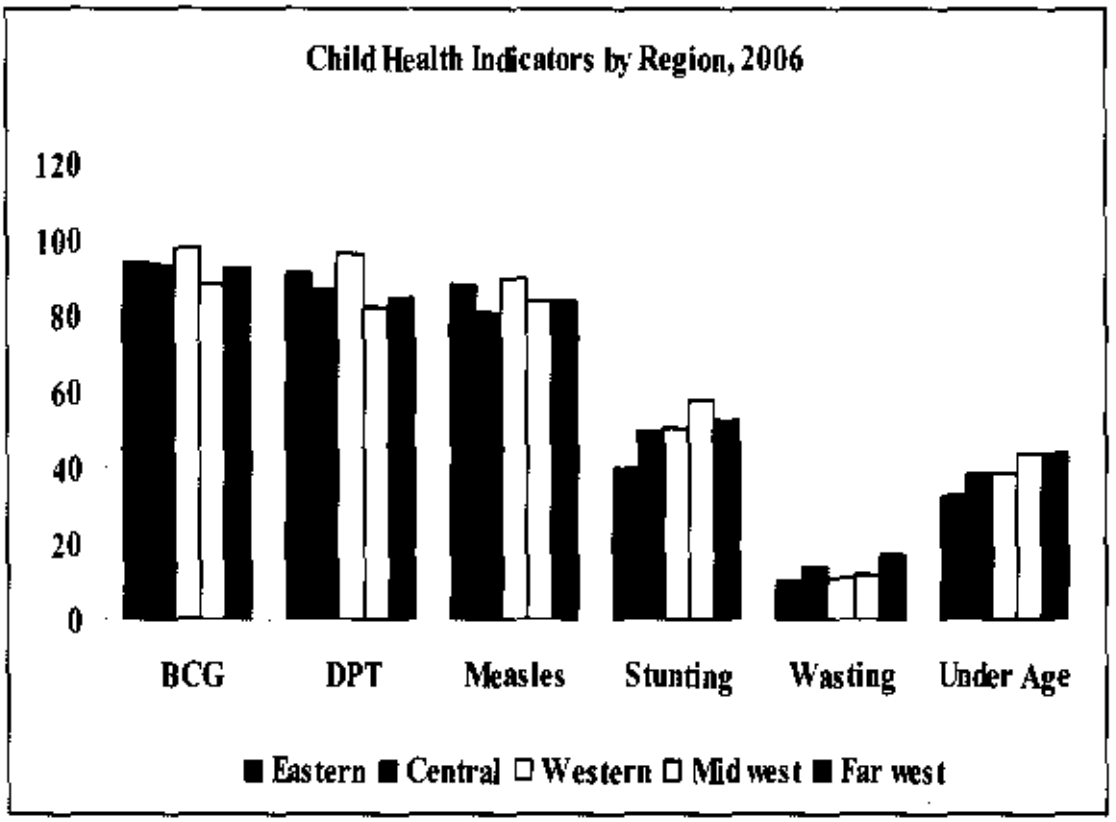
Child Health indicators by ethnic groups, NDHS 2006		
BCG Coverage	**DPT3 Coverage**	**Measles Coverage**
93.40	88.60	85.00

Source: *NDHS 2006, further analysis by CHPRD*

Which region suffers the greatest inequities in child health?

The following figure shows that there is no such disparity in the immunization status of children by the regions. However, comparison by the nutritional status reveals greater variation.

Figure 21 : **Child health indicators by region**



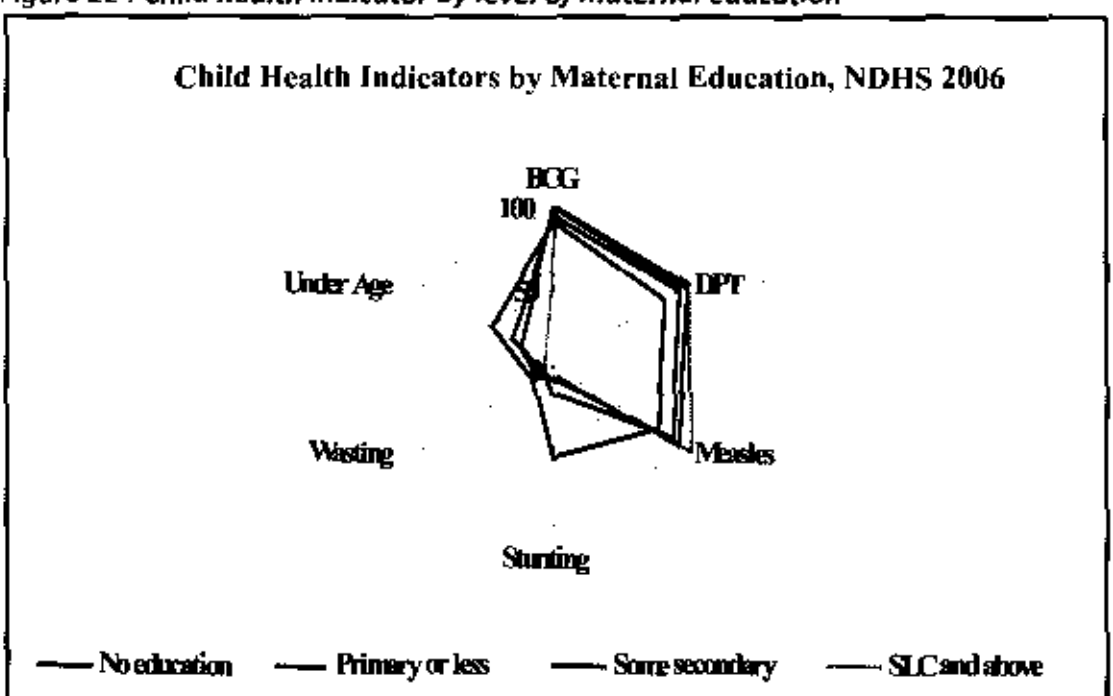
Source: *NDHS 2006, further analysis by CHPRD*

The western region seems to be in the best position for all the antigens (BCG, DPT3 and measles) and the mid western regions is in the last position for BCG and DPT3 however

in the case of measles, it has left central region behind it. In the mid western region, the stunting and underweight percentage are the highest which reveals the poorest nutritional status of children however regarding the wasting, it is in better position than the far western and central region in 2006.

Which indicator reveals the greatest disparities?

*Figure 22 : **Child health indicator by level of maternal education***

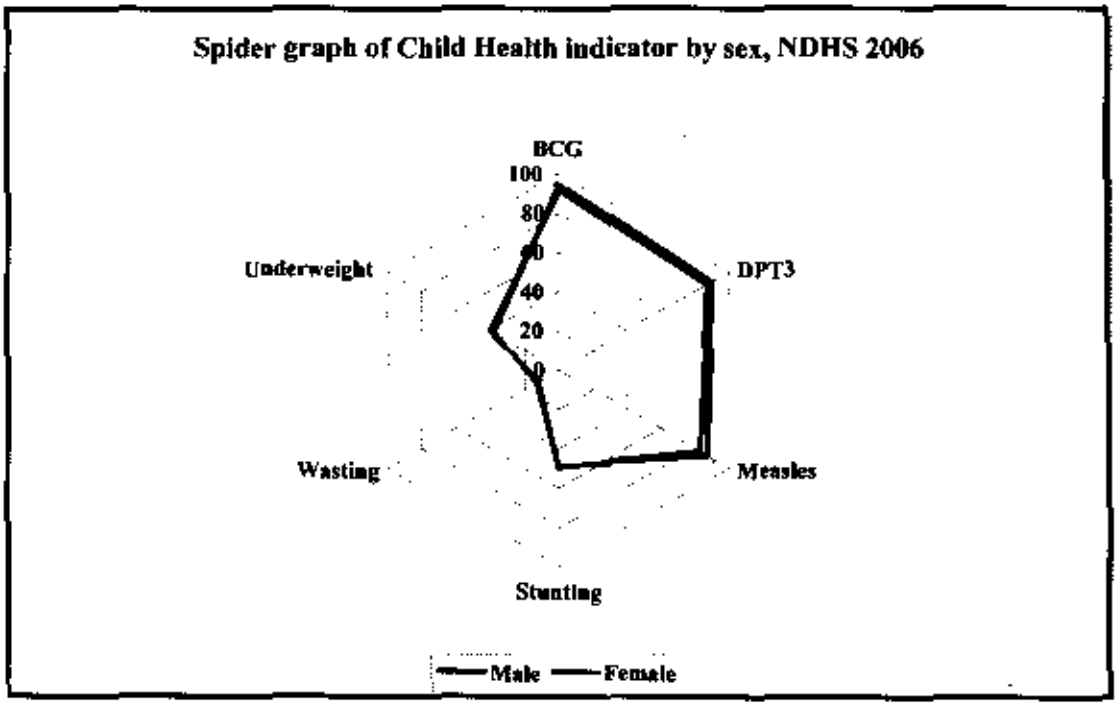


***Source:** NDHS 2006, further analysis by CHPRD*

It is seen that Child health status depends largely on the level of maternal education however the effect of this educational status varies depending upon the indicators. For example, in the figure 22, among the six different indicators of child health, the greatest disparity is in the status of stunting. In comparison to other indicators, there are fewer gaps in the immunization indicators of the children.

Gender disparities in child health indicators by sex

Figure 23 : ***Child health indicators by sex***



Source: *NDHS 2006, further analysis by CHPRD*

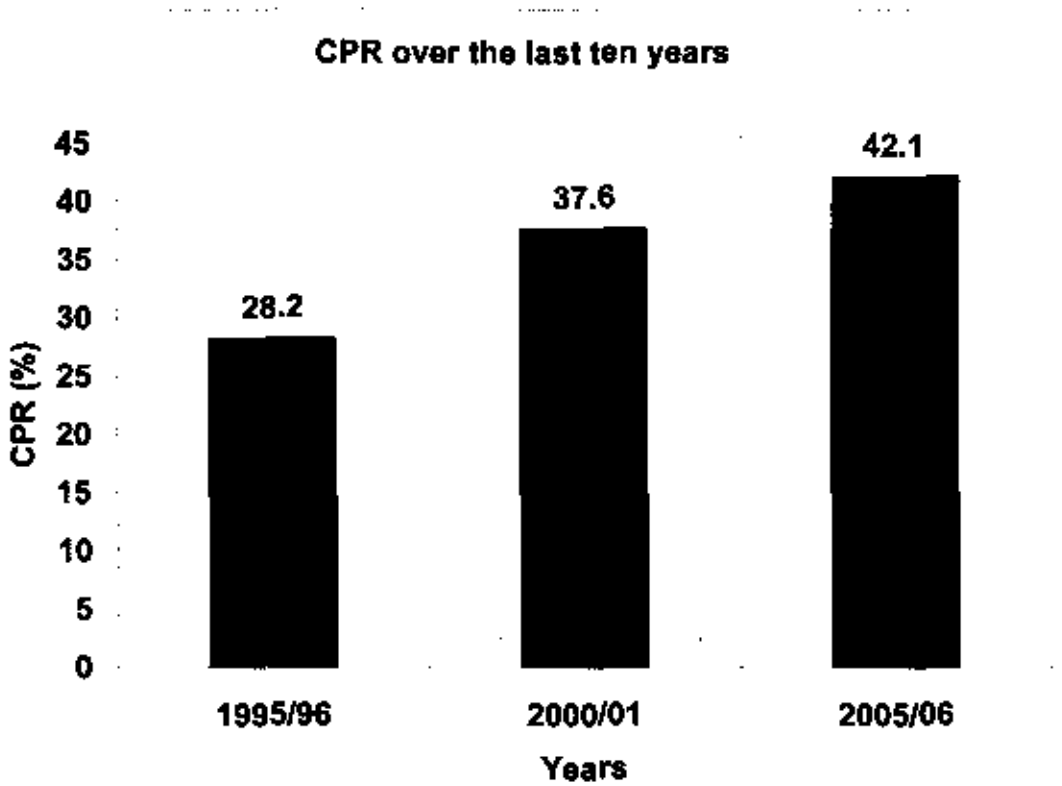
The figure 23 shows that there is no significant gap in the health status of male and female children in 2006. In comparison to the nutritional indicators, some difference however can be noted in their immunization status especially measles.

5.3. Status of Family Planning

The Contraceptive Prevalence Rate (CPR) is one of the performance indicators included in MDG 5 and is analyzed for status and equity using various stratifiers. The findings are as follows:

The number of current users from among the permanent method in CPR is adjusted based on the age and the mortality of males and females in the reproductive age group each year. The following figure shows that the contraceptive prevalence rate is in increasing trend over the last ten years.

Figure 24 : ***Contraceptive prevalence rates over last ten years***



Source: *Annual Health report, DoHS, MoHP, further analysis by CHPRD*

5.3.1 Current users of contraception

Current use of contraception is defined as the proportion of women who reported the use of a family planning method at the time of interview. The level of current use- usually among currently married women- is the most widely used and valuable measure of the success of family planning programs.

Table 26 shows the details of the percent distribution of all currently married women age 15-49 by modern contraceptive method currently used.

The current users of modern contraceptive methods were highest in the central development regions and the lowest in far western in the year 1996 and the difference was of almost 9 percent. However in the year 2006, the far western region is in the top most position with 49.5 percent modern contraceptive device users. The western region has the lowest modern contraceptive users followed by far western, eastern and central region.

The current users of modern contraceptive methods in the rural areas have increased by almost twice in the last ten years and in the urban areas also it is increasing trend.

Table 26: Current users of modern contraceptive devices

Stratifiers		Years					
Class	Levels	1996		2001		2006	
Regions		Freq	%	Freq	%	Freq	%
	Eastern	490	26.80	759	37.90	788	44.80
	Central	765	28.60	990	36.90	1268	46.40
	Western	393	25.20	581	34.30	586	36.60
	Mid west	278	24.20	389	33.80	420	43.10
	Far west	151	19.60	234	28.80	588	49.50
	P-value		*0.000*		*0.000*		*0.000*
Eco belt							
	Mountain	86	16.00	157	27.30	210	35.80
	Hill	905	26.90	1127	32.70	1389	40.80
	Terai	1086	26.60	1669	38.60	2051	48.00
	P-value		0.000		0.000		0.000
Wealth quintiles							
	First	242	17.00	422	24.07	465	30.30
	Second	290	23.00	510	29.50	666	40.60
	Third	340	26.50	659	32.70	817	46.80
	Fourth	369	30.80	539	39.07	790	48.20
	Fifth	598	49.80	823	51.34	912	53.90
	P-value		*0.000*		*0.000*		*0.000*
Caste/Ethnicity							
	Upper Caste	772	31.40	942	34.70	1163	43.70
	Janajatl	525	25.00	647	36.02	1316	47.20
	Dalit	76	24.60	246	32.60	824	42.10
	Relig.Minor	41	10.10	163	13.65	55	16.70
	Prev.Janajati	234	48.40	404	51.30	187	56.20
	Others	429	19.30	551	42.50	106	56.10
	P-value		*0.000*		*0.000*		*0.000*
Groups							
	Madeshi	324	23.70	604	33.01	1333	50.10
	Non-Madeshi	1324	30.10	1628	34.60	2163	40.80
	Others	429	19.30	721	42.50	154	52.00
	P-value		*0.000*		*0.000*		*0.000*
Residence							
	Urban	301	45.10	446	56.3	664	54.20
	Rural	1776	24.30	2507	33.2	2987	42.50
	P-value		*0.000*		*0.000*		*0.000*
Educational status							
	No education	1556	24.50	2002	33.5	2373	46.40
	Primary	249	27.80	471	37.7	588	41.90
	Some secondary	176	34.40	326	41.1	462	38.60
	SLC and more	96	42.30	154	46.4	228	41.70
	P- value		*0.000*		*0.000*		*0.000*

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

The increase in the contraceptive Prevalence is also significant in the ecological zones. In the mountain, the current users of modern methods have increased from 16 percent to 36 percent, in hills, from 27 percent to 41 percent and in the Terai from 27 percent to 48 percent.

Though modern methods of contraceptives are still more likely to be used by educated women, the gap in between the uneducated and the highly educated is less in the year 2006 (8 percent) in comparison to that in the year 1996 (18 percent).

The gap in between the poorest and the richest women in using the modern contraceptive is almost 3 times. Almost half of the currently married women from the richest quintiles are using modern contraceptive devices however only 17 percent form the poorest are using it. There is linear gap in between very next quintiles from the poorest to richest.

In the context of Nepal, it is well known fact that family planning is influenced by the caste/ethnicity or religion of the people. The data also shows that the religious minorities are in the lowest position with the current users of modern contraceptive devices in the year 1996 (10 percent) which increased to only 16 percent in 2006. In the course of 10 years, only 6 percent users are increased in the case of religious minoritis whereas in other groups like Privileged Janajati; the increment is larger i.e. from 48 percent in 1996 to 56 percent in 2006. In the year 2006, almost half of the currently married women from every other group are using modern contraceptive devices.

5.3.2 Gender and contraceptive uses

There are separate contraceptive devices designed for both males and females however, the contraceptive users in the context of Nepal are mainly females not only in the case of temporary users but also in permanent methods.

For the assessment of gender equity in family planning, only Voluntary Surgical contraception is further analyzed. Voluntary Surgical contraception (VSC) services include vasectomy, minilaparotomy, and laparoscopic sterilization. At least one type of VSC service is available in all districts through hospitals and /or mobile camps run by the government of Nepal. The use of VSC has been further analyzed by stratifiers such as education, Geographical region, Gender, wealth quintile, place of residence and caste and ethnicity.

Table 27: ***Male and Female participation in the sterilization methods***

Stratifiers		Years							
Class	Levels	1996				2006			
		Vasectomy		*Female surgical*		*Vasectomy*		*Female surgical*	
Regions									
	Eastern	73	3.70	241	12.40	57	2.40	381	15.90
	Central	145	5.10	364	12.90	199	5.60	499	14.00
	Western	127	7.70	165	10.00	114	5.50	209	10.10
	Mid west	55	4.60	121	10.90	120	9.60	127	10.10
	Far west	33	4.00	72	8.70	44	2.90	324	21.20
Eco belt									
	Mountain	36	6.40	11	2.00	80	10.60	18	2.40
	Hill	280	7.80	252	7.00	323	7.00	252	5.50
	Terai	116	2.70	699	16.40	131	2.40	1269	23.30
Wealth quintiles									
	First	62	4.20	93	6.30	95	4.90	150	7.60
	Second	66	5.00	148	11.00	80	3.90	334	16.10
	Third	75	5.60	177	13.10	99	4.50	441	19.90
	Fourth	77	6.20	206	16.60	117	5.20	346	15.50
	Fifth	124	9.70	238	18.60	143	6.20	269	11.60
Caste/Ethnicity									
	Upper Caste	227	8.70	310	11.90	348	9.80	290	8.20
	Janajati	116	5.30	217	9.80	107	2.80	559	14.70
	Dalit	1	0.50	73	22.90	46	2.00	591	25.40
	Relig.Minor	1	0.50	17	4.00	2	0.50	11	2.80
	Prev.Janajati	35	7.00	58	11.30	30	6.60	57	12.70
	Others	52	2.20	288	12.20	1	0.30	31	11.70
Groups									
	Madeshi	16	1.10	228	16.20	16	0.50	957	29.20
	Non-Madeshi	365	7.80	446	9.60	517	7.30	511	7.20
	Others	52	2.20	288	12.20	1	0.20	71	18.60
Residence									
	Urban	40	5.60	110	15.50	90	5.30	231	13.70
	Rural	393	5.10	852	11.00	444	4.90	1309	14.40
Educational status									
	No education	369	5.50	708	10.50	369	6.40	1215	21.20
	Primary	46	5.10	107	12.00	92	4.80	183	9.60
	Some secondary	34	5.00	77	11.20	64	2.40	129	4.70
	SLC and Above	4	3.60	3	2.70	9	2.00	12	2.80

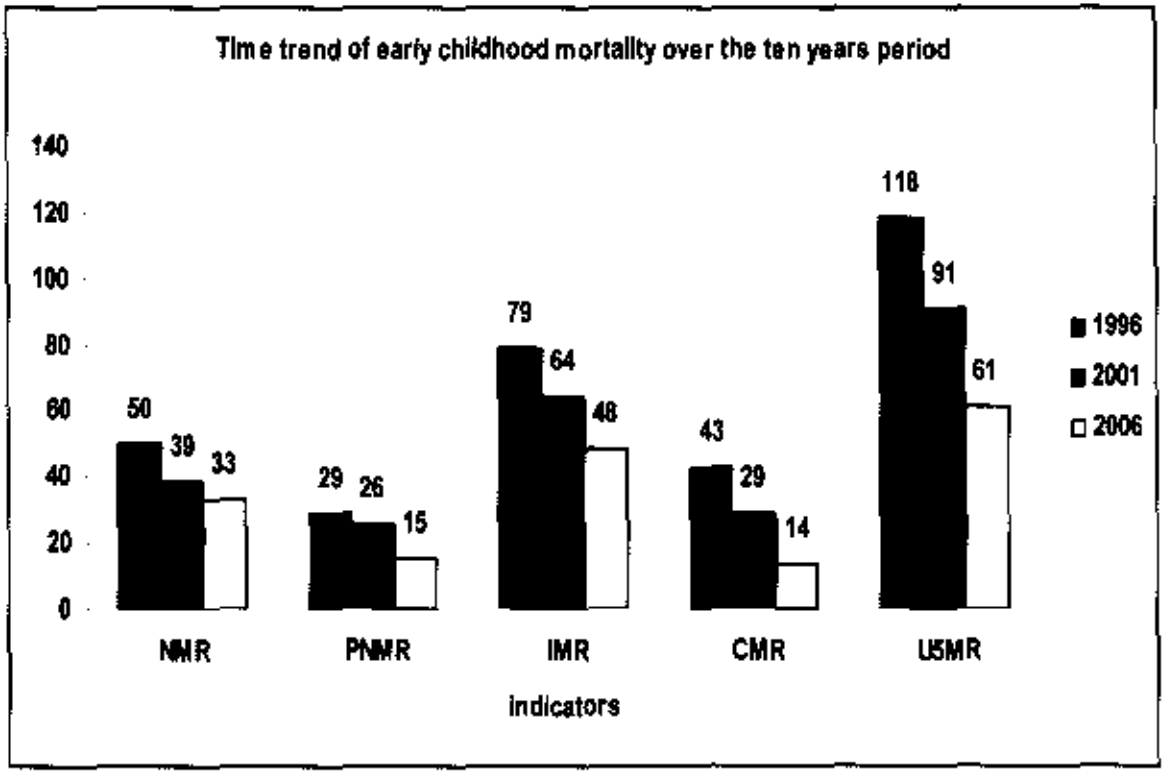
Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

In the table 27, the large gender gap can be seen in the use of voluntary surgica contraception. Women are invariably in large numbers in doing the surgical contraception In the eastern region, female surgical contraception is higher compared to other regions Whereas it is the lowest for vasectomy acceptors showing the large gender differences of almost 5 times.

In the Terai, female contraception (VSC) users are more (23 percent) in comparison to the male (2.4 percent). In contrast, in the Mountains and Hills vasectomy users are more than female surgical cases. . Among the Madhesi, vasectomy users are only 0.5 percent in

comparison to 30 percent female participation, whereas among the non Madhesi, male and female surgical contraception users are almost equal (7.3 percent versus 7.2 percent).

*Figure 25 : **Gender statuses in the use of Voluntary Surgical Contraception by educational statuses***



***Source:** NDHS 1996, and 2006, further analysis by CHPRD*

On further analysis by level of education, it can be seen that the disparities in VSC is affected negatively by educational status. With the increase in the educational status, there is gradual decline in the users of VSC and it is more prominent in the year 2006 in comparison to that in the year 1996.Qualititave studies are needed to understand this phenomenon.

5.4. HIV/AIDS

In this study among the various method of treatment (MOT) of HIV/AIDS; only responses to the question *'Can people reduce chances of getting AIDS virus by using condom?'* is further analyzed. The findings are as follows:

5.4.1 Knowledge about the Mode of Transmission of HIV/AIDS

*Table 28 : **Knowledge about prevention of HIV by using condom***

Stratifiers		Years					
Class	Levels	1996		2001		2006	
Regions		Freq	%	Freq	%	Freq	%
	Eastern	157	25.30	812	86.2	1394	78
	Central	232	30.80	793	86.2	1944	82.1
	Western	222	37.70	804	81.1	1403	80
	Mid west	56	25.70	250	86.9	794	78.1
	Far west	17	19.90	171	81.7	761	83.9
	P-value		*0.000*		*0.028*		*0.000*
Eco belt							
	Mountain	34	34.30	150	83.3	339	72.2
	Hill	419	33.20	1383	82.8	3208	80.2
	Terai	230	25.50	1298	86.5	2749	81.7
	P-value		*0.001*		*0.000*		*0.000*
Wealth quintiles							
	First	19	16.60	258	74.9	830	70.2
	Second	40	23.10	349	81.2	976	77.4
	Third	78	34.80	449	82.4	1069	78.5
	Fourth	108	31.30	647	84	1510	82.4
	Fifth	287	33.70	1127	89.4	1912	87.1
	P-value		*0.000*		*0.000*		*0.000*
Caste/Ethnicity							
	Upper Caste	349	33.70	1215	86	2540	83.4
	Janajati	1174	28.30	1180	83.3	2247	80.5
	Dalit	1	6.30	98	76.9	880	73.7
	Relig.Minor	1	11.10	23	54.6	125	81.6
	Prev.Janajat	100	31.50	257	91.9	348	82.7
	Others	57	21.30	58	79.8	156	68.6
	P-value		*0.000*		*0.000*		*0.000*
Groups							
	Madeshi	22	16.50	2128	84	1262	79.3
	Non-Madeshi	604	32.50	363	86.1	4861	81.1
	Others	57	21.30	59	80.1	173	69.1
	P-value		*0.000*		*0.000*		*0.000*
Residence							
	Urban	153	32.40	496	87	1278	83.4
	Rural	529	29.60	2335	84	5018	79.7
	P-value		*0.294*		*0.178*		*0.000*
Educational status							
	None	253	21.80	1201	19.20	2196	38.30
	Primary or less	146	31.50	694	53.90	1232	64.80
	Some secondary	166	39.40	637	78.40	2449	89.90
	SLC and Above	117	55.30	299	88.90	419	95.40
	P-value		*0.000*		*0.000*		*0.000*

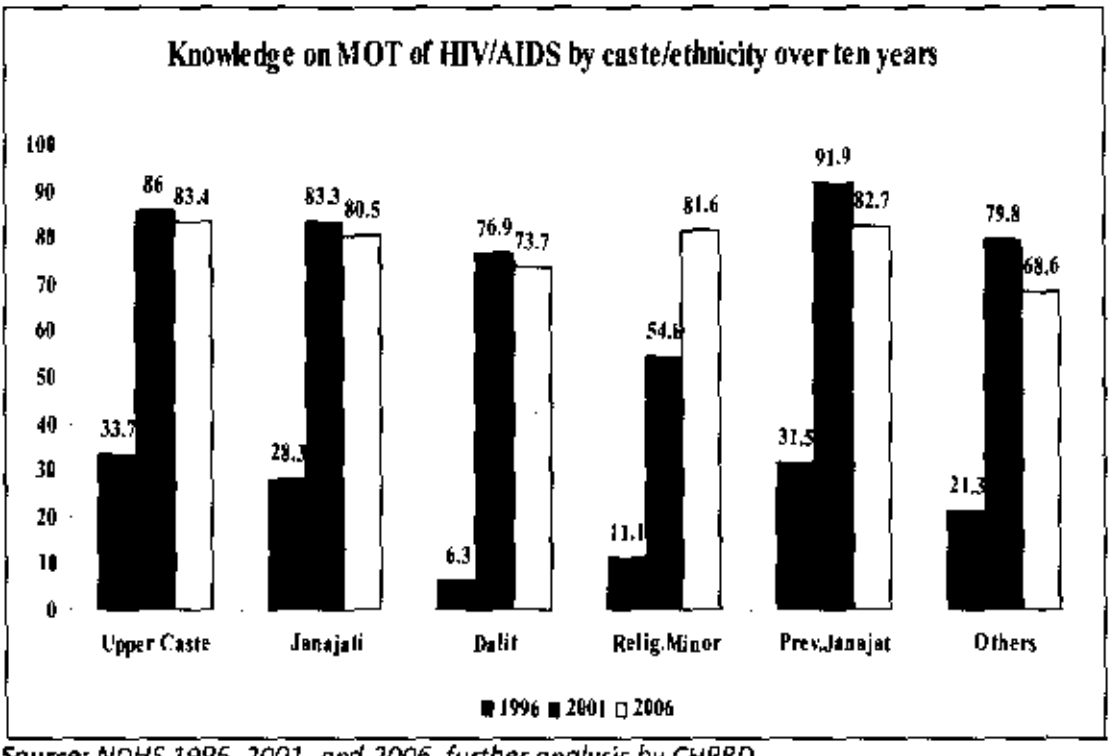
Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Table 28 shows that, over the last ten years, the level of knowledge of mothers has been increased by almost three times especially in the far western region (from 19.9 percent in 1996 to 49.8 percent in 2006). In comparison to other regions, the level of knowledge is higher in the western region where the problem of HIV/AIDS is bigger. Similarly it is better in the hills (70 percent) than mountains (45 percent) and Terai (51 percent).

Since school education and level of awareness are related to each other, it can be implied that the level of awareness about HIV/AIDS must be greater among the educated women than the non-educated and it is true also. More than this, the table shows that there is linear increase in the level of awareness along with increasing level of education.

The caste wise variation of the women's level of knowledge about the mode of transmission of HIV/AIDS especially in relation to condom use reveal that women from privileged Janajati and so called upper caste seems to be the most advantaged and the Religious minorities and Dalits seems to be the most disadvantaged.

Figure 26 : ***Knowledge about MOT of HIV/AIDS by caste/ethnicity***



Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Women from the richest quintiles are twice more likely to be aware about the mode of transmission of HIV/AIDS than those from the poorest. Though there has been considerable increase in the knowledge of HIV/AIDS prevention over the past ten years, the gap between the richest and poorest quintile has not been reduced. This finings indicate that much more effort is needed to achieve equitable outcome in HIV/AID prevention in Nepal.

5.5. Infant and Child Mortality

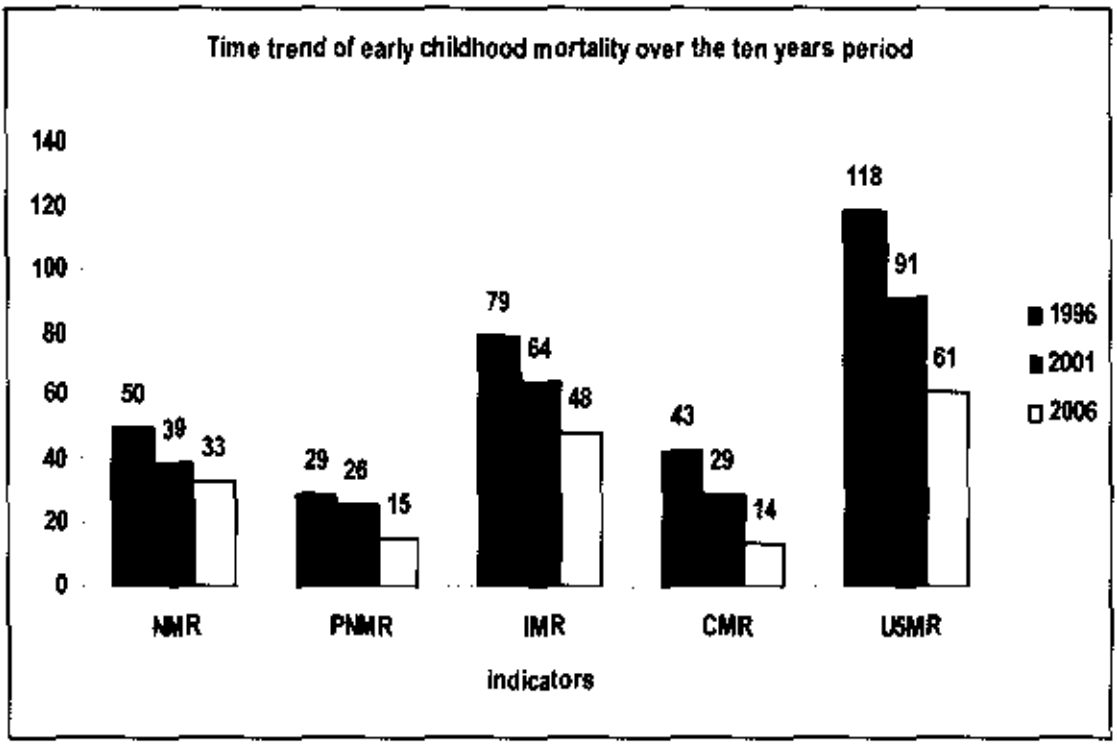
The targets of the millennium development goals is a 2/3 reduction in infant and child mortality and 1/3 reduction in Maternal Mortality ratio by 2015. These are to be achieved through upgrading the proportion of births attended by the skilled birth attendants, increasing immunization against the six major vaccine preventable diseases, upgrading the status of women through education, and enhancing their participation in the labor force (NPC, 2002).

In this study, we have included analysis of the trend of IMR and U5MR and they are stratified by the poverty quintiles, maternal education, sex, region, and residence as follows:

5.5.1 Time trend of early childhood mortality rates

Figure 27 indicates that there is continuous decreasing trend of all the indicators of childhood mortality over the last ten years. The under five mortality rate has been reduced from 118 per 1000 live births in the year 1996 to 61 per 1000 live births in 2006; Infant mortality from 79 per 1000 live births to 48 per 1000 live births and neonatal mortality from 50 per 1000 live births to 33 per 1000 live births. In comparison to the reduction in under five mortality and infant mortality rates, the change in neonatal mortality is low which shows that intervention for the survival of the neonates should be strengthened.

Figure 27 : **Time trend of early childhood mortality rates**



Source: NDHS 1996, 2001, and 2006

5.5.2 Childhood mortality by the selected socio economic stratifiers

Study of the child health data at national level, reveals that there is possibility to achieve MDG in the child health in Nepal by 2015 if continuous progress is made in the coming years. However, there are large disparities by geographical region, place of residence, educational status, poverty quintile and last but not the least caste and ethnicity.

*Table 29 : **Early childhood mortality rates by socio economic characteristics - 2006***

Level	Classes	NMR	PNMR	IMR	CMR	U5MR
Regions						
	Eastern	33	12	45	15	60
	Central	35	17	52	17	68
	Western	35	21	56	18	73
	Mid west	57	40	97	28	122
	Far west	39	35	74	28	100
Eco belt						
	Mountain	59	39	99	32	128
	Hill	28	18	47	16	62
	Terai	42	23	65	21	85
Wealth quintiles						
	First	43	29	71	29	98
	Second	38	24	62	22	83
	Third	47	23	70	22	91
	Fourth	31	20	51	13	63
	Fifth	26	14	40	7	47
Residence						
	Urban	25	12	37	10	47
	Rural	40	24	64	21	84
Educational status						
	None	43	26	69	25	93
	Primary or less	34	24	58	10	67
	Some secondary	25	10	35	5	40
	SLC and Above	9	4	13	0	13
Sex						
	Male	39	21	60	21	80
	Female	37	24	61	18	78
Caste/ Ethnicity*						
	Brahman/Chhetri	34	25	59	18	76
	Madhesi Other Castes	44	19	64	24	86
	All Dalits	44	25	68	23	90
	Newar	24	12	36	7	43
	All Janajati	36	24	59	22	80
	Muslim	56	13	68	NA	NA
	Other	32	11	43	NA	NA
	All Hill/Mountain Groups	35	24	58	20	77
	All Terai/Madhesi Groups	44	21	65	20	84
	National	37	19	55	13	68

Computed as the difference between the infant and neonatal mortality rates

*Source: DHS 2006 Survey Data, Further analysis by Lynn Bennet and Dilli Ram Dahal

Table 29 shows that though eastern regions is in better position for all the indicators in comparison to the national average, the scenarios in mid and far western regions are worse where still 97 children out of 1000 live births are dying before their first birth day and 122 children out of 1000 live births are dying before their fifth anniversary.

Similarly, though hill is in better position than national average, 99 children per 1000 live births are dying before completion of their infancy period in the mountains.

The children of the poorest quintiles are almost two times more likely to die before their 5th birthday in comparison to that of the richest. (98 per 1000 live births versus 47 per 1000 live births). In the urban areas, the under five-mortality rate is only 47 per 1000 live births even less than the average national level but in the rural areas, it is 84 per 1000 live births.

There is no such differences in the mortality of male and female child however the table shows that a baby of educated mother is almost 7 times less likely to die before their 5th anniversary and almost 5 times less likely to die before the 1st month and the 1st year. Similarly, the caste/ethnic variation is also high among the various ethnic groups as IMR is lowest in the Newar and so-called upper caste/ethnic group and highest in the religious minorities (Muslim), Dalits and Terai/Madhesi groups.

Chapter 6
Trends, Inequalities and Relative gaps

It is known from various DHS reports that there have been significant improvements in maternal and child health indicators over the past decades. However, it is necessary to find out whether the progress has been equitable or not.

We have seen from the previous analyses that socioeconomic statuses, and caste and ethnicity are important stratifiers which show disparities in health indicators. Therefore, we have statistically analyzed the data to compare the progress between the most advantaged and the least ones in terms of caste/ethnicity and wealth quintiles and to see whether the gaps are widening or decreasing in terms of the statistical significance

Relative gaps in maternal health indicators

Antenatal care

The following table shows that the relative gaps in the use of ANC-IV services by the caste and ethnicity is increased in 2001 from that of 1996 however it is in decreasing trend in 2006. In 2006, the relative gaps among the so-called upper caste women are almost two times than Dalits women. The relative gaps by poverty quintiles is far more than that the caste/ethnic disparity which is almost six times among the women from first and the fifth quintiles respectively and it is in decreasing trend over the last five years.

Table 30: ***Relative gaps in the ANC-IV status***

Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	15.8	20.7	40.3
Dalits	9.3	8.2	19.2
Z- value	0.7945 (P= 0.04)	2.8178 (P=0.01)	6.0041 (P=0.01)
Ratio (relative gap)	***1.7***	***2.5***	***2.1***
Wealth quintiles			
First quintiles	NA	4.8	10.5
Fifth quintiles	NA	44.3	60.3
Z- value	NA	9.9138 (P=0.01)	12.8272 (P=0.01)
Ratio (relative gap)		***9.2***	***5.7***

Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Skilled attendance at delivery

In the year 1996, it seems that there is no significant gaps in the use of skilled attendance at delivery by caste/ethnic groups however in 2001, it reached to more than two times and is statistically significant at (z = 2.566 at 99% confidence level). In comparison to the gaps by caste/ethnic group, the relative gaps by poverty quintiles are higher. In 2006, women in the fifth quintiles are 12 times more likely to have SBA at delivery than their

counterparts in the first –quintiles at very high level of significance (z = 15.45 at 99.99 confidence level).

Table 31: ***Relative gaps in the SBA status***

Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	12.3	16	25.6
Dalits	9.4	6.6	12.4
Z- value	0.3631 (P=0.72)	2.5666 (P=0.01)	4.1498 (P=0.01)
Ratio (relative gap)	***1.3***	***2.4***	***2.1***
Wealth quintiles			
First quintiles	NA	2.6	4.8
Fifth quintiles	NA	42.5	57.8
Z- value	NA	11.8213 (P=0.01)	15.4554 (P=0.01)
Ratio (relative gap)		***16.3***	***12.0***

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Place of delivery

Regarding the institutional delivery, the disparities (relative gaps) are found to be widened by large extent in between 1996 and 2001; however, in 2006 a small decrease in both the caste/ethnic disparity and wealth index disparities is observed. The relative gap by caste/ethnic groups is of almost two times whereas gap by the poverty quintiles is almost 13 times.

Table 32: ***Relative gaps in the Institution delivery status***

Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	10.6	11.5	24
Dalits	6.5	4.6	11.1
Z- value	0.4976 (P=0.60))	1.8451 (P=0.04)	4.0135 (P=0.01)
Ratio (relative gap)	***1.6***	***2.5***	***2.2***
Wealth quintiles			
First quintiles	NA	2	4.3
Fifth quintiles	NA	32.7	55
Z- value	NA	8.6996 (P=0.01)	14.5663 (P=0.01))
Ratio (relative gap)		***16.4***	***12.8***

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Relative gaps in child health indicators

Immunization status

In comparison to the other health indicators, the relative gaps among the different stratifiers in the immunization indicators are low. It was 1.4 times, 1.5 times and 1.2 times in the years 1996, 2001 and 2006 respectively among the so-called upper caste and Dalits children. One more interesting fact is the disparity by poverty quintiles is also

similar to that by the caste/ethnicity in all the years. It shows that the universal coverage can be one important strategy to reduce the relative gaps (disparities) in health.

Table 33 : ***Relative gaps in the immunization status***

Measles			
Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	66.7	80.1	90
Dalits	47.7	54.9	74.7
Z- value	1.7572 (P=0.08)	4.5310 (P=0.01)	4.0479 (P=0.01)
Ratio (relative gap)	***1.4***	***1.5***	***1.2***
Wealth quintiles			
First quintiles	NA	61.1	73.2
Fifth quintiles	NA	83.2	94.4
Z- value	NA	4.9351 (P=0.01)	5.6420 (P=0.01)
Ratio (relative gap)		***1.4***	***1.3***
DPT3 status			
Caste /Ethnicity			
Upper caste	61	79.9	91.9
Dalits	39.8	55.6	85.4
Z- value	1.8617 (P=0.06)	4.4106 (P=0.01)	2.1656 (P=0.04)
Ratio (relative gap)	***1.5***	***1.4***	***1.1***
Wealth quintiles			
First quintiles	NA	62.1	75.3
Fifth quintiles	***NA***	***85.3***	***96.6***
Z- value		5.3648 (P=0.01)	6.1712 (P=0.01)
Ratio (relative gap)	***NA***	***1.4***	***1.3***

Source: NDHS 1996, 2001, and 2006, further analysis by CHPRD

Relative gaps in family planning indicators

The following table shows the positive status of family planning indicators in terms of the relative gaps. Over the years, the relative gaps in both the caste/ethnic groups and poverty quintiles are in decreasing trend with high statistical significance.

Table 34 : ***Relative gaps in the family planning status (Current Use of contraception)***

Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	31.4	34.7	43.7
Religious minorities	10.1	13.6	16.7
Z- value	4.2654 (P=0.01)	6.8049 (P=0.01)	5.1573(P=0.01)
Ratio (relative gap)	***3.1***	***2.6***	***2.6***
Wealth quintiles			
First quintiles	17	24	30
Fifth quintiles	49.8	51.3	53.9
Z- value	10.3665 (P=0.01))	10.0644 (P=0.01)	8.8819 (P=0.01)
Ratio (relative gap)	***2.9***	***2.1***	***1.8***

Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Relative gaps in HIV/AIDS indicators

In the year 1996, the so called upper caste women where almost 5 times more likely to be aware of the preventive measures of HIV/AIDS particularly by using condom during sexual intercourse than those from the religious minorities. However, in the year 2001, it was reduced to 1. Similarly when we see the relative gaps in knowledge by the poverty quintiles of the mother, it is two times in between the first quintile and the fifth quintile which is further reduced to 1.2 times in between 2001 and 2006.

Table 35 : ***Relative gaps in the knowledge of HIV/AIDS***

Stratifiers	1996	2001	2006
Caste /Ethnicity			
Upper caste	33.7	86	83.4
Religious minorities	6.3	76.9	73.7
Z- value	1.1217 (P= 0.26)	2.0813 (P=0.04)	5.8518 (P=0.01)
Ratio (relative gap)	***5.3***	***1.1***	***1.1***
Wealth quintiles			
First quintiles	16.6	74.9	70.2
Fifth quintiles	33.7	89.4	87.1
Z- value	1.9041 (P=0.01)	5.0861 (P=0.01)	9.5861 (P=0.01)
Ratio (relative gap)	***2.0***	***1.2***	***1.2***

Source: *NDHS 1996, 2001, and 2006, further analysis by CHPRD*

Chapter 7

This study documents the effect of socioeconomic determinants on health and highlights the extent and type of disparities. It examines health policies, strategies, and district health system, access and utilization and highlights the needs for development of equitable health system regarding health outcomes related to MDG 4, 5, HIV/AIDS and nutrition. The analysis shows disparities by stratifiers such as caste, ecological level, wealth quintiles, and educational level. The key findings and conclusions are summarized as follows:

Disparities in socioeconomic determinants affecting health

Much of the profound inequity in peoples' health is influenced by socioeconomic determinants. Factors such as education, access to clean drinking water, sanitation, and a good start to life are just some of the social determinants which affect health. Hand washing especially with soap is considered as a simple and highly effective means to avoid exposure to food and water borne diseases such as diarrhea. It was found that even such basic needs are not fulfilled in Nepal and many poorer people are suffering from diseases which are preventable as compared to the richer ones .It was also found that there were great disparities between disease prevalence, access, utilization and health outcome by levels of poverty and education

Political commitment of achieving Equity in Health not operational zed

Study of existing policy and strategy documents of the Government of Nepal shows that there is vision and high level of political commitment for providing equitable access to health services within the spirit of "Basic health as human right " Government of Nepal has taken major initiatives such as abolition of user fees in Health Posts (HPs) and Sub health posts (SHPs), free treatment in low HDI districts s and implementing Equity and Access program under the Safe motherhood program. However these programs are not planned on the basis of evidence based data, which show the type, and extent of disparities among various groups. These documents have not adopted clear operational definition of "equity in health" or "equitable access to health services" in Nepal neither they have adopted equity based targeting, implementation and equity monitoring.

Inequitable distribution of health infrastructure

The size of the population in a geographic area is the primary indicator of needs for health services and should be considered along with a range of other indicators of relative need such as the demographic composition of the population; amounts of sickness; the level of deprivation and poverty, the communities' ability pay for health care costs; and their level of dependence on public sector health services, roads and other factors which affect on health such as transportation infrastructures while designing and allocation of health infrastructures.

It was found that health infrastructures were allocated according to the political divisions of the country and did not take into account any of the above mentioned factors. Most of the secondary and tertiary care facilities were available in capital and other cities, while

primary health care infrastructure were available below the district level in rural areas as shown by the hospital population ratio and other health facility population ratio. There were extremely few private health infrastructures in lesser developed regions and in rural areas.

Disparities in distribution in numbers and type of HRH

The human resources for health are the key actors who can provide equitable access of health services to the population. Analysis on the HR population ratio shows imbalance across the districts. Doctor population ratio was best in Kathmandu and worse in Midwest and Far western region.

Disparities in access and utilization

It was found that eighty percent of people in the richest quintile access health facility within half an hour compared to 50 percent among the poorest quintile. Similarly, majority of the poorest section of the community seek health services from community level health workers, SHP and HP whereas richer seek health services from hospitals Only 40 percent of the people access health facility within half an hour in Mountain compared to 80 percent in Terai..

Public sector Health resource inadequate with disparities in distribution

Government of Nepal has been steadily allocating more resources to health still is only 12-13 dollar per capita, 60 percent is from" out of pocket "and it is still much less than the recommendation of 24-34 dollar per capita from Commission on Macroeconomic and Health (CMH WHO 2000).

Resources are more concentrated in capital and other larger centers. District health system was grossly under funded. There were disparities in Per Capita Public Health Expenditure (PPEH) among districts. Allocation seemed ad hoc and incremental. Several high HDI districts were getting more per capita PPEH compared to low HDI district which did not indicate fairness in financing. Regarding out of pocket expenditure, it was found that poor people spend less compared to richer ones implying unmet health needs, and possibly resulting to poor quality health services.

Health information system not adequate for monitoring equity and quality

Though HMIS produces good quality data on service statistics for monitoring progress against the targets set by the Ministry of Health, it doesn't capture the inequity in service provision. There are high quality district level data which indicate disparities between the districts but these data are not further analyzed to see the level of disparities, type of disparities etc. Similarly, information on ethnicity, poverty status etc are not captured by the existing system. Large scale surveys like DHS are analyzing nationally representative sample but they do not have analysis on important stratifiers like caste/ethnicity. There are as yet no systems put in place which looks into quality of care, client satisfaction and other qualitative data which indicate the circumstances and factors contributing to the disparities

Improving trend in MDG indicators, disparities and relative gaps in decreasing trend

Further analysis of MDG indicators 4, 5 and HIV/AIDS and nutrition showed significant level of disparities within the context of significant improvement in past 10 years. In the child health indicators, there was virtually no gender disparity. However, there were disparities by caste, ecological regions, wealth quintiles, residence and ecological regions. Among child health indicators, lowest disparities were found in immunization and the highest in nutritional status. Among maternal health indicators, ANC was affected most by the level of education. Among the caste groups, Dalits seem to be the most disadvantaged and privileged Janajati seemed to be most advantaged. Low level of education seemed to be stronger barrier than the place of residence for ANC, SBA and HIV/AIDS awareness. However, place of residence was stronger barrier than education in case of FP and accessing health facilities It was found that the relative gaps between the most advantaged and the most disadvantaged were on decreasing trend between 2001 and 2005. These are very positive developments seen during last five years indicating increasing access of preventive services to socially excluded and poor people

Chapter 8

Recommendations

Based on the results of the study, recommendations have been made. It is expected that these recommendations will be useful for developing long term and, medium term plans for providing equitable access to health for all irrespective of caste ethnicity, education, poverty level and for people of Nepal living in all parts of the country i.e. Mountain, Hills and Terai realizing the constitutional provision of 'Basic health as human right' for every citizen of Nepal.

The recommendations are as follows:

- Operational definition of equity in health need to be formulated for Nepal through intersectoral consultations with involvement of several related sectors and adopted so that all the stake holders in health have the same understanding and existing political commitment for providing equitable access to health services can be operationalzed and monitored.

- As most of the inequities in people's health are socially and economically determined, multisectoral interventions like education, water and sanitation, housing etc should be considered while designing health strategies especially targeting the poor. Strategies for linking health with poverty alleviation programmes should be developed for increasing access of poor particularly to curative services.

- Environmental sanitation, hygiene promotion- and in particular hand washing-, and water supply should receive higher priority within the health strategies as they impact on IMR, U5MR and contribute significantly to disease burden in adults and children.

- Environmental disease burden should be assessed and appropriate strategies should be designed to reduce the burden.

- Reorienting of existing health policies and strategies in Nepal to pro equity policies needs to be considered. Pro equity policies have to find right balance between efforts to build or and expend existing institutions of health care, effectively reducing the barriers, while identifying and targeting those groups that would otherwise be excluded without special attention.

- "Characteristic targeting", "Direct targeting", and, "Disease specific targeting" should be used in combination for achieving equitable health outcome by addressing the needs of the poor with specific attributes which can cause further deprivation as well as by targeting to the specific needs of particular disease or condition .

- To remove disparities in access, utilization and health outcomes, as a component of pro-equity policy demand side barrier such as cultural, social, distance etc need to be

identified and corrective steps taken along with "Free Health care policy" which tries to address the need of the poor from supply side.

- To remove disparities in access, utilization and health outcomes, as a component of pro-equity policy demand side barrier such as cultural, social, distance etc need to be identified and corrective steps taken along with "Free Health care policy" which tries to address the need of the poor from supply side.

- As access to health service is determined by distance and communication infrastructure, the present health care infrastructure which is compatible with political divisions should be revisited and additional facilities should be added in areas where they are inadequate by population density and distance.

- Need based formula should be developed for allocation of financial resources, human resources and for development of health infrastructure based upon level of poverty, geographical terrain, road transport infrastructure and other parameters so that people living in the remote disadvantaged districts can have access to services which are comparable to their advantaged counterpart living in better served districts.

- Steps should be taken for improving deployment and retention of doctors, nurses and other health forces to reduce existing imbalances in Human resource. The compulsory posting of doctors who studied using scholarship should be supplemented with incentive packages which might include career and skill development, dependant educational allowance, housing and improved communication in isolated areas.

- Equity related information should be collected by appropriate periodical survey to supplement MIS data.

- Information on resources and services spent from private sectors, NGOs and INGO sectors should be made available and considered while planning pro-equity policies and appropriate public private mix of equitable health system should be designed.

- Qualitative studies need to be undertaken to understand circumstances causing disparities as well as and demand and supply side barriers for certain social and ethnic groups which prevent them from accessing the services

- Socially inclusive health strategies should be developed designing health promotion and BCC massage targeting disadvantaged groups, and through involving those disadvantaged groups in planning and designing services delivery at local level.

Annexes

Annex 1 : Water supply, sanitation coverage and its relation with the health outcomes

Region	Name of Districts	Population with Access Water (%)*	Toilet coverage (%)*	Incidence of Diarrhea Among Under 5/1000 Population@	IMR^
National		72.1	35.7	236	64.40
EDR		**74.85**	**44.06**	**259**	**53.90**
	Taplejung	90.30	47.50	247	63.50
	Panchthar	69.10	56.90	256	51.40
	Illam	72.80	71.40	161	50.90
	Jhapa	86.10	55.50	399	80.70
	Sankhuwasabha	61.60	57.40	231	55.00
	Terathum	72.60	53.10	286	37.40
	Dhankuta	75.000	53.30	264	50.20
	Morang	64.30	36.20	185	66.10
	Solukhumbu	76.50	54.40	280	44.90
	Bhojpur	57.40	48.70	235	50.60
	Sunsari	93.90	39.30	251	64.10
	Okhaldhunga	70.30	56.70	268	31.00
	Khotang	64.30	36.20	185	66.10
	Udayapur	61.20	19.70	180	36.40
	Siraha	88.100	9.00	395	56.40
	Saptari	94.20	9.80	315	57.70
CDR		82.08	40.52	218	71.49
	Dolakha	81.00	61.10	220	55.70
	Ramechhap	72.10	34.40	230	48.40
	Sindhuli	55.00	15.90	200	44.70
	Dhanusa	87.00	16.00	255	63.50
	Sindhupalchok	81.50	44.70	228	73.20
	Kabhrepalanchok	75.60	44.80	169	37.50
	Kathmandu	89.00	92.30	65	30.70
	Bhaktapur	80.30	83.20	115	24.00
	Lalitpur	84.20	81.40	154	40.10
	Mahottari	85.60	13.50	322	58.00
	Rasuwa	84.80	31.50	345	101.0
	Nuwakot	83.50	37.90	127	55.90
	Sarlahi	86.60	12.90	274	59.20
	Dhading	79.30	43.00	195	80.80
	Makawanpur	71.00	39.30	220	95.80
	Rautahat	93.00	13.10	322	56.50
	Chitwan	80.90	66.60	328	79.40
	Bara	93.10	14.10	208	69.60
	Parsa	96.20	24.20	175	69.90
WDR		81.56	50.93	205	53.25
	Gorkha	71.30	45.40	264	70.30
	Lamjung	88.50	82.40	105	26.00
	Tanahu	62.60	50.90	130	33.40
	Nawalparasi	82.00	32.00	146	55.40
	Manang	93.40	35.70	426	88.50
	Kaski	88.60	82.20	105	26.00
	Syangja	76.40	58.10	158	37.80
	Palpa	79.40	58.10	211	75.00
	Rupandehi	96.30	34.70	90	35.40

Regions	Districts	Bed Pop ratio	HR/ Pop (in 100)	Hospital/ Populations	Other HF/pop
	Parbat	84.20	67.10	191	45.60
	Gulmi	79.30	59.10	277	50.50
	Arghakhanchi	66.70	45.50	201	60.70
	Kapilbastu	80.80	13.00	223	60.70
MWDR		**60.20**	**23.42**	**260**	**99.08**
	Dolpa	36.20	13.70	524	114.80
	Rukum	63.20	15.90	185	90.00
	Rolpa	62.10	9.50	284	83.00
	Pyuthan	67.50	21.20	239	64.50
	Dang	49.50	23.30	88	118.50
	Mugu	55.20	14.20	302	173.80
	Jumla	74.00	51.70	228	125.10
	Jajarkot	49.00	18.60	350	95.40
	Salyan	65.40	28.80	185	90.00
	Banke	88.60	24.10	127	71.20
	Humla	64.20	18.10	553	81.40
	Kalikot	45.50	39.20	186 1	53.90
	Dailekha	34.80	11.30	219	95.40
	Surkhet	53.60	35.50	201	69.30
	Bardiya	94.30	26.30	231	60.00
FWDR		**61.82**	**19.52**	**239**	**104.53**
	Bajura	64.60	19.80	297	161.20
	Achham	44.30	15.00	357	98.80
	Bajhang 4	3.60	10.70	368	133.30
	Doti	46.90	20.30	281	80.90
	Kailali	86.50	21.90	98	81.30
	Darchula	71.20	14.30	162	92.00
	Baitadi	53.40	19.50	228	116.10
	Dadeldhura	56.70	28.00	247	90.50
	Kanchanpur	89.20	26.20	113	86.66

*Source: * and # District health profile- 2004, WHO/DoHS/NEPHA; @ Annual Health Report, 2004/05*

Annex 2: Hand washing practices

Time of hand washing (all the women interviewed)									
Classes	Level	None		1-3 times		3-6 times		>6 times	Total
	Eastern	778	32.50	1228	51.40	331	13.90	54	2.30	2392
	Central	1267	35.70	1726	48.60	471	13.30	88	2.50	3553
	Western	537	25.90	1214	58.70	283	13.70	36	1.80	2070
	Mid-western	552	44.10	650	52.00	45	3.60	4	0.30	1250
	Far-western	745	48.80	665	43.50	113	7.40	6	0.40	1528
Residence										
	Urban	287	17.00	877	52.00	434	25.70	90	5.30	1687
	Rural	3592	39.50	4607	50.60	809	8.90	98	1.10	9106
Wealth quintiles										
	Poorest	1221	62.30	699	35.70	40	02.10	0	0.00	1961
	Poorer	992	47.70	982	47.20	102	4.90	3	0.10	2079
	Middle	892	40.30	1152	52.10	156	7.10	14	0.60	2214
	Richer	493	22.10	1402	63.00	302	13.60	29	1.30	2226
	Richest	280	12.10	1248	54.00	642	27.80	143	6.20	2313
Educational status										
	No education	2978	52.00	2445	42.70	274	4.80	32	0.60	5728
	Primary	562	29.60	1123	59.10	202	10.60	14	0.70	1901
	Secondary	326	12.00	1708	62.70	596	21.90	94	3.50	2724
	Higher	12	2.80	208	47.30	172	39.10	48	10.90	439
Ecological zone										
	Mountain	337	44.80	365	48.50	46	6.10	4	0.50	753
	Hill	1468	31.90	2498	54.30	539	11.70	92	2.00	4598
	Terai	2074	38.10	2620	48.10	657	12.10	92	1.70	5443
Caste/Ethnicity										
	Upper Caste	610	36.60	786	47.10	228	13.70	44	2.60	1667
	Janajati	828	46.80	787	44.50	136	7.70	17	0.90	1768
	Dalit	796	51.60	657	42.60	81	5.20	9	0.60	1543
	Relig.Minor	113	39.30	152	52.60	19	6.60	4	1.50	288
	Prev.Janajati	42	23.30	87	48.00	45	24.60	7	4.00	182
	Others	23	23.90	63	64.90	11	11.20	0	0.00	96

Source: Further analysis of NDHS 2006 by CHPRD

Annex 3: District socio economic profile: Socio- economic determinants in Health

Regions	Districts	HDI	LEB	IMR	Literacy Rate (%)		GEM
					Total	Female	
National		0.47	61	64.4	54.8	42.8	0.39
EDR		0.48	64.45	58.92	54.04	43.93	0.37
	Bhojpur	0.47	64.64	50.60	54.80	44.40	0.41
	Dhankuta	0.51	64.90	50.20	64.30	54.50	0.41
	Ilam	0.52	64.73	50.90	66.50	58.60	0.37
	Jhapa	0.49	58.49	80.70	67.10	58.80	0.42
	Khotang	0.44	61.37	66.10	50.20	38.80	0.31
	Morang	0.44	67.28	66.10	50.20	38.80	0.30
	Okhaldhunga	0.48	69.39	31.00	49.30	36.30	0.39
	Panchthar	0.48	64.51	51.40	55.40	45.60	0.36
	Sankhuwasabha	0.48	63.78	55.00	54.20	45.10	0.39
	Saptari	0.45	63.13	57.70	49.60	35.50	0.32
	Siraha	0.47	63.38	56.70	40.70	27.10	0.33
	Solukhumbu	0.48	65.94	44.90	45.90	35.50	0.36
	Sunsari	0.50	61.86	64.10	60.60	50.30	0.38
	Taplejung	0.47	61.94	63.50	52.60	42.80	0.42
	Terathum	0.52	67.78	37.40	59.30	48.20	0.38
	Udayapur	0.45	68.03	36.40	53.60	42.50	0.35
CDR		0.47	62.97	60.21	50.85	39.57	0.37
	Bara	0.47	60.72	69.60	42.70	29.10	0.33
	Bhaktapur	0.60	71.33	24.00	70.60	59.60	0.44
	Chitwan	0.52	58.78	79.40	71.10	63.00	0.42
	Dhading	0.41	58.55	80.80	43.70	34.00	0.36
	Dhanusha	0.45	62.04	63.50	48.70	36.30	0.32
	Dolakha	0.45	63.50	55.70	51.10	38.80	0.34
	Kavrepalanchowk	0.54	69.33	37.50	64.00	52.80	0.42
	Kathmandu	0.65	69.53	30.70	77.20	66.60	0.44
	Lalitpur	0.59	67.10	40.10	70.90	60.40	0.45
	Mahottari	0.41	63.20	58.00	34.70	22.00	0.30
	Makawanpur	0.48	55.75	95.80	63.40	53.90	0.40
	Nuwakot	0.46	63.57	55.90	51.40	40.70	0.37
	Parsa	0.45	60.71	69.90	42.60	28.20	0.35
	Ramechhap	0.43	65.16	48.40	39.40	26.60	0.31
	Rasuwa	0.39	54.75	101.00	34.30	24.80	0.38
	Rautahat	0.41	63.51	56.50	32.70	21.70	0.33
	Sarlahi	0.41	62.95	59.20	36.50	25.40	0.35
	Sindhuli	0.47	66.05	44.70	50.50	38.50	0.35
	Sindhupalchowk	0.41	60.02	73.20	40.60	29.50	0.33
WDR		0.50	63.97	53.25	59.74	49.81	0.41
	Arghakhanchi	0.47	62.50	60.70	56.10	46.90	0.36
	Baglung	0.49	63.50	42.20	61.70	52.30	0.41
	Gorkha	0.45	60.50	70.30	54.30	45.70	0.35
	Gulmi	0.47	64.80	50.50	57.80	48.10	0.39
	Kapilvastu	0.44	62.50	60.70	41.80	29.50	0.36
	Kaski	0.59	70.80	26.00	72.10	61.80	0.43
	Lamjung	0.59	64.41	26.00	72.10	61.80	0.43
	Manang	0.50	57.00	88.50	60.40	52.70	0.53

	Mustang	0.48	57.00	88.50	52.10	41.10	0.49
	Myagdi	0.50	66.60	56.00	56.00	45.90	0.42
	Nawalparasi	0.48	63.70	55.40	53.30	40.90	0.39
	Palpa	0.49	59.60	75.00	66.20	57.80	0.43
	Parbat	0.50	65.80	45.60	57.00	45.90	0.37
	Rupandehi	0.55	68.30	35.40	66.20	55.90	0.39
	Syangha	0.54	67.70	37.80	66.70	57.70	0.41
	Tanahun	0.52	68.79	33.40	62.00	53.00	0.38
MWDR		0.39	55.21	99.13	43.07	29.53	0.35
	Banke	0.48	60.40	71.20	57.80	49.20	0.40
	Bardiya	0.43	60.80	60.00	45.70	35.90	0.39
	Dailekh	0.38	55.80	95.40	48.00	32.30	0.30
	Dang	0.41	50.60	118.80	58.00	46.90	0.39
	Dolpa	0.37	52.50	114.80	35.00	19.80	0.37
	Humla	0.37	58.40	81.40	27.10	11.80	0.31
	Jajarkot	0.34	51.90	95.40	39.50	29.10	0.37
	Jumla	0.35	50.80	125.10	32.50	16.80	0.36
	Kalikot	0.32	46.70	153.90	38.50	17.80	0.43
	Mugu	0.30	44.10	173.80	28.00	9.30	0.30
	Pyuthan	0.42	61.70	64.80	46.90	34.00	0.29
	Rolpa	0.38	58.10	83.00	37.50	23.10	0.31
	Rukum	0.39	56.80	90.00	40.30	29.00	0.34
	Salyan	0.40	56.80	90.00	48.50	36.20	0.34
	Surkhet	0.49	62.70	69.30	62.70	51.70	0.38
FWDR		0.39	54.46	104.52	45.90	29.20	0.32
	Accham	0.35	55.20	98.80	33.80	16.00	0.31
	Baitadi	0.39	52.30	116.10	51.90	33.80	0.31
	Bajhang	0.33	49.70	133.30	35.50	15.20	0.32
	Bajura	0.31	45.70	161.20	34.10	17.30	0.30
	Dadeldhura	0.43	56.60	90.50	51.90	33.80	0.30
	Darchula	0.42	56.40	92.00	49.50	32.50	0.30
	Doti	0.40	58.40	80.90	43.70	26.00	0.31
	Kailali	0.44	58.40	81.30	52.60	41.00	0.39
	Kanchanpur	0.46	57.40	86.60	60.10	47.20	0.34

Source: District health profile- 2004, WHO/DoHS/NEPHA

*Annex 4: **Health System Performance at District Level***

Regions	Districts	Bed Pop ratio	HR/ Pop (In 100)			Hospital/ Populations	Other HF/pop
EDR		**11881**	**43**	**3.60**	**2.90**	**264588**	**2463**
	Bhojpur	11942	34	2.50	2.10	203018	2603
	Dhankuta	5045	33	3.10	1.90	166479	2870
	Ilam	12296	47	4.30	3.40	282806	3928
	Jhapa	7913	29	6.50	5.80	633042	2153
	Khotang	15426	46	2.60	2.20	231385	2822
	Morang	15426	46	2.60	2.20	231385	2515
	Okhaldhunga	4897	78	2.40	2.00	0	1984
	Panchthar	9622	40	3.70	2.80	202056	3207
	Sankhuwasabha	7960	32	3.00	2.30	159203	2041
	Saptari	7129	29	3.60	3.30	570282	1466
	Siraha	9046	63	4.30	3.40	284940	1838
	Solukhumbu	5983	22	2.30	1.70	107686	2504
	Sunsari	41709	70	8.00	6.10	625633	1999
	Taplejung	8980	34	2.00	1.70	134698	2010
	Terathum	7541	28	2.50	1.90	113111	2407
	Udayapur	19179	58	4.80	3.70	287689	3061
CDR		**11144**	**47**	**3.90**	**3.10**	**343816**	**2039**
	Bara	22365	93	4.70	3.50	559135	2228
	Bhaktapur	4509	10	3.70	3.00	225461	1748
	Chitwan	3065	15	5.40	5.00	472048	2844
	Dhading	21166	68	5.10	3.70	338658	2822
	Dhanusha	2514	20	4.30	3.60	671364	1598
	Dolakha	11727	59	2.70	2.20	175912	596
	Kavrepalanchowk	2410	96	3.50	3.10	0	2051
	Kathmandu	874	4	1.80	2.60	180308	1156
	Lalitpur	891	24	3.90	3.50	168893	1689
	Mahottari	22139	79	5.80	2.80	553481	1803
	Makawanpur	7852	36	5.30	2.90	392604	3739
	Nuwakot	11539	48	3.40	2.80	288478	2046
	Parsa	2486	12	3.40	3.10	497219	1589
	Ramechhap	14161	71	3.30	2.60	212408	2499
	Rasuwa	2982	15	1.70	1.10	44731	1657
	Rautahat	21805	78	4.70	3.80	545132	1652
	Sarlahi	21190	71	5.00	4.00	635701	1660
	Sindhuli	18484	46	3.90	3.10	277259	2888
	Sindhupalchowk	19581	59	3.20	2.60	293719	2468
WDR		**10134**	**36**	**3.30**	**2.70**	**252478**	**1676**
	Arghakhanchi	13893	42	3.80	2.90	208391	1362
	Baglung	10757	38	2.30	1.70	268937	4137
	Gorkha	3602	36	3.20	2.60	288134	2287
	Gulmi	19777	49	3.10	2.50	296654	1182
	Kapilvastu	16066	69	5.00	3.90	481976	1975
	Kaski	1903	7	2.80	2.80	190264	1369
	Lamjung	1903	7	2.80	2.80	190264	1369
	Manang	1370 5	0.60	0.30	9587	639	
	Mustang	999	5	0.60	0.40	14981	749
	Myagdi	7630	30	3.10	2.70	114447	619
	Nawalparasi	37525	63	5.50	4.40	562870	2336

	Palpa	1711	45	3.20	2.70	268558	1790
	Parbat	10522	40	2.40	1.90	157826	1372
	Rupandehi	4819	18	5.40	4.10	354210	1621
Time of hand washing (all the women interviewed)							
	Tanahun	8520	79	5.30	4.00	315257	2482
MWDR		**7248**	**37**	**2.89**	**2.20**	**152663**	**1720**
	Banke	2572	12	4.30	2.90	0	1811
	Bardiya	25510	25	3.40	2.60	382649	3037
	Dailekh	11853	56	3.10	2.60	225201	2475
	Dang	18495	42	6.20	4.80	462380	1887
	Dolpa	0	22	0.80	0.50	22071	788
	Humla	2706	14	1.20	0.80	40595	828
	Jajarkot	8991	45	3.10	2.30	134868	3289
	Jumla	4615	23	1.90	1.30	69226	2098
	Kalikot	0	6	0.40	0.20	11510	320
	Mugu	0	32	1.00	0.90	0	1015
	Pyuthan	9658	43	3.40	2.60	212484	2043
	Rolpa	0	105	3.50	2.80	210004	2360
	Rukum	12563	63	3.60	2.80	188438	2048
	Salyan	4043	15	1.00	0.80	60643	446
	Surkhet	7711	64	6.50	4.80	269870	1349
FWDR		**9800**	**40**	**3.70**	**2.80**	**242575**	**2162**
	Accham	15419	77	2.80	2.20	231285	1629
	Baitadi	15628	47	2.90	2.40	234418	1921
	Bajhang	11135	42	2.80	2.10	167026	2531
	Bajura	12578	34	2.90	1.90	100626	2096
	Dadeldhura	2628	42	3.30	2.30	126162	2575
	Darchula	8133	41	2.30	1.90	121996	2033
	Doti	6902	35	3.10	2.30	207066	2050
	Kailali	8223	28	7.00	4.90	616697	1903
	Kanchanpur	7558	20	6.30	5.00	377899	2719

Source: *District health profile- 2004, WHO/DoHS/NEPHA*

Annex 5: **Health system financing at district level**

Regions	Districts	GDP (PPP US$)	H. Exp (NRs)	H. Exp (US$	HDI
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
EDR		1116	116	2.00	0.48
	Bhojpur	1002	149	2.00	0.47
	Dhankuta	1102	133	2.00	0.51
	Ilam	1215	57	1.00	0.52
	Jhapa	1302	51	1.00	0.49
	Khotang	954	173	3.00	0.44
	Morang	954	111	2.00	0.44
	Okhaldhunga	952	172	3.00	0.48
	Panchthar	1072	125	2.00	0.48
	Sankhuwasabha	1257	130	2.00	0.48
	Saptari	939	35	1.00	0.45
	Siraha	880	40	1.00	0.47
	Solukhumbu	1455	153	2.00	0.48
	Sunsari	1381	36	1.00	0.5
	Taplejung	1169	203	3.00	0.47
	Terathum	1246	191	3.00	0.52
	Udayapur	975	90	1.00	0.45
CDR		1466.37	100	2.00	0.47
	Bara	2156	87	1.00	0.47
	Bhaktapur	1862	67	1.00	0.6
	Chitwan	1715	40	1.00	0.52
	Dhading	1075	25	1.00	0.41
	Dhanusha	994	33	1.00	0.45
	Dolakha	965	221	3.00	0.45
	Kavrepalanchowk	1572	107	2.00	0.54
	Kathmandu	3438	15	0.00	0.65
	Lalitpur	2059	51	1.00	0.59
	Mahottari	789	44	1.00	0.41
	Makawanpur	1836	89	1.00	0.48
	Nuwakot	1237	106	2.00	0.46
	Parsa	1406	81	1.00	0.45
	Ramechhap	1009	189	3.00	0.43
	Rasuwa	1802	322	5.00	0.39
	Rautahat	871	89	1.00	0.41
	Sarlahi	802	39	1.00	0.41
	Sindhuli	1079	109	2.00	0.47
	Sindhupalchowk	1194	130	2.00	0.41
WDR		1424.13	212	3.00	0.5
	Arghakhanchi	1130	123	2.00	0.47
	Baglung	1145	109	2.00	0.49
	Gorkha	1219	118	2.00	0.45
	Gulmi	760	117	2.00	0.47
	Kapilvastu	1121	36	1.00	0.44
	Kaski	1707	43	1.00	0.59
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	1209	173	[illegible]	[illegible]
	[illegible]	1310	48	1.00	0.48

	Palpa	1167	68	1.00	0.49
	Parbat	1220	183	3.00	0.5
	Rupandehi	1358	27	0.00	0.55
	Syangha	1333	109	2.00	0.54
	Tanahun	1188	45	1.00	0.52
MWDR		980.53	325	5.00	0.39
	Banke	1370	45	1.00	0.48
	Bardiya	969	50	1.00	0.43
	Dailekh	679	148	2.00	0.38
	Dang	1062	56	1.00	0.41
	Dolpa	1279	786	12.00	0.37
	Humla	1014	387	6.00	0.37
	Jajarkot	839	164	3.00	0.34
	Jumla	1104	317	5.00	0.35
	Kailkot	775	1651	25.00	0.32
	Mugu	1105	510	8.00	0.3
	Pyuthan	754	179	3.00	0.42
	Rolpa	877	141	2.00	0.38
	Rukum	1002	140	2.00	0.39
	Salyan	791	219	3.00	0.4
	Surkhet	1088	77	1.00	0.49
FWDR		1039.78	150	2.00	0.39
	Accham	770	139	2.00	0.35
	Baitadi	890	140	2.00	0.39
	Bajhang	825	177	3.00	0.33
	Bajura	907	185	3.00	0.31
	Dadeldhura	1321	193	3.00	0.43
	Darchula	1175	270	4.00	0.47
	Doti	945	131	2.00	0.4
	Kailali	1184	43	1.00	0.44
	Kanchanpur	1341	69	1.00	0.46

Source: *Per capita health Expenditure= Performance Evaluation report, MoHP; HDI = NHDR 2004*

*Annex 6: **District wise service utilization and coverage of services for the FY 2005/2006Districts***

Districts	Measles	Proportion of malnourished	ANC-I	SAB	CPR
Achham	0.87	0.11	0.78	0.26	0.13
Arghakhanchi	0.82	0.04	0.53	0.17	0.26
Baglung	0.75	0.04	0.68	0.24	0.29
Baitadi	0.77	0.10	0.80	0.12	0.18
Bajhang	0.87	0.13	0.53	0.09	0.15
Bajura	0.78	0.21	0.37	0.08	0.17
Banke	0.89	0.10	0.98	0.27	0.41
Bara	0.99	0.12	0.86	0.16	0.35
Bardiya	0.79	0.08	0.91	0.12	0.50
Bhaktapur	0.72	0.09	0.33	0.16	0.67
Bhojpur	0.80	0.07	0.54	0.13	0.33
Chitwan	0.71	0.07	0.60	0.35	0.52
Dadeldhura	0.85	0.22	1.54	0.34	0.54
Dailekha	0.90	0.09	0.70	0.12	0.21
Dang	0.91	0.08	0.78	0.25	0.43
Darchula	0.80	0.06	0.49	0.10	0.20
Dhading	0.87	0.10	0.65	0.16	0.31
Dhankuta	0.85	0.04	0.67	0.19	0.50
Dhanusa	1.03	0.10	1.05	0.41	0.58
Dolakha	0.75	0.05	0.43	0.14	0.35
Dolpa	1.01	0.21	0.40	0.07	0.16
Doti	0.81	0.15	0.73	0.15	0.21
Gorkha	0.72	0.10	0.52	0.23	0.35
Gulmi	0.81	0.08	0.65	0.18	0.24
Humla	0.95	0.23	0.36	0.14	0.22
Illam	0.73	0.11	0.55	0.15	0.46
Jajarkot	0.98	0.13	0.83	0.18	0.31
Jhapa	1.10	0.04	0.70	0.28	0.52
Jumla	1.04	0.20	1.03	0.14	0.27
Kabhrepalanchok	0.78	0.06	0.60	0.14	0.52
Kailali	0.81	0.04	0.77	0.18	0.44
Kalikot	0.85	0.37	0.49	0.13	0.11
Kanchanpur	0.78	0.06	0.63	0.14	0.38
Kapilbastu	0.88	0.09	0.92	0.27	0.30
Kaski	0.82	0.03	0.80	0.41	0.45
Kathmandu	0.99	0.03	0.52	0.63	0.52
Khotang	0.85	0.07	0.77	0.15	0.25
Lalitpur	0.99	0.05	0.73	0.59	0.72
Lamjung	0.83	0.07	0.81	0.26	0.30
Mahottari	1.08	0.06	0.95	0.43	0.52
Makawanpur	0.85	0.11	0.68	0.13	0.57
Manang	0.53	0.03	0.29	0.15	0.34
Morang	0.91	0.06	0.74	0.21	0.66
Mugu	0.97	0.38	0.69	0.09	0.20
Mustang	0.69	0.01	0.46	0.18	0.44
Myagdi	0.82	0.06	0.76	0.28	0.30
Nawalparasi	0.83	0.08	0.75	0.17	0.46
Nuwakot	0.70	0.07	0.56	0.13	0.40
Okhaldhunga	0.85	0.08	0.67	0.22	0.35
Palpa	0.81	0.05	0.78	0.24	0.43
Panchthar	0.65	0.15	0.70	0.16	0.30

Parbat	0.73	0.02	0.60	0.19	0.24
Parsa	0.89	0.11	1.00	0.38	0.64
Pyuthan	0.91	0.08	0.74	0.19	0.33
Ramechhap	0.79	0.05	0.56	0.16	0.25
Rasuwa	0.88	0.11	0.62	0.13	0.42
Rautahat	1.15	0.15	0.88	0.24	0.37
Rolpa	0.88	0.08	0.38	0.11	0.22
Rukum	1.11	0.16	0.67	0.12	0.26
Rupandehi	0.82	0.06	0.81	0.21	0.31
Salyan	0.98	0.14	0.61	0.11	0.28
Sankhuwasabha	0.88	0.04	0.52	0.12	0.26
Saptari	1.01	0.09	0.96	0.27	0.57
Sarlahi	0.97	0.12	0.59	0.14	NA
Sindhuli	0.89	0.14	0.52	0.16	0.30
Sindhupalchok	0.79	0.08	0.44	0.09	0.38
Siraha	1.02	0.04	0.99	0.25	0.49
Solukhumbu	0.69	0.11	0.55	0.15	0.35
Sunsari	0.87	0.10	0.86	0.31	0.53
Surkhet	0.89	0.17	1.14	0.36	0.48
Syangja	0.69	0.07	0.51	0.13	0.31
Tanahu	0.79	0.05	0.56	0.11	0.30
Taplejung	0.85	0.03	0.66	0.21	0.30
Terathum	0.87	0.07	0.72	0.24	0.38
Udayapur	0.76	0.08	0.58	0.12	0.30

Source: Annual Health Reports, DoHS, MoHP 2005/2006

Annex 7 : Caste/Ethnic group according to the National Foundation for Development of Indigenous Nationalities (NFDIN)

Upper Caste	Janajatis	Dalits	Religious Minorities
Bramhin (Hill), Chhetri, Thakuri, Sanyasi, Brahman, Rajput, Kayastha, Baniya, Marwadi, Jaine, Nurang, Bengali	Newar, Thakali, Gurung, Magar, Limbu, Tamang, Rai, Sherpa, Bhote, Walung, Byansi, Hyolomo, Gharti/Bhujel, Kumal, Sunsar, Baramu, Pahari, Yakkah, Dura, Chhantal, Jirel, Darai, Majhi, Danuwar, Thami, Lepcha Chepang, Bote, Raji, Hayu, Raute, Kusunda, Tharu, Dhanuk, Rajbanshi, Tajpuriya, Gangai, Dhimarl, Meche, Kisan, Munda Santhal/Satar, Dhangad/Jhangad, Koche, Pattarkatta/Kusbadiay	Kami, Damai, Sarki, Gaine, Badi, Chamar, Mushar, Dhusadh/Paswan, Tatma, Khatway, Bantar, Dom, Chidimar, Dhobi, Halkhor, Yadav, Teli, Kalwar, Sudhi, Sonar, Lohar, Koiri, Kurmi, Kanu, Haluwai, Hajam/Thakur, badhe, Bahae, Rajbar, Kewat, Mallah, Nuniya, Kumhar, Kahar, Lodhar, Bing/Banda, Bhediyar, Mali, Kamar, Dhunia	Muslims, Churoute

List of Indigenous (janajati) Nationalities

Kisan	Danuwar	Yakkha
Kumal	Darai	Rai
Kushwadiya	Dura	Raute
Kusunda	Dhanuk (Rajbansi)	Rajbansi (Koch)
Gangi	Dhimal	Rajhi
Gurung	Newar	Larke
Chepang	Pahari	Limbu
Chhantyal	Free	Lepcha
Chhairotan	Bankariya	Lhopa
Jirel	Baramo	Lhomi (Shingsawa)
Jhangad	Bahra Gaunle	Walung
Dolpo	Bote	Byasi
Tangbe	Bhujel	Sharpa
Tajpuriya	Bhote	Satar
Tamang	Magar	Siyar
Tin Gaunle Thakali	Majhi	Sunuwar
Topkegola	Marphali Thakali	Hyolmo
Tharu	Mugali	Hayu
Thudam	Meche (bodo)	

List of Tarai/ Madhesi

Kewat,	Dhuniya,	Kanu,
Mallah,	Yadav,	Sudhi ,
Lohar,	Teli,	Kumhar,
Nuniya,	Koiri,	Haluwai ,
Kahar,	Kurmi,	Badhai,
Lodha,	Sonar,	Barai,
Bing,	Baniya,	Bhediyar/ Gade
Malli,	Kalwar,	
Kamar,	Thakur/Hazam,	

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