

## 8 Social Sector Developments

The government of Pakistan remains confronted with key challenges including the burgeoning cost of war on terror, high inflation, infrastructural issues and slowing down of economic growth that are adversely affecting the social indicators. Moreover, the unprecedented damage caused by the recent flood (see **Box 8.1**) is likely to further dent the social indicators, pushing more people into poverty, raising unemployment level, causing low enrollment with more dropouts from schools and a rise in health issues.

This chapter reviews the main socio-economic indicators of the country. Being sixth most populous country having a population growth rate of more than two percent, Pakistan is lagging behind in its Medium Term Development Framework (MTDF) targets. According to a South Asian comparison of poverty incidence (UN Human Development Report, 2009) Pakistan is at a relatively low position in the group. While literacy rate has improved slightly, the country has not been able to meet its MTDF targets and is likely to miss Millennium Development Goals (MDGs) targets as well. Low public spending in health sector has adversely affected progress of the country in meeting its MTDF targets. Economic slowdown and infrastructural issues have led to rise in unemployment rate since 2007. Environmental indicators exhibit a mixed trend; access to water and sanitation indicate better status while in forest area the country remains quite below MTDF targets.

### **Box: 8.1: Socio Economic Impacts of Flood in Pakistan**

Pakistan is facing one of the biggest natural disasters of its history in the form of recent flood that has virtually paralyzed life in most parts of the country. Analysts link the cause of flood to global warming that has affected countries like Pakistan. According to United Nations (UN), the number of people affected by the flood exceeds the combined sufferers of 2004 Indian Ocean tsunami, the 2005 Azad Kashmir earthquake, and the 2010 Haiti earthquake. The unprecedented damage caused by the flood is expected to further dampen the low performing socio economic indicators of the country.

Officials of the federal government assert that the flood has either destroyed or damaged crops over 2.0 million hectares of land out of an estimated 23.8 million hectares under cultivation, raising food insecurity concerns. Food and Agriculture Organisation (FAO) has already warned that current losses could also have a negative impact on planting for FY11 because of the loss of seeds and other agricultural inputs. Moreover livestock, poultry, and fish farms have been severely affected by flood. Infrastructural and live stock losses can especially hurt rural economy. Given that majority of the population resides in rural areas depending on agriculture and livestock as main sources of livelihood, this can have a negative impact on their purchasing power. Since a significant number of people live around poverty line, prevailing conditions are likely to have negative effects on poverty levels in the country. Declining purchasing power might translate into lower spending on education and health facilities leading to further worsening of indicators related to these sectors.

According to World Health Organization (WHO), survivors of the flood are in danger of being affected by water borne diseases including cholera, cryptosporidiosis, rotavirus, typhoid and paratyphoid. Children are the most likely sufferers as UN has already warned that up to 3.5 million children could be in danger of contracting deadly diseases carried through contaminated water and insects. Another important health issue confronted by the flood survivors is pregnancy related complications. According to UN Population Fund (UNFPA), among the flood-affected population, nearly 52,500 women are expected to give birth in the next three months and about 53,000 newborns will need health care. Under these conditions mortality rates (maternal and infant) might increase in the near future as women are unlikely to have access to proper health facilities.

There has been a record damage to infrastructure facilities in the country as many roads, bridges, buildings, and irrigation works have been severely affected by the flood. As reconstruction of such facilities will take time, a large proportion of the affected people are likely to remain deprived of essential facilities like school buildings, health clinics, clean water, electricity etc. for some time. Moreover ongoing development programs are likely to suffer as funding for these programs is being diverted to ensure provision of basic infrastructure facilities. Though such steps are necessary given the gravity of the situation, it is important that once water levels recede and people start returning to their areas, the government ensures adequate measures for their rehabilitation.

From the above discussion it can be concluded that the recent flood has severely affected the socio economic indicators of the country and is likely to hamper its progress towards the Millennium Development Goals (MDGs).

In the backdrop of recent flood and the social sector already having unsatisfactory status the task of social uplift is highly challenging. However, strong commitment on part of the government and a renewed focus on development can improve the social indicators of the country.

### 8.1 Population

With an annual growth rate of more than two percent, the population of Pakistan has jumped to 184 million in 2010 from 119 million (see **Table 8.1**) in 1990.<sup>1</sup> This rise has been without any significant changes in regional (rural, urban) bifurcation; more than 65 percent of population still resides in rural areas.

Presently, Pakistan contributes more than two and half percent of world's population and its population growth rate has mostly remained above the world's population growth rate.<sup>2</sup> Even while Pakistan's population growth rate has started declining since the decade of 90's, its contribution towards world's population (see **Table 8.1**) increased from 2.25 percent in 1990 to 2.69 percent in 2010. Moreover Pakistan has got the highest average fertility rate for 2005-2010<sup>3</sup> along with the highest household (HH) size (6.8) and the second highest density<sup>4</sup> after India (see **Table 8.2**) amongst the six most populous countries. This is despite the fact that over time various governments have been trying to tackle the issue of high population growth rate. However, most of these programmes could not achieve the desired results mainly due to low literacy level particularly among women and in rural areas, cultural and religious constraints, and programme providers lack of skills in promoting family planning<sup>5</sup>.

Realizing the need for a comprehensive approach to check rising population and to implement population planning programmes effectively, population policy was introduced in 2002. The key focus of this policy was to check population growth through improvement in health status. Five year development framework (MTDF) presented three main indicators to assess country's progress on population control. However, the country has remained unsuccessful

**Table 8.1: Population Trend of Pakistan**

Year	Rank	Population (million)	Population Growth Rate	Percent of World Population
1950	13	40		1.58
1960	11	52	2.9	1.70
1970	9	67	2.9	1.82
1980	9	85	3.1	1.91
1990	8	119	2.7	2.25
2000	6	152	2.2	2.50
2010	6	184	2.1	2.69

Source: UN Census Bureau (International Data Base)

**Table 8.2: Top Six most Populous Countries**

Rank	Countries	Population (million)	Density (persons per sq. km)	HH size
1	China	1,330	139	3.04 (2002)
2	India	1,173	394.6	5.30 (2001)
3	United States	310	33.9	2.61 (2009)
4	Indonesia	243	23.8	3.00 (2003)
5	Brazil	201	134.1	2.26 (2009)
6	Pakistan	177	239.2	6.80 (2010)

Source: UN Census Bureau (International Data Base)

**Table 8.3: MTDF Targets for 2010 & Current Status (percent)**

Indicators	Base year (2005) status	Targets (2010)	Current status
Pop growth rate	1.87	1.60	2.05
Replacement level fertility (no unit)		2.0 (2020)	3.6
Contraceptive prevalence rate	29	51	30**

Source: Mid Term Review of MTDF, 2008, Economic Survey 2010, \*\*Pakistan Demographic Survey 2006-07

<sup>1</sup> According to Economic Survey 2009-10 the population of the country in 2010 (the most recent available data) is 173.51 million

<sup>2</sup> Population Reference Bureau

<sup>3</sup> Source: Human Development Report 2009

<sup>4</sup> Density refers to persons per square kilometer

<sup>5</sup> Source: National Population Policy draft, 2010

in meeting targets for all three indicators (see **Table 8.3**).

Replacement level fertility and contraceptive prevalence rate are quite below their targets, while population growth rate has increased to 2.05 percent rather than showing a decline from the base year status (1.87). Population policy 2002 could not produce desired results, therefore targets have been revised and a multipronged strategy has been suggested in new Population Policy 2010 (see **Box 8.2**).

#### Box 8.2: National Population Policy (NPP) 2010

The major aim of population policy 2010 is timely completion of fertility transition through targeting family planning from health perspective. This will help in meeting the MDG of reducing maternal mortality rate by two third by 2015 (see **Table 8.2.1** for objectives of the policy).

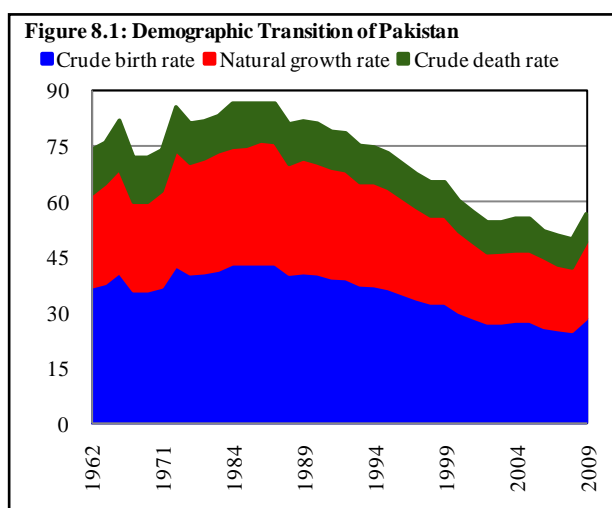
To meet these targets the government has borrowed guiding parameters stipulated in the action plan of International Conference on Population and Development and UN's Millennium Development Goals 2000, and the Karachi Declaration 2009 for implementation of Best Practices for Family Planning, Reproductive Health and National Maternal, Neonatal and Child Health (MNCH). These parameters have been identified to promote family planning on informed and voluntary choices by ensuring active participation of all stakeholders while keeping all strategies and policies within limits of national, social and cultural norms.

**Table 8.2.1: Objectives of NPP 2010**

Short term objectives ( targets for 2015)	Long term objectives (targets for 2025)
1. Reduce <ul style="list-style-type: none"> <li>• fertility level to 3 births per woman</li> <li>• incidence of first birth in ages less than 18 by two third</li> <li>• proportion of mothers giving late birth to half</li> </ul>	1. Achieve <ul style="list-style-type: none"> <li>• replacement level fertility (2.1 birth per woman)</li> <li>• contraceptive prevalence rate of 70 percent</li> </ul>
2. Promote birth pregnancy spacing from 3 percent to 60 percent	2. Minimize unmet need for family planning services from 25 percent to 10 percent
3. Ensure universal access to family planning services	

Source: Draft National Population Policy

The impact of population on overall socio-economic growth is universally agreed upon; however, this effect is subject to dynamics of population along with its absolute number. This implies that the absolute number of population of any country cannot be a sufficient indicator to signify whether population would act as burden or dividend for an economy. In case of Pakistan population might appear as a burden on national resources as indicated by high poverty level and lower education and health provisions. However population structure of the country indicates that this apparent burden can be converted into a dividend for the economy. This can be explained by analyzing the demographic transition<sup>6</sup> of the country.



#### 8.1.1 Demographic Transition

Pakistan like many other developing countries is passing through a demographic transition and is currently in the third stage<sup>7</sup> of demographic transition of moderate growth where birth rate and death rate both decline and the pace of increase in population gets slow. Crude Birth Rate (CBR) in the country has declined from 37 per 1000 person in 1961 to just above 28 per 1000 person in 2009 and

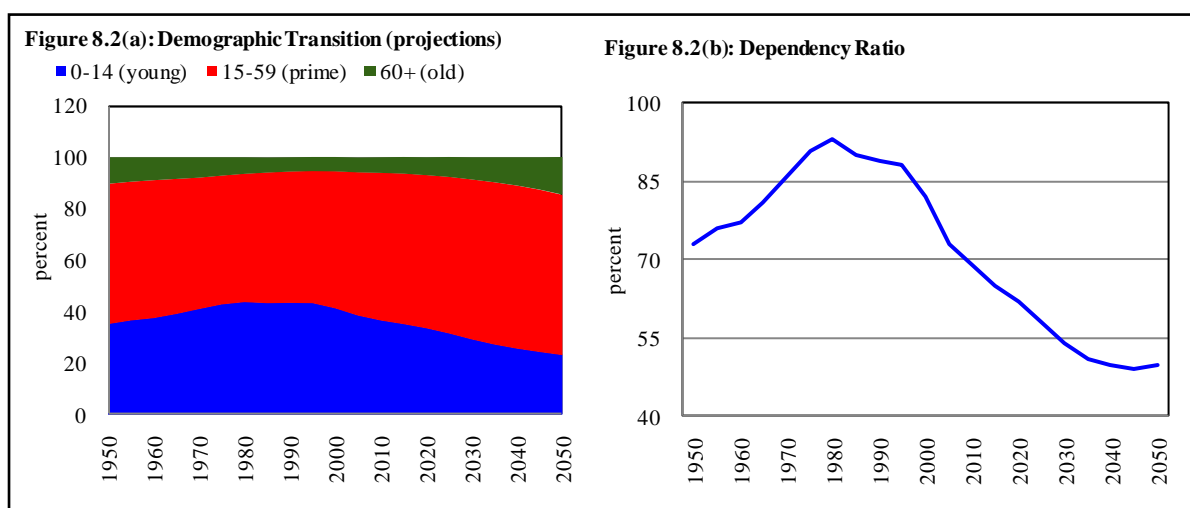
<sup>6</sup> Demographic transition implies a process of change from high equilibrium point of CBR and CDR to a low equilibrium point of CBR and CDR

<sup>7</sup> Demographic transition has four stages; (i) Low Growth (ii) High Growth (iii) Moderate Growth (iv) Low Growth

Crude Death Rate (CDR) has shown a drop from 12 per 1000 person in 1961 to 7.6 per 1000 person in 2009. Consequently the natural increase in population<sup>8</sup> has depicted a declining trend (see **Figure 8.1**).<sup>9</sup> This reduction in CBR and CDR was also complemented by a declining trend in infant mortality rate (IMR) and overall fertility rate. IMR has dropped from 107.7 in 1990 (base year for MDG targets) to 73.5 in 2008<sup>10</sup> while total fertility has dropped from 5.3 in 1992<sup>11</sup> to 3.6 in 2010.

Like any other country, Pakistan has observed a significant change in its population composition while moving through different stages of demographic transition. According to UN population projections there is a gradual rise in the percentage share of working age population while a fall in the percentage share of young and old age population (65+) (see **Figure 8.2 (a)**) towards the end of 90's. This is also reflected in the declining dependency ratio<sup>12</sup> (see **Figure 8.2 (b)**).<sup>13</sup> The rising share of working age population can act as a dividend for economic growth of the country. However, the benefits of rising share of working age population can only be realized if the country's resources are effectively used for enhancing skills and capabilities of the workforce. This highlights need for emphasis on areas like education, health and employment opportunities of the country.

Acknowledging the significance of converting this higher proportion of working age population into demographic dividend the government has included this objective as one of the main goals of national population policy 2010.



<sup>8</sup> Natural increase in population is the difference between CBR and CDR

<sup>9</sup> Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2002 Revision United Nations

<sup>10</sup> Source: Economic Survey 2009-10

<sup>11</sup> 5.3 is the average total fertility rate for the period 1992-96

<sup>12</sup> Census data shows Prime population between the age of 25 and 59 while for UN projections the age between 15-59 has been used to indicate the percentage of working population while for young the age range is between 0 and 14 while for old this range is above 65. According to international criterion, 15 years and above can be treated as labour force and therefore the range for working age population has been taken between 15 and 59.

<sup>13</sup> Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision United Nations

## 8.2 Poverty

Like its South Asian (SA) group members Pakistan falls in the category of medium human development countries; occupying a position towards bottom with reference to its performance in terms of Human Development Index (HDI) and Human Poverty Index (HPI). Globally having 142<sup>nd</sup> HDI rank and 101 HPI-1 rank out of 182 countries (see **Box 8.3**) Pakistan stands fifth within the SA group (see **Table 8.4**).

Available data for regional comparison shows that poverty incidence in accordance with definition of \$ 1.25 is relatively low for the country. However, for \$ 2 definition the head count ratio (HCR), percentage of population below poverty line, more than doubles. This shows that HCR is sensitive to poverty line definition as a slight modification in it is likely to bring significant change in HCR. The impact of this volatility can also be explained by the premise that major portion of population (almost 40 percent) in the country lives around the poverty line and any economic shock may have a considerable impact on this segment of the population. Economic shocks may push them either below or above the poverty line, depending upon the nature of the shock. Economic slowdown, high inflation, volatile movement in some key commodity prices, high cost of war on terror<sup>14</sup> and its severely negative consequences like considerable internal displacement, have acted as negative shocks for the economy.

### Box 8.3: HPI Index

HPI concentrates on deprivation in three essential elements of human life; longevity, knowledge and a decent standard of living. The HPI is derived separately for developing countries (HPI-1) and a group of select high-income OECD countries (HPI-2) to better reflect socio-economic differences and also the widely different measures of deprivation in the two groups.

- The first deprivation relates to **survival**: the likeliness of death at a relatively early age and is represented by the probability of not surviving by the age of 40 and 60 respectively for HPI-1 and HPI-2.
- The second dimension relates to **knowledge**: being excluded from the world of reading and communication and is measured by the percentage of adults who are illiterate.
- The third aspect relates to a **decent standard of living**, in particular, overall economic provisioning.

HPI-1 is measured by the unweighted average of percentage of population without access to safe water and the percentage of underweight children for their age. HPI-2 is measured by the percentage of population below income poverty line (50% of median household disposable income). Moreover HPI-2 also includes social exclusion, a fourth dimension of the HPI-2. It is represented by the rate of long term unemployment.

Source: UN Human Development Report 2009

Table 8.4: Poverty & Income Inequality

South Asian countries	HDI rank	HPI-1 rank	HPI value	Poverty incidence (percent)			Gini coefficient
				< \$1.25	< \$ 2	National poverty line (2000-2006)	
Maldives	95	66	16.5			n.a	n.a
Sri-Lanka	102	67	16.8	14.0	39.7	22.7	41.1
Bhutan	132	102	33.7	26.2	49.5	n.a	46.8
India	134	88	28.0	41.6	75.6	28.6	36.8
Pakistan	142	101	33.4	22.6	60.3	32.6	31.2
Nepal	144	99	32.1	55.1	77.6	30.9	47.3
Bangladesh	146	112	36.1	49.6	81.3	40.0	31.0

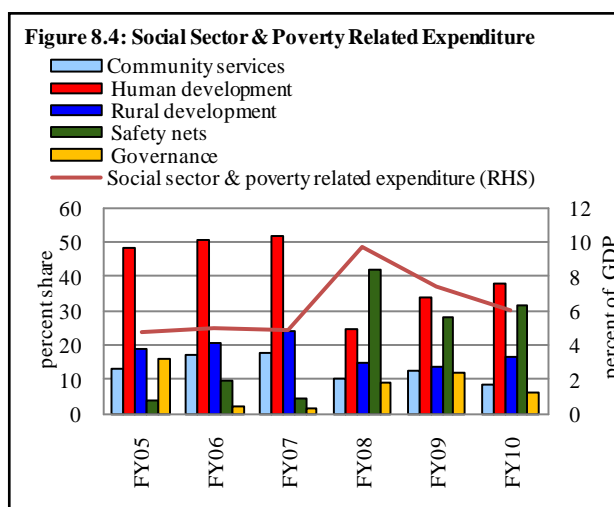
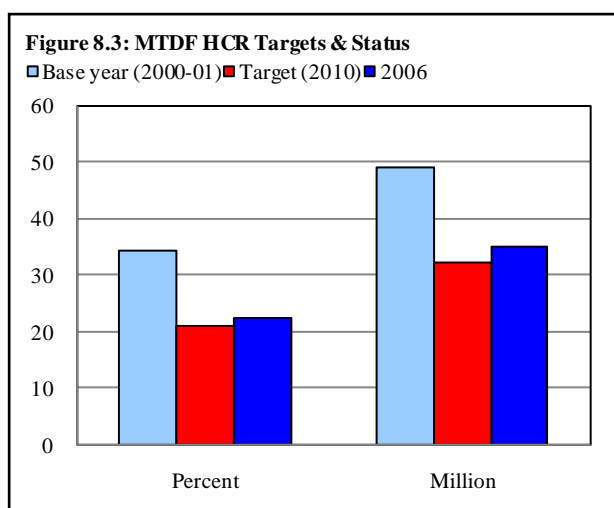
Source : UN Human Development Report 2009

<sup>14</sup> Cost of war on terror has jumped from Rs. 259 billion in FY06 to Rs.678 billion in FY09.

All these factors might have increased poverty incidence in the country by negatively impacting purchasing power of masses. The prevailing level of poverty incidence in the country will be further deteriorated by flood as it has adversely affected livelihood especially of rural population along with huge damages to property, agriculture land, and infrastructure, etc. However, due to unavailability of latest data in depth analysis of income poverty or any quantitative forecast is not possible. Considering the severity of the issue, the planning commission has started conducting a survey to estimate quantitative figures of poverty incidence in the country.

In terms of income inequality, Pakistan occupies a relatively better position within its SA group, having the second lowest Gini coefficient, Bangladesh being at the top (see **Table 8.4**). Income inequality has shown a rising trend even over the period 2000-2006 when the overall poverty was showing a declining trend. Gini coefficient increased from 0.30 in 2001 to 0.35 in 2006 while the ratio of the highest to lowest has risen from 10.4 in 2001 to 13 in 2006.

The main objective of MTDF was poverty reduction and therefore targets and indicators were aligned with millennium development goals (MDGs). Available data shows that in terms of reducing income poverty, the country remains below (22.3 percent) its MTDF target of having HCR at 21 percent. In terms of absolute number, the country should have reduced HCR from 49.2 million in 2001 to 32.3 million in 2010; however this number remains at 35 million (see **Figure 8.3**).



The government is obligated to make an expenditure of at least 4.5 percent of GDP for social uplift and poverty reduction under the Fiscal Responsibility and Debt limitation Act 2005. Over the last five years governments have been successful in fulfilling this commitment by spending in 17 pro-poor sectors<sup>15</sup> under five main categories (see **Figure 8.4**). Throughout human development category has got the highest share except in FY08. The highest share in FY08 was of Safety Nets category where food subsidy was replaced with subsidies as one of the main areas under the group. This category now occupies the second highest share among five major groups. It is important mentioning that government has to gradually end these subsidies and may replace them with direct support for poor in the long run. It is source of concern that poverty related expenditure though is above the obligated level of 4.5 percent, has shown significant decline over the last two years from 9.7 percent in 2008 to

<sup>15</sup> (i) Roads, highways & bridges (ii) Water Supply & Sanitation (iii) Education (iv) Health (v) Population planning (vi) Irrigation (vii) Land Reclamation (viii) Rural Development (IX) Rural electrification (X) Administration of justice (XI) Law and order (XII) Social Security & other Welfare (XIII) Natural Calamities & Disasters (XIV) Food Subsidies (XV) Food Support Program (XVI) Twana Pakistan (XVII) Low cost housing

just above 6 percent in 2010. Realizing the dire need of more focused intervention to dent poverty the government has committed to raise the pro-poor expenditure to Rs 1049 billion from Rs 860 billion for previous year in poverty reduction strategy of action plan 2010-2011 (see **Box 8.4**). However flood devastation is signaling the need for further rise in pro-poor budget in coming years.

#### **Box 8.4: Poverty Reduction Strategy Annual Plan 2010-2011**

Poverty reduction strategy in the annual plan of 2010-2011 takes into account the economic, social, and governance dimensions and include mainly the following areas:

- **Provision of Productive Assets to the poor**
  - Distribution of State Land:** (a) State land will be provided to landless especially women of the poor households (b) Provision of funds for needy to buy land (c) Institutional changes in the land market
  - Livestock and Dairy Development:** Government will provide assistance through capacity building, technical support, and financial support.
  - SMEs:** Business development services to promote SMEs and efforts to promote Common Facilities Centres (CFC)
  - Micro Finance:** Strengthening of institutions for product development and enhancing women's access to credit Strengthen the legal framework for financial services
- **Enhancement of capacity of the people through human development and gender mainstreaming programmes**

This focuses on utilizing the demographic transition; rising share of working age population, for the higher economic growth of country.

  - Education:** New education policy with focus on attaining gender and regional parity in terms of opportunities for education and employment.
  - Health:** New Health policy to pursue the ideal of "health for all"
  - Water & sanitation:** Increased public expenditures on water supply and sanitation through peoples welfare programmes and other initiatives
  - Gender Streaming**
  - Skills Development:** The National Skills Strategy (2008-2012) will be continued to provide relevant need based skills for industrial and economic development
- **Provision of safety net to protect the extreme poor and vulnerable**

This category contains new programmes like Benazir income Support programme (BISP) and effective and efficient operations of old programmes like Pakistan Bait-UL-Mal, Old Age benefit Institution and employee social security institution etc
- **Provision of adequate resources for financing the poverty reduction programmes**

The pro-poor expenditure with an increase of Rs .189 billion is estimated to be at Rs. 1049
- **Reforming and strengthening institutions for better delivery of public services**

### **8.3 Employment**

Pakistan having 10<sup>th</sup> rank in the world for its labor force size occupies 142<sup>nd</sup> position<sup>16</sup> out of total 200 countries in the category of unemployment rate.<sup>17</sup> Within SA group, Pakistan has got the third highest unemployment rate after Nepal and Maldives<sup>18</sup> (see **Box 8.5** for global employment trends). More recently the devastation caused by flood is expected to further worsen employment level in the country.

**Table: 8.5 Labor Force & Employment Trends**

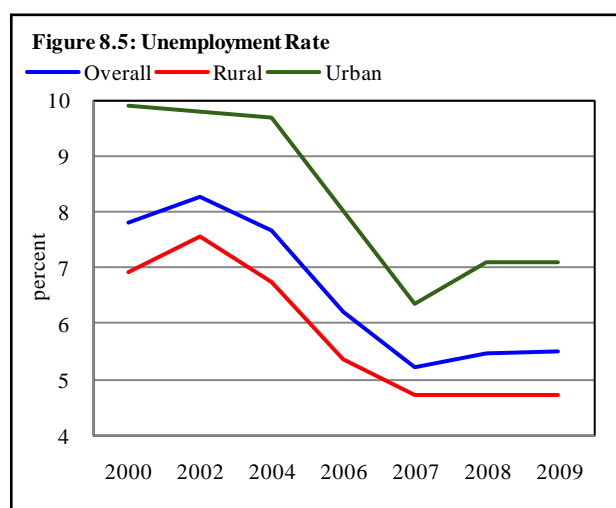
	LF (million)			Employed (million)			Unemployed (million)			LF participation rate (percent)		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
Overall	52.41	54.60	55.67	49.68	51.62	52.71	2.73	3.04	2.98	32.17	32.81	32.81
Rural	36.62	36.02	37.29	34.90	34.32	35.53	1.72	1.70	1.76	33.84	34.29	34.29
Urban	15.79	18.58	18.46	14.79	17.30	17.18	1.00	1.28	1.28	28.87	29.87	29.87

<sup>16</sup> The higher the position the higher the unemployment rate

<sup>17</sup> Source: CIA The World Fact book. According to this data the unemployment rate for Pakistan is 14 percent for 2009.

<sup>18</sup> Globally, Nepal is placed at 190th position while Maldives at 145th

Economic slowdown since 2007 has contributed to the reversal of unemployment rate trend in the country; unemployment rate started rising after a declining trend over the period 2003-2007 (see **Figure 8.5**). The unemployed labor force has increased from 2.73 million in 2007 to 2.98 million in 2009, while labor force has increased by 3.26 million (see **Table 8.5**). No significant change has been observed in share of provinces in employing labor force; Punjab constitutes the major share of above 55 percent of employed labor force followed by Sind, Khyber Pukhtunkhawa, and Baluchistan.



**Box 8.5: Global Employment Trends**

Global economic crisis that started in 2008 has negatively affected the world labor market causing a job crisis. The recent economic recovery is different from labor market recovery as unemployment rate is a lagging indicator of growth. Realizing these premise actions are being planned at the global level to target labor market and job crisis. Salient features of global employment status are as follows;

- The global unemployment rate started rising in 2008 after following four decades of falling unemployment. Since 2007, 34 million people have been added into unemployed category and the rise in 2009 has remained sharper than 2008. Moreover this trend will continue even in 2010 in accordance with ILO estimates
- The largest increase in unemployment rate (more than two-third of rise in global unemployment) was observed in Central and South-Eastern Europe, Common Wealth of Independent States (CIS) and North Africa.
- Unemployment in the South Asian region has increased to 5.9 percent in 2009 having third highest gender gap (female unemployment is more than male counterpart) among all regions though this disparity is not specific to global crisis
- Labor productivity; output per worker, also decreased in most regions of the world where the largest fall (-4.7) was observed in Central and South-Eastern Europe (non-EU) & CIS.
- Global LFPR decreased by 0.8 percentage points over the long run trend between 1999-2009, however over the last year the rate remained steady due to opposing movements at regional level. The decrease in LFPR in developed economies, European Union along with Central and South Eastern Europe and CIS was adjusted by an increase in the participation rate in Middle East, North Africa and sub-Sahara Africa.

Source: Global Employment Trends 2010

**Table 8.6: Industry Wise Share in Employed labor Force (percent)**

Years	Agriculture	Mining & manufacturing	Construction	Electricity & gas distribution	Transport	Trade	Others
2006	43	14	6	1	15	6	15
2007	44	14	7	1	14	5	16
2008	45	13	6	1	15	5	15
2009	45	13	6	1	15	5	15

In terms of rural urban bifurcation the rise in unemployment rate is more profound in urban region in contrast to rural region (see **Figure 8.5**). This can be linked to the growth pattern of the country; over the last two years industrial growth has been more negatively affected due to problems like power shortage, law and order condition, etc as compared to agriculture sector which is the most dominant profession in rural areas. Industry wise employment of labor force also supports this argument as percentage share of labor force employed in agriculture has increased from 43 percent in 2006 to 45



percent in 2009 while share of all other categories remained stagnant or has shown a smaller decline (see **Table 8.6**).

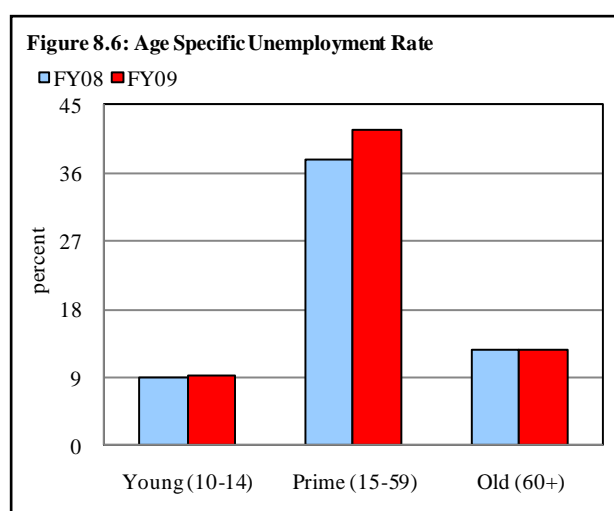
However, employment situation of the country is becoming a serious concern due to the destruction caused by recent flood. The flood has badly hit two major livelihoods, livestock one of the main income sources of rural population and agriculture sector the major absorbent of labor force. Approximately 1.2 million large and small animals have died in the flood while more than 17 million acres of agriculture land has been inundated. Consequently a rise in unemployment will have devastating impact on poverty status of the country.

**Table 8.7: Employment Status by Sex (percent)**

	2007-08			2008-09		
	Total	Male	Female	Total	Male	Female
Employers	1	1	n.a	1	2	0
Self employed	34	40	13	33	39	13
Unpaid family Helpers	29	20	65	30	20	65
Employees	36	40	22	36	40	22
Total	100	100	100	100	100	100

Source: Labour Force Survey 2008-09

Gender wise bifurcation is important as female constitutes more than 48 percent of the total population and therefore cannot be ignored. However only 22 percent of the female population is part of country's labor force. Unemployment rate for female (8.5 percent) is significantly higher than male counterpart (4.3 percent) and mostly females (72.4 percent)<sup>19</sup> are employed in informal sector and are under paid. Employment category data also presents a similar kind of picture where majority (65 percent) of female are under paid family helpers' category against 20 percent of male in this category followed by self employed category (see **Table 8.7**) that employs more than 13 percent of female. The government realizes female employment being critical for economic growth and its obligation of providing equal work opportunities without any discrimination in wages among genders under the convention of ILO on Equal Remuneration (1951).<sup>20</sup> For this purpose the government has introduced exclusive programmes for reducing female unemployment and has committed in the new labor policy 2010 that legislation will be re-examined to ensure access to suitable jobs for women.



Region wise female employment presents an interesting scenario; female unemployment rate is higher in urban areas than in rural region despite cultural constraints in rural areas. The employed rural females in 2008-09 were 9.09 million while for urban region this number was only 1.66 million.

<sup>19</sup> For rural it is 77.8 percent while for urban it is 67.2 percent.

<sup>20</sup> Pakistan ratified the convention in 2001

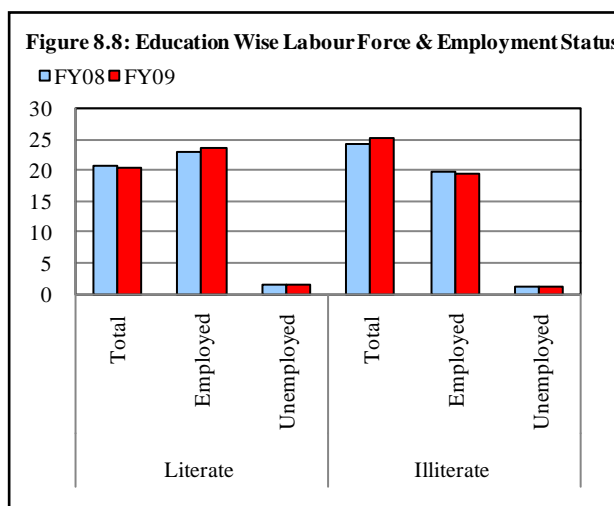
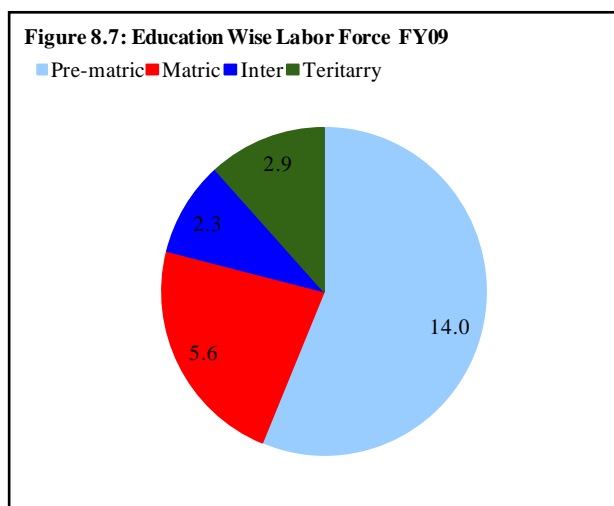
Sectors wise employment provides explanation for this status as percentage of female labor in agriculture sector (75 percent) is more than double of male participation (37.3 percent) in the sector. Women in rural region mostly work on their family farms and that also explains their higher employment in rural region despite conservative culture of the region. Age specific unemployment rate shows a rise in unemployment rate of prime age group (see **Figure 8.6**). This can be explained by the changing age structure of population as discussed in the population section. The rising percentage of working age population in overall population indicates a rise in demand of employment opportunities from the group. Education wise bifurcation does not present a bright picture as illiterate labor force is more than the literate labor force.

Among labor force the higher the education level the lower is the percentage share (see **Figure 8.7**). However over the last year there is an increase in the employment of literate labor force while a fall in the employment of illiterate labor force (see **Figure 8.8**). This can be explained with the anecdotal argument that during time of recovery industries try to utilize jobs efficiently<sup>21</sup> employing more of educated and technical LF. The changing structure of population having high percentage of working age group along with the higher percentage of illiterate LF highlights the dire need for greater focus on education and technical training to realize benefits of demographic dividend.

Realizing the significance of employment in passing benefits of growth to the poor, the government has adopted multidimensional policies. The emphasis of these policies is not only on reducing the unemployment rate to the target of 4 percent of MTFD but also on the ILO agenda of creation of decent work, skill enhancement and human development.

According to PRSP-II government is focusing on boosting employment through two main types of programmes; (i) labor intensive public works and (ii) credit based self employment. Public works are direct but

temporary measure for consumption smoothing during any shock or for a year long poverty reduction program. However credit based programmes are indirect measures to increase average real income of poor in the long run. Current policy initiatives of government include accelerating investment and economic growth, revision of minimum wage from Rs. 6000 to Rs. 7000, credit facility through SME bank and micro credit facilities, Pakistan skilling programme etc. Along with employment creation, the government has also expanded safety net programmes to provide immediate



<sup>21</sup> Global Employment Trends, 2010, ILO

relief to the poor. In the backdrop of destruction caused by the flood, employment creation will be challenging in coming years for two main reasons:

- (i) Displaced people will not be able to continue pursuing their prior livelihoods
- (ii) Employment creation will be critical in rehabilitation process of flood affectees, to ensure sustainable decent living conditions in the long run.

#### 8.4 Education

Government of Pakistan being signatory to the Millennium Declaration 2000 and Dakar Framework 2000 has remained committed in promoting education and over the years various measures have been taken in this regard. The constitution of Pakistan considers education as a fundamental right and Article 25A, of the 18th constitutional amendment, declares “education free and compulsory for all children of the age of 5 to 16 years, in such manner as may be determined by law.” In order to provide access to education, various policies have been adopted with education policy 2009 being the latest of these initiatives (see **Box 8.6**).

##### **Box 8.6: National Education Policy 2009<sup>22</sup>**

Government of Pakistan over the years has introduced various education policies for increasing access, improving quality and promoting equity of educational opportunities in the country. The latest educational policy of this series appeared in 2009. Some of the salient features of this policy are given below:

##### **Aims and Objectives:**

1. Revitalizing the existing education system with a view to cater to social, political and spiritual needs of individuals and society.
2. Promoting national unity by respecting all faiths and religions and recognizing cultural and ethnic diversity.
3. Provision of equal educational opportunities to all citizens of Pakistan, for girls and boys alike, under-privileged/marginalized groups and special children and adults.
4. Developing a self reliant individual, capable of analytical and original thinking.
5. Raising individuals committed to democratic and moral values, aware of fundamental human rights, open to new ideas, having a sense of personal responsibility and participation in productive activities in society for the common good.
6. Reviving confidence in public sector education system by raising the quality of education provided in government owned institutions.
7. Improving service delivery through political commitment and strengthening education governance and management.
8. Enable Pakistan to fulfill its commitments to achieve Dakar Framework of Action, Education For All goals and Millennium Development Goals relating to education.
9. Eradicating illiteracy within the shortest possible time through universalizing elementary education coupled with institutionalized adult literacy programmes.
10. Enabling an individual to earn his/her livelihood honestly through skills that contribute to the national economy and enables him/her to make informed choices in life.
11. Encouraging research in higher education institutions contributing to accelerated economic growth of the country.
12. To organize a national process for educational development that will reduce disparities across provinces.

##### **Policy Actions:**

1. Provinces and Area Governments shall affirm the goal of achieving universal and free primary education by 2015 and up to class 10 by 2025.
2. Provincial and Area Governments shall develop plans for achieving intermediate enrolment targets.
3. Measures shall be adopted to ensure inclusion of special persons in mainstream education and Technical and Vocational Education (TVE) programmes.
4. National Standards for educational inputs, processes and outputs shall be determined. A National Authority for Standards of Education shall be established. The standards shall not debar a provincial and area government/organization from having its own standards higher than the prescribed minimum.
5. Provincial and district governments shall establish monitoring and inspection systems to ensure quality education.
6. Steps shall be taken to make educational provision relevant for labor market.
7. Universities and research institutes shall place greater emphasis on mobilizing research for promoting innovation in the economy.
8. Educational inputs need to be designed with a comprehension of challenges and opportunities related to globalization.

<sup>22</sup> Source: [http://www.moe.gov.pk/nepr/NEP\\_2009.PDF](http://www.moe.gov.pk/nepr/NEP_2009.PDF)

9. The Government shall commit to allocating 7% of GDP to education by 2015. Formula for proportional allocation (out of available funds) to different sub-sectors of education shall be evolved by the provincial/ area governments.
10. The Government shall explore ways to increase the contribution of the private sector, particularly in the case of disadvantaged children. A percentage of education budget as grant in aid (to be decided by each Province) shall be allocated to philanthropic, non-profit educational institutions.
11. A system of checks and balances for the private sector shall be formed to oversee the issues of fees, school standards, salaries of teachers, conduct and hygiene etc.
12. Total resources for education shall be further augmented by developing strategies for inviting and absorbing international contributions.
13. A system for donor harmonization and improved coordination between development partners and government agencies shall be developed.
14. The concept of “free” education shall encompass all education related costs including expenditure on stationery, school bags, transport and meals, which are, in general, not covered at present, and shall be applied on a needs basis for poor children.

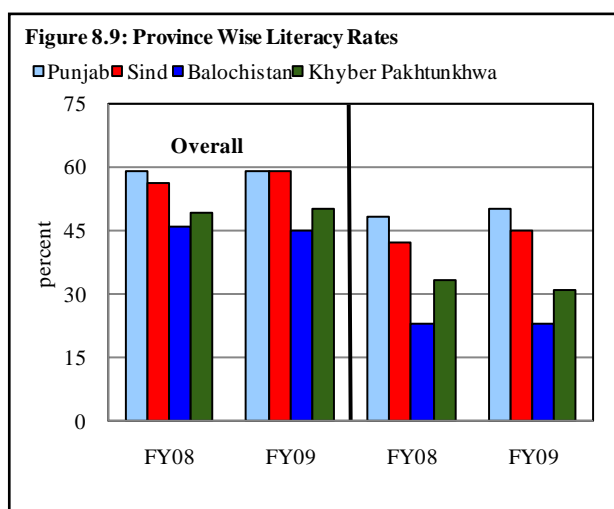
Given strong government support, education indicators in the country have shown improvement over time, albeit at a slow rate. Latest available data shows that literacy rate improved slightly in FY09 reaching 57 percent compared to 56 percent in FY08 (see **Table 8.8**). In depth analysis of education data shows that literacy rate amongst urban population has shown improvement; however, in rural population it declined in FY09 compared to FY08. A positive development has been an improvement in female literacy rate, however male literacy rate remained constant in FY09 compared to FY08 (see **Figure 8.9**).

Province wise analysis of literacy rates show disparities amongst the provinces as Punjab remained the most literate province both in terms of overall as well as female education. On the other hand, lowest level of education was recorded in Balochistan with overall literacy rate recording a decline in the province during FY09 compared to FY08. Sind and Khyber Pakhtunkhwa registered an increase in overall literacy rates during FY09 compared to FY08. Relatively better position of literacy level in Punjab compared to other provinces can be attributed to successful implementation of education sector reforms in the last decade. Whereas lower female literacy rate in Balochistan and Khyber Pakhtunkhwa may be due to cultural factors.

Among other indicators of education, Net Enrolment Rate (NER) registered an overall improvement as well as an improvement in rural, urban, male and female levels during FY09 (see **Table 8.8**). On the other hand,

Table 8.8: Education Indicators	in percent		
	2006-07	2007-08	2008-09
<b>Literacy rate (10 years &amp; above)</b>			
Male	67	69	69
Females	42	44	45
Rural	45	49	48
Urban	72	71	74
Overall	55	56	57
<b>GER primary (age 5-9)</b>			
Male	99	97	99
Females	81	83	83
Rural	84	83	85
Urban	106	106	106
Overall	91	91	91
<b>NER primary (age 5-9)</b>			
Male	60	59	61
Females	51	52	54
Rural	52	51	53
Urban	66	66	68
Overall	56	55	57

Source: Economic Survey 2009-10



similar to FY08, Gross Enrolment Rate (GER) remained at 91percent in FY09.

It is pertinent to note that despite showing improvement in various education indicators, a regional comparison shows Pakistan's performance being relatively weak. With relatively low literacy rate and low public spending on education in the region, Pakistan lags behind compared with other regional countries (see **Table 8.9**).

**Table 8.9: SA Country Comparison**

	Literacy rate	Primary completion rate		Public spending on education as % of GDP	Pupil teacher ratio (primary)
		Male	Female		
Bangladesh	55.0	55.6	59.6	2.4	43.7
Bhutan	52.8	84.6	92.4	5.1	27.7
India	62.8	95.3	91.7	3.2	40.2
Maldives	98.4	116.7	109.0	8.1	13.3
Nepal	57.9	79.1	71.8	3.8	37.8
<b>Pakistan</b>	<b>53.7</b>	<b>66.9</b>	<b>53.4</b>	<b>2.9</b>	<b>40.7</b>
Sri Lanka	90.6	104.8	105.0	n.a	23.8

Source: World Development Indicators 2010, n.a: Not available, figures for the latest available year have been taken

Further analysis of the domestic education indicators show that Pakistan is unlikely to meet its targets associated with MTDF and MDGs (2015). The current literacy rate of 57 percent in FY09 is far below the MTDF target of 77 percent and MDG target of 100 percent to be achieved by 2010 and 2015 respectively. Present gender wise literacy level also remains below the required targets of MTDF and MDG. In the same way, it seems highly unlikely that Pakistan will meet MTDF and MDG targets among other indicators of education like NER and survival rate to grade 5.

An important development during 2009 was the approval of 7<sup>th</sup> National Finance Commission (NFC) Award which recommends a mechanism of revenue sharing between the federal government and provinces.<sup>23</sup> Under the award, the federal government has agreed to increase the share of provinces in divisible pool and also to reduce collection charges. With such an increase in the divisible pool, responsibility of the provincial governments for provision of basic facilities like education and health would increase. This is likely to increase self-sufficiency of the provinces for provision of these basic facilities and programs initiated by provincial governments are more likely to be in accordance with local requirements.

From the above discussion we can conclude that despite improvements in education indicators Pakistan's education sector is still faced with key issues and challenges including low literacy level among females particularly in rural areas, low primary completion rate, high pupil teacher ratio and inefficient budgetary allocation for education. Other factors including limited physical infrastructure and lack of trained teachers have also hampered progress of education sector in the country.

Given the current scenario, increased focus on education is required to achieve the goal of universal primary education in the country. The latest education policy (2009) is a step in the right direction, however strong will and commitment on the part of all stakeholders is required to achieve required results. Moreover increasing community involvement by encouraging private sector in education through public private partnerships seems essential for promoting education in the country. It is also necessary to ensure that mismatch between demand and supply in the labor market should be addressed by having a closer interaction between educational institutions and industry.

<sup>23</sup> For details see <http://www.sbp.org.pk/reports/quarterly/fy10/first/SpecialSection2.pdf>

### 8.5 Health

Despite showing improvement, health sector in Pakistan remains confronted with key challenges including low life expectancy, high infant and child mortality rate, high maternal mortality ratio, limited health infrastructure, low public spending and high level of communicable diseases.

A regional comparison of some of these indicators raises concerns about the health sector in Pakistan. Infant mortality rates and mortality rate under 5 in Pakistan are significantly higher than the group of countries chosen in **Table 8.10**. The major causes of these high rates of mortality include malnutrition, diarrhea, acute respiratory illness, and other communicable and vaccine-preventable diseases.<sup>24</sup>

In terms of life expectancy, latest available data shows that though the indicator has shown improvement over the years Pakistan enjoys a better position compared to only Bangladesh and India amongst the chosen regional economies. Factors including low public spending on health, inadequate health infrastructure in the country, unhealthy living environment, lack of awareness about basic health requirements among general public, unequal distribution of health facilities and poverty are responsible for low life expectancy in the country. Health indicators are expected to further deteriorate by latest flood. This natural disaster has badly damaged the infrastructure and service delivery. Poor living conditions due to low nutritious food and unsafe water are likely to increase incidence of diseases

**Table 8.10: Health Indicators (2008)**

	Life expectancy	Infant mortality rate/1000	Mortality rate under 5/1000
Bangladesh	66.1	42.9	54.4
China	73.1	17.8	20.5
India	63.7	52.3	68.8
Indonesia	70.8	30.7	40.5
Malaysia	74.4	5.9	6.4
Nepal	66.7	40.8	51.4
<b>Pakistan</b>	<b>66.5</b>	<b>71.9</b>	<b>89.1</b>
Philippines	71.8	25.7	32.4
Sri Lanka	74.1	13.1	15.2
Thailand	68.9	12.5	14.1

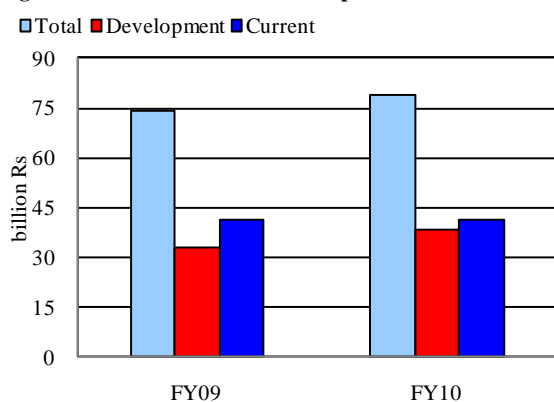
Source: World Development Indicators 2010

**Table 8.11: Health Facilities**

	2007	2008	2009
Registered Doctors	128076	133956	139555
Registered Dentists	8215	9012	9822
Number of hospitals	945	948	968
Population per doctor	1245	1212	1183
Population per dentist	19417	18010	16814
Population per bed	1544	1575	1592

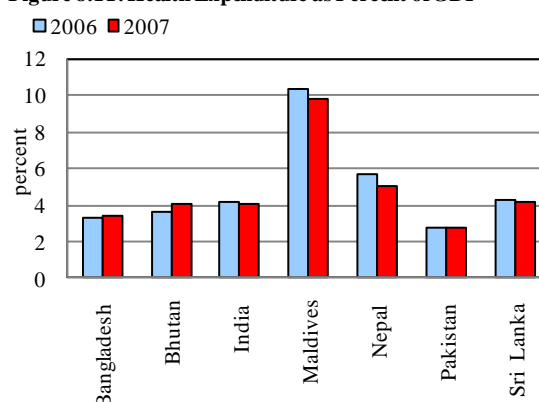
Source: Economic Survey 2009-10

**Figure 8.10: Health and Nutrition Expenditures**



Source: Economic Survey 2009-10

**Figure 8.11: Health Expenditure as Percent of GDP**



Source: World Development Indicators 2010

<sup>24</sup> Source: Country Cooperation Strategy for WHO and Pakistan 2005-2009, WHO (2006)

among flood affectees.

It is encouraging to note that health and nutrition expenditure, both total and developmental, has witnessed an increase over the years (see **Figure 8.10**). However, a comparison of Pakistan's health expenditure as percent of GDP with countries in the SA region reveals that it remains the lowest for Pakistan (see **Figure 8.11**). It is evident that the current spending on health facilities is inadequate to meet demands of the country as evident from prevailing health status of the country. Despite showing an increase in absolute number of doctors, dentists and hospitals their ratio with respect to population remains challenging (see **Table 8.11**).

To ensure progress towards a healthy Pakistan, ministry of health has been striving hard and the latest health policy was released in this regard in 2009 (see **Box 8.7**). Similarly many health programs have been initiated by the ministry of health focusing on major health related issues of the country (see **Box 8.8**).

**Box 8.7: Objectives of National Health Policy 2009<sup>25</sup>**

1. Provide and deliver quality Essential Health Care Services
2. Develop and manage competent and committed health care providers
3. Generate reliable health sector information to manage and evaluate health services
4. Adopt appropriate health technology to deliver quality services
5. Finance the costs of providing basic health care to all citizens
6. Reform the health administration and make it accountable to the public

According to WHO<sup>26</sup>, communicable diseases like measles, hepatitis B & C, neonatal tetanus, tuberculosis, malaria, typhoid and meningitis make up for nearly half of the deaths in Pakistan. On the other hand, incidence of non-communicable diseases like diabetes, hypertension, cardiovascular diseases and cancer are growing rapidly in the country due to changing lifestyles. Latest National Health Policy 2009 reveals that polio and hepatitis B & C are endemic and Pakistan ranks 6<sup>th</sup> amongst the 22 highest TB burden countries in the world. Moreover, not only HIV is rising, malaria and dengue fever are becoming common in some parts of the country. The recent flood is feared to have caused a significant rise in the communicable diseases.

Given the slow progress in health related indicators, it seems difficult for Pakistan to achieve its goals targeted under MTRF and MDGs. An analysis of achievements by Pakistan towards MTRF and MDGs reveals that Pakistan has almost achieved MTRF target of 65 percent infant mortality rate, however more efforts are needed for achieving MDG target of 40 percent. On the other hand Pakistan's current status for under 5 mortality is still away from MTRF target of 77 and MDG target of 52. Similarly latest available data suggests that maternal mortality ratio per 100,000 births is higher than 300 and 140 targets for MTRF and MDG respectively. Since HIV is increasing among some groups and malaria and other diseases are still prevalent in the society, progress of Pakistan towards these goals has not been satisfactory.

It is essential to increase public private partnerships to acquire required results with improved quality. Moreover there is a need to further increase public awareness programs especially for family planning and basic health facilities in remote villages. Collaboration between federal health ministry and provincial health departments is necessary for increasing support and partnership with donor agencies and private sector. Most importantly effective regulations are required to ensure availability of essential drugs to general public at affordable prices and to have a check on quacks.

<sup>25</sup>Source: <http://www.health.gov.pk/>

<sup>26</sup> Source: Country Cooperation Strategy for WHO and Pakistan 2005-2009, WHO (2006)

**Box: 8.8: Selected Health Programs of Ministry of Health**

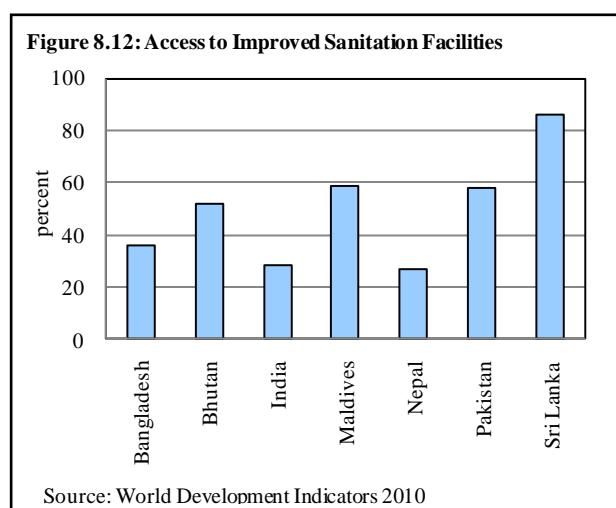
Program	Aim/Target	Cost (in rupees)
1 Expanded Program on Immunization (EPI)	EPI Programme’s target is to immunize children of 0-11 months against seven EPI target diseases and pregnant mothers against neonatal tetanus. Yearly target is around 5.5 million children (0-11 months) and 6 million pregnant women.	11.484 billion.
2 National Programme for Family Planning & Primary Health Care(LHW Programme)	The programme aims to deliver basic health services at the doorsteps of poor segments of the society through deployment of Lady Health Workers (LHWs) living in their own localities.	21.533 billion
3 National Maternal, Neonatal and Child Health (MNCH) Programme	National MNCH Program aims at strengthening, upgrading and integrating ongoing interventions and introducing new strategies. It aims to improve accessibility of quality MNCH services through development and implementation of an integrated and sustainable MNCH program at all levels of the health care delivery system.	19.995 billion
4 National AIDS Control Programme	The programme seeks to contain epidemic among the most at risk and prevent it from establishing among the bridge groups and general population by creating awareness and promoting blood safety through strengthening safe blood transfusion services.	2.85 billion
5 National Nutrition Program	The primary objective is to improve the nutritional status of the people of Pakistan in general, with special emphasis on certain sub-groups: women of child bearing age, adolescence girls and children.	Not available
6 National Malaria Control Programme	The goal of the programme is to improve the health status of the population by effectively controlling malaria through implementation of the Roll Back Malaria strategies	Not available
7 National Programme for Prevention and Control of Hepatitis	Substantial reduction in prevalence, morbidity and mortality due to viral hepatitis infections in general population	2.594 billion

Source: Ministry of Health, Government of Pakistan, <http://health.gov.pk/>

**8.6 Environment**

According to the World Development Report 2010, “Climate change threatens all countries, with developing countries the most vulnerable. Estimates are that they would bear some 75 to 80 percent of the costs of damages caused by the changing climate. Even 2°C warming above pre-industrial temperatures—the minimum the world is likely to experience—could result in permanent reductions in GDP of 4 to 5 percent for Africa and South Asia.” United Nation Environment Program (UNEP) in its report, South Asia Environment Outlook 2009, asserts that South Asian countries have started to face the effects of climate change. The report further says that global warming is likely to introduce shifts in regional weather patterns like monsoons or the El Nino and climate variability including more intense flood, droughts, and cyclones. Recent flood in Pakistan, worst in the country’s history, can be traced as an example of such weather extremes.

Given the importance of environmental issues United Nation Millennium Declaration 2000 has given special significance to environmental issues with MDG No.7





requiring environmental sustainability as one of the goals developing nations must achieve by 2015. Pakistan, being a signatory to Millennium Declaration 2000, has focused on two major environmental issues, namely water availability and sanitation, in its poverty reduction strategy.

According to the Asian Development Bank's Country Environment Analysis Report, 2008, pressing environmental concerns facing the country relate broadly to the management of scarce natural resources, pollution, waste management, potential vulnerabilities and natural hazards and climate change. Moreover the World Bank Report on country's environmental assessment 2006 revealed that collective estimated environmental degradation costs the country at least 6 percent of GDP, and this cost falls disproportionately upon the poor.

Despite the gravity of situation it is encouraging to note that Pakistan enjoys a relatively better position compared to regional economies in terms of access to water and sanitation facilities. As mentioned in Annual Report FY09, in terms of access to water, Pakistan is the leading country in the region, however according to the Planning Commission and Ministry of Environment, the above data relates to sources of water supplies rather than safety levels. On the other hand in terms of providing access to improved sanitation facilities Pakistan is the third best country in SA region behind Sri Lanka and Maldives (see **Figure 8.12**). In terms of per capita carbon dioxide emission latest available data suggests that Pakistan is the third highest in SA region (see **Table 8.12**). The level of carbon dioxide emission is persistently rising over the last few years. Various factors including population growth and increased use of non-environment friendly sources of energy like fossil fuels, due to energy shortages, has resulted in rising carbon dioxide emission.

Another indicator used for monitoring progress of environment related MDGs is the forest area in the country. According to latest available data only 2.36 percent of the land area is forest in Pakistan, far less than MTRF target of 5.2 and MDG target of 6.0 (see **Table 8.13**). More alarming is the depletion in existing forest resources of the country.

**Table 8.12: Per Capita Carbon Dioxide Emission**

	2004	2005	2006
Bangladesh	0.25	0.26	0.27
Bhutan	0.59	0.60	0.57
India	1.26	1.30	1.36
Maldives	2.60	2.32	2.93
Nepal	0.10	0.12	0.12
<b>Pakistan</b>	<b>0.85</b>	<b>0.86</b>	<b>0.90</b>
Sri Lanka	0.61	0.59	0.60

Source: World Development Indicators 2010

improved sanitation facilities Pakistan is the third best country in SA region behind Sri Lanka and Maldives (see **Figure 8.12**). In terms of per capita carbon dioxide emission latest available data suggests that Pakistan is the third highest in SA region (see **Table 8.12**). The level of carbon dioxide emission is persistently rising over the last few years. Various factors including population growth and increased use of non-environment friendly

**Table 8.13: Percent of Land Area Under Forest**

	2004	2005	2006
Bangladesh	6.69	6.68	6.66
Bhutan	83.22	83.50	83.78
India	22.77	22.78	22.79
Maldives	3.00	3.00	3.00
Nepal	25.36	25.00	24.63
<b>Pakistan</b>	<b>2.47</b>	<b>2.41</b>	<b>2.36</b>
Sri Lanka	29.91	29.45	28.99

Source: World Development Indicators 2010

#### **Box 8.9: Rainwater Water Harvesting: Alternative Source of Water Preservation**

According to the United Nation Environment Program (UNEP) report, South Asia Environment Outlook 2009, water security is emerging as an increasingly important and vital issue for South Asian region and these shortages would be further aggravated by receding of glaciers and dwindling fresh water resources. Pakistan is no exception to this problem and rapid growth in population is compounding water scarcity. Anecdotal evidence suggests that per capita water availability has reduced to 1000 gallons per annum from 5000 gallons per annum at the time of independence. Given the severity of the situation there is a need for exploring methods for protecting water resources to effectively respond to the challenge of water scarcity.

Rainwater harvesting is amongst the various methods that can be used for water preservation. Rainwater harvesting is a process of capturing and storing rainwater from roof and ground catchments for domestic, agricultural, industrial and environmental purposes.<sup>27</sup>

Given that Pakistan reportedly receives an average annual rainfall in the range of 250 mm to 300 mm, rainwater harvesting can be an effective source of water preservation in the country as presently rain water goes waste. Moreover if such water preservation methods are in place then the extent of destructions caused by heavy rains will be minimized. In countries like Singapore rainwater is the primary domestic source of water and is collected in reservoirs or water catchment areas. Encouragingly efforts have already been taken in Islamabad in this regard and a collaborative program of United Nations Development Program and the Pakistan Council of Research for Water Resources is under way. According to news reports Capital Development Authority (CDA) Islamabad is making necessary amendments in its bylaws to make it mandatory for all the households to have in-built rainwater harvesting system to conserve water. Apart from Islamabad rainwater harvesting projects are also prevalent in other parts of the country including areas in Thar and Cholistan.

From the above discussion it can be concluded that rainwater harvesting can be used as an alternative source of water preservation and can go a long way in combating the imminent problems of water scarcity in the country.

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<sup>27</sup> Source:

[http://www.worldagroforestry.org/downloads/OIE\\_Assessment\\_of\\_Rainwater\\_harvesting\\_Potential\\_in\\_Zanzibar.pdf](http://www.worldagroforestry.org/downloads/OIE_Assessment_of_Rainwater_harvesting_Potential_in_Zanzibar.pdf)