Chapter 2

PAKISTAN TUBERCULOSIS CONTROL
PROGRAM IN NATIONAL & INTERNATIONAL
PERSPECTIVES

"The growing tuberculosis epidemic is no longer an emergency only for those who care about health, but for those who care about justice"

(WHO,1994)

INTRODUCTION

Ever since WHO declared TB as a global emergency in 1993 and put 22 countries on the list of high burden, countries have pledged to improve the TB control. On the contrary to the fact, very less efforts have been put in place to figure out underlying causes and barriers by the individual countries, which are conducive to the failure in TB control. Realizing the fact that effective drugs and strategies are available and WHO is willing to assist countries technically, no progress is expected until health authorities and community stay together hand and hand to join mutually the battle against TB by recognizing, taking drastic actions and sustaining the commitment. It is assumed that various factors at various levels have their own impetus, which needs to be first identified and then toppled. The chapter mainly aims at analyzing NTP's control parameters in terms of responsiveness to the TB control, fairness in financing and in achieving overall objectives. In addition to the find out trends in TB research, the chapter provides a comprehensive review of the literature on the subject and identifies main areas of knowledge gaps and intervention at the national level. Looking at the previous reform and their outcome, the need of new strategies to complement TB control is given in both national and international perspectives.

This part of the dissertation unfolds the possible underlying factors in the health system, planning, launching and implementation of the NTP, which have allegedly contributed to the performance including the DOTS expansion. This chapter also combines a comprehensive review of TB control program in the international perspectives and provides pertinent examples of success in the TB control at the international front. The results are divided into two parts. Part A provides detailed updated on the research efforts and discusses nationally achieved successes and failures in the TB control in Pakistan. Attempts were given to examine responsiveness, attainment in the nationwide TB control, determining features and functions of the health system that enhance responsiveness. With the consideration that the dialogical analysis of the reviews and views expressed by the NTP central and district managers will help in identifying opportunities and risks for advancing tuberculosis control in the dynamics of Pakistani environment, including challenges in managing the transition and the need for appropriate reforms, were additionally reviewed. Part B illustrates health system reforms, systematic anomalies in Pakistan and substantiate the fact of some vital reforms required for TB control with examples. Major aspects related to the TB control like organizing, managing, financing, existing gaps/barriers/needs of the health system and implementation strategies were thoroughly analyzed in Pakistan. Coupled with the exclusive recommendations from the interview with the Director of the WHO's Stop TB initiative committee for 22 high burden countries including Pakistan, a summary of all discussions is portrayed and also an account of required reforms to improve the efficiency is given.

METHODOLOGY

To achieve the intended aim key informant interviews (semi-structured) were held to provide an insight of the TB control situation at the ministerial, provincial and district level in Pakistan. TB Control program directors, district control managers and coordinators were selected from the three vital echelons of the NTP (central, district and peripheral) with a top to bottom approach. Independent information were collected on responsiveness especially relevant to TB control and health system in Pakistan. The results and the contrasting findings of the key informant interviews were compared with different countries with the aim of identifying the similarities and differences that exist in different contexts. This attempt benefits from discussions of the likely effects of reform on tuberculosis control, as well as related work on other priority public health interventions.

However, this work is impeded by still limited published analysis of national experiences. In addition some reform programs have been adopted too recently to be able to draw reliable conclusions.

FOCAL PERSONS AND INTSRUMENT DEVELOPMENT

Responsiveness is a new concept, and as such it was important to collect data from key person responsible for planning, programming and managing TB control in their perspectives. This research was seen to be important, as exploratory mechanisms that would help to highlight the impact of key issues, barriers, limitations and differences, on the measurement of responsiveness to the problem of TB control in Pakistan. Responsiveness since it deals with the interactions of the key individuals with the health system should ideally be examined from the perspectives of the individuals. The question then arises as to what the rationale was for using a key informant survey to collect data on responsiveness. Given the need to collect data in an informal way from the persons who play a decisive role in dealing with this major public health problem within a short time period, this tool was particularly used. There was an additional advantage in using key informants that these key informants, who were chosen for their position, thorough knowledge of their own health systems and community, were likely to be already aware of the attainment of their health systems on the elements of responsiveness, and thus better placed to evaluate the system as a whole than individuals. They often see the problems of community rather than individual, making them a very useful group of the people to interview.

It was decided to focus mainly persons who are involved in the program at the various echelons of health system or NTP since very limited knowledge is available on responsiveness. The sample included three key TB control officers at the ministerial, district and peripheral level. A short description was given to the focal persons detailing how the key informants were to be selected and how the interviews be conducted. The key informants were to be selected from among government and non-government employees, of both sexes, clinicians in hospital and private settings and staff in the Ministries of health who are co-ordinating the activities of the TB control. The main criterion for inclusion as a key informant was that the person knew the health system/NTP of the country well. These focal persons in turn were asked to identify major issues in the TB control confronted and describe achievements gained in their terms.

The interviewers team for this particular task consisted of two physicians with public health and TB control experiences in the background and were already trained in conducting such interviews. The interviews were written as well as audio recorded. The key informant interviewed instrument focused on the elements of responsiveness related to the TB control program. The elements were selected through a survey of the literature on health care performance and patient satisfaction and were cross matched and confirmed by the health facility and case management observations. Key informants were requested to narrate the current profile of the NTP in terms of their own experiences and importance. Question related to vital issues like reforms and political commitment were left open-ended with the objective of allowing individuals to freely comment on any specific issues they felt were not considered before in planning. This question format was selected as the work on responsiveness distribution is still at an exploratory stage so it was considered best to gain a more comprehensive understanding of the situation within country rather than pre-specifying known elements. Sets of questions on responsiveness were developed as part of a pilot interview prior to the development of the key informant interviews and were tested positive. These pilot tests were run in three TB units. The test-retest results had fairly high

intra-respondent reliability. Due to possible bias generated by the instrument used cross-linking of information was considered necessary. Therefore community-based survey was planned which will be presented in the forthcoming chapter depicting views and opinions of patients about the existing TB care.

HEALTH DEVELOPMENT IN PAKISTAN

With the centrally organized government delivery systems and the history of chronic under investment in social services, Pakistan ranks below the countries in the region as well as in the education, fertility, nutrition, and health development indicators. With the population of 155 million, Pakistan consists of four provinces i.e., Balochistan, NWFP, Punjab, Sindh and Azad Jammu Kashmir. Provinces previously assumed overall responsibility for the implementation of health care services. Poverty and social indicators remain serious problems in Pakistan. Notwithstanding tripling of per capita incomes over the last fifty years, Pakistan's human development remained behind that in countries with similar levels of income (Wolfgang, 1996). Internal disparities, inequities and inequalities widely exist. Poverty prevails and widened more among various regions, between rural and urban areas, and between men and women. Poverty as a strong determinant of TB is increasingly documented in the scientific literature (Faiz B,1989;WHO,2002; Khabir A,2002) which has strongly influenced disease pattern and care seeking among communities in Pakistan. This tension is believed to be rapidly increasing due to the already gained momentum of urbanization. Some crucial aspects of urbanization, which are strongly linked to the occurrence and transmission of TB as well as increasing the vulnerability of the community to contract TB infection will be discussed in the following sections.

The 1990s have been a particularly adverse decade. Macroeconomic imbalances widened during the decade and have brought Pakistan on the verge of a debt trap. These imbalances contributed to, and were also exacerbated by a deterioration of the investment climate, and a decline in growth. Progress in poverty reduction and social indicators stagnated, and in few cases progress was even reversed. At the beginning of a new millennium, Pakistan is saddled with unsustainable external and domestic debt, the resources available from accumulating which did not generate commensurate economic and social returns. Turning the situation around hinges on Pakistan's capacity to rapidly address serious macroeconomic imbalances, restore an investment environment conducive to growth, and improve the population's access to health and education services (WB,2000). While the last two years have seen promising initiatives to turn the situation around, they are too recent to have tangible effect, and need to be sustained over time before they can generate significant and palpable results. Poverty in Pakistan, as is the case with most countries, is linked to overall growth performance of the economy. Periods of substantial and sustained poverty reduction in Pakistan's case, notably, the late 1980s also happened to be periods of sustained growth. On the other hand, uneven growth in the last decade has led to volatility, and on balance, stagnation of poverty measured in consumption terms (Hyder,2000). Most importantly, even when growth has occurred, resulting in reductions of income or consumption poverty, the gains have not translated into commensurate increases in capability, as measured by indicators of human development (see table 2).

Table 2 National Economic Indicators (WHO,2002)

Total population of Pakistan (millions)	155
Population projection 2025 (millions)	227.0
Human Development Index (HDI)	0.508
HDI Rank	138 / 174
GNP per capita (US$)	500
External debt per capita (US$)	206
Income distribution	4.1%/27.7%

For its level of per capita income Pakistan development indicators in health, education, and fertility did not grow than other moderate growers that achieved more social progress. The failure to develop human capital, which can be described as a social is one of the likely reasons for the slowdown in growth and poverty reduction in the 1990s. The ability to achieve sustainable growth and poverty reduction in future will thus require addressing the shortcomings in human development, including the institutional factors that contribute to these failings.

Pakistan is currently the seventh most populous country in the world and the fourth in the Asian region (WB,2002). The intercensal population growth rate remained high at 3.1 per cent. Estimates based on the 1998 census indicate a slightly lower annual growth rate of 2.4 per cent. Even at this level of growth, however, the time that it will take for the population to double in size can be less than 36 years, in which case Pakistan will reach 260 million by the year 2035. The major contributing factor to population growth has been the sustained gap between low mortality and high fertility levels for the last three decades or so. As a result, Pakistan has a very young population structure today, with 43 per cent below the age of 15 and 63 per cent below the age of 25. The sex ratio in 1998 was estimated to be 92.5 females per 100 males. In 1998, 46.4 per cent of all females in the population were in the reproductive age groups, as opposed to 43 per cent in 1981. The average population density is estimated at 164 per square kilometer. The rate of urbanization is close to 4 per cent annually, putting increased pressure on already weak social, health, housing and sanitation services in urban centers (WHO,2002).

Pakistan has a high maternal mortality ratio, ranging between 400 to 1400 maternal deaths per 100,000 live births. Approximately 25,000 maternal deaths occur annually, and 375,000 women suffer each year from pregnancy-related complications. The most common causes of maternal mortality in Pakistan, as in many developing countries, are preventable. Although five million births taking place in Pakistan annually, only 205,000 women there receive any form of trained health care. The contraceptive prevalence rate is reported as only 12% with an unmet need of 25% (Fikree,1994). Family planning services to avoid unwanted pregnancies, community-based maternity services and appropriate referrals when required have been recommended as interventions for reducing maternal mortality and morbidity (Fathalla 1988). Various government and non-government agencies are continuously making efforts to provide family planning services to women of childbearing age and prenatal care to expectant mothers. Fertility rate is 6.3 %. Life expectancy at birth increased to 64.6 years in 1996 (Tinka, 1996). According to the National Health Survey of Pakistan (1995), more than 83 per cent of deliveries take place at home (94 per cent in rural areas), at best with the assistance of a traditional birth attendant (TBA). Antenatal care in 1997 did not exceed 27 per cent; the deliveries in health facilities, 13 per cent; and the presence of a skilled attendant at delivery, 18 per cent. (UNFPA, 2000)

On the whole, growth and to some extent, changes in the distribution of consumption are important in explaining poverty in Pakistan. Between 1984-85 and 1987-88, substantial poverty reduction took place, as a result of strong growth performance that led to sizeable increases in mean consumption, along with reduced inequality in rural areas. From 1987-88 to 1990-91, lower growth rates combined with slight worsening of inequality, led to smaller gains in poverty reduction. This pattern was carried into the 1990s, a period that also saw large variations in growth rates that led to fluctuations in consumption poverty. During the later part of the 1990s, growth performance dropped off considerably, which led to worsening of the poverty situation since 1996-97 (Khattak,1996). On balance during the

1990s, incidence, depth and severity of overall poverty remained almost unchanged if one were to compare the beginning and the end of the decade (1990-91 and 1998-99). Comparing 1990-91 with 1998-99, the national poverty rate remained almost unchanged between the beginning and the end of the decade (Table 2). *(Poverty is estimated using a poverty line set at the inflation adjusted cost of achieving a minimum bundle of basic needs, including food, fuel, housing and clothing)*. In the intervening years during the 1990s, poverty rates showed high volatility from year to year, and it appears that a steep increase in poverty occurred during the end of the decade (however, due to methodological considerations affecting comparability, the estimates for these intervening years should be treated with some caution). Prior to the 1990s, poverty is found to have declined sharply, particularly between 1984-85 and 1987-88.

The link between growth and consumption poverty can be seen from observing that the later part of the 1980s, characterized by substantial poverty reduction, were also periods of high growth. Since then, as growth slowed in the 1990s, particularly during the later part of the decade, poverty stagnated and some of the earlier gains were even reversed. Disaggregating by region, while urban poverty fell between 1990-91 and 1998-99, rural poverty held at about 36%, widening the rural-urban gap (Table 3). This is of particular concern because 71% of Pakistanis live in rural areas. In addition, a significant share of the population appears to be at the risk of falling into poverty vulnerable to a shock like illness or drought given that in 1998- many as 43% of the total population were concentrated within a small range of 75 to 125% poverty line (in consumption terms). The high volatility of poverty rates during the 1990s, especially in rural areas, leads further credence to the evidence suggesting vulnerability of a section of the population (Green A, 1997; Qureshi S,1998-2000).

Inequality trends have also played a part in explaining poverty changes. The period of largest poverty reduction, namely between 1984-85 and 1987-88, was also marked by the sharpest fall in the index of inequality for the country as a whole. By 1998-99, the Gini (see appendix)was at a level slightly higher than in 1990-91. Inequality in the urban areas increased sharply by 1998-99, irrespective of whether one takes 1990-91 or 1984-85 as the reference period, while rural inequality was reduced slightly. A growth-inequality decomposition of changes in poverty incidence reveals that in urban areas, some of the potential gains in poverty reduction arising out of growth in mean consumption between 1990-91 and 1998-99 were negated by rising inequality. In rural areas on the other hand, mean consumption did not increase between 1990-91 and 1998-99, and whatever minimal net reduction in poverty occurred during the period was due to some shift towards more equal distribution of consumption. There may be differences on the precise measurement of poverty but it is widely believed that the incidence of poverty in Pakistan has increased during the decade of 1990s. According to some studies, the caloric-based poverty has in fact doubled from 17.4% in 1987-88 to 32.6% in 1998-99. Similar results are obtained on approaches based on basic needs and poverty of opportunity trends.

Statistics on pre and postnatal care, and the conditions surrounding childbirth provide critical information on the status of female health. Incidence of pre-natal medical consultation among married women (of age 15-49) is found to be low in general (31%), with very large differences between rural and urban regions, and within regions among various expenditure groups as well as literacy status of women. Similar patterns are observed for other indicators, like proportion of deliveries unassisted by trained personnel, and incidence of post-natal consultation. Finally, although the knowledge of contraceptives

has increased sharply from 1991 to 1998-99 (38% to 92%), the increase in actual use of contraception (10% to 20%) has not been proportional to the expansion in knowledge. As expected, there are wide differences in use of contraception, by rural and urban areas, economic status and the woman's education.

Table 3 Infant Mortality (age 1 & <) by household characteristics
(per 1000 live births)

	1991	1998-99
All Pakistan	127	83
Urban	-	70
Rural	-	88
Male	-	85
Female	-	81
By mother's education		
-No education	134	90
-Some education		56
Drinking water		
-Piped indoor	117	70
-Outside home, covered	121	90
-Open source (river, pond)	156	83
Drains		
-Covered underground	94	54
-Uncovered open	120	86
-None	141	89

(source:SBP,2000)

Social indicators such as literacy rate, infant mortality rate, population growth rate, access to water, nutritional intake etc., all corroborate the above findings that poverty and weak social and human development are not only at an unacceptable level in absolute terms but also have worsened over the last decade. The poor governance of public sector institutions and cornering of public goods by the well-to do segments of the society in a general environment of congestion and shortages have led to reduced access to these services by the poor. The worrisome aspect of this poor governance is that opportunities for human capital formation for those below the poverty line have diminished considerably both for the current cohorts and the future additions to the labour force. In an era of growing globalisation, financial integration and technological revolution of the 1990s Pakistan has not benefited very much. It makes necessary to explore the complex interaction of shaping factors (SBP, 2000).

Tuberculosis and urban poverty certainly is a challenge in Pakistan and the largest concentration of the urban poor lives in cities like Karachi. Pakistan experienced one of the highest growth rates of population worldwide. The urban population growth accelerated from 4.3 per cent per annum in the last three decades (1960-1992) to 4.6 percent at present (1992-2000). 34 per cent of Pakistan's population presently lives in towns; with around 45 million urban. According to the World Bank, the share of the poor ("people in absolute poverty") is lower in urban (1990: 20 per cent) than in rural areas (31 per cent); this is not exactly in line with the indicators of urban infrastructure and has to be interpreted in a way, that "access" to urban infrastructure has little impact on poverty.

While various health indicators in Pakistan (1998-99) have shown improvement as compared to the beginning of the decade, as mentioned before, most indicators still

compare poorly with countries with similar levels of income. Overall, health indicators for Pakistan tend to be much worse in rural areas than in urban areas, and for the poor relative to those better off; they also tend to improve with women's education and where relevant, with access to safe water and sanitation. Infant mortality (per 1000 live births) mortality rate among infants of age 1 or less of 83 in 1998-99 compares favourably with 127 in 1991. There exists a large rural-urban gap, and an even larger gap between infants born to women with some education, and those born to women with no education. Pakistan is considered the most urbanized in South Asia (Vyacheslav, 1991; UNDP,2001). Urban areas account for one third of Pakistan's population; one fifth of the urban population is considered to be poor; that makes nine million urban poor; they may be more, maybe up to one tenth of the total population (Wolfgang, 1998).

It is also difficult to establish, how poor the urban poor are, both in absolute and relative terms. The rural poor in Pakistan, for example, have different income and consumption patterns. Studies have also shown that tuberculosis affects disproportionately the lower socio-economic groups (Broekmans,1994;HarrisD,1996;Rangan,1997;WHO,1998). Transmission dynamics and research on environmental hygiene have made it abundantly clear how rapid urbanization trends have pushed millions of people into distress, disease and destitute. Apart from the positive aspects, urbanization has also put deleterious effects on poor communities or urging communities in developing countries. As the natural history of TB and infection dynamics show that prolonged contact, physical susceptibility and environmental conditions have a crucial role in the propagation and contracting mycobacterium (see chapter 1).

TB is transmitted through inhalation of infectious mycobacterium particles emitted in cough, sneeze or similar airborne mechanisms. Tuberculosis can be controlled with existing technology because the infectious agent is almost exclusively in the tuberculosis person who can be quickly rendered non-infectious. Preventive measures and prophylaxis can significantly decrease in the annual risk of infection (ARI) in a given community or country. However, inappropriate treatment of TB may lead to continued TB infection and the development of drug-resistant TB. Reducing tuberculosis becomes more pressing with the appearance of the global TB epidemic. The major effect of TB infection has been to increase the rate of progression to clinical disease in those already infected with tuberculosis because of the weakness of the immune system, which allows the bacteria to develop unchecked. The epidemiological impact of TB on tuberculosis results in:(a) the reactivation of latent tuberculosis with a high fatality rate; (b) new infection and high rate of progression to active tuberculosis with high death rates, and (c) tuberculosis transmission from these dually infected individuals to the general population, especially in places where the tuberculosis control program is inadequate. An increase in TB cases is likely to result in an increase in TB incidence.

MEASURING LOSSES DUE TO TUBERCULOSIS
Over the past decade efforts to quantify the burden of ill health and premature mortality have brought TB out of the shadows and into the spotlight as a major, and largely unsuspected, contributor to the world's burden of disease. Tuberculosis is a poignant example of communicable diseases. Future projections show that it will remain one of the top five leading causes disease burden even over the year 2020 (WHO,2000). TB could not be eradicated successfully from the communities in the developing nations as awareness and quality based standardized care is direly lacking. Interventions aiming to improve national health has been suffering long due to irregularities in resource allocation and less

attention to priority health problems but rresurgence of TB has not put it back on the front of the health agenda of many developed and developing nations.

Figure 5 Estimated TB incidence in Pakistan
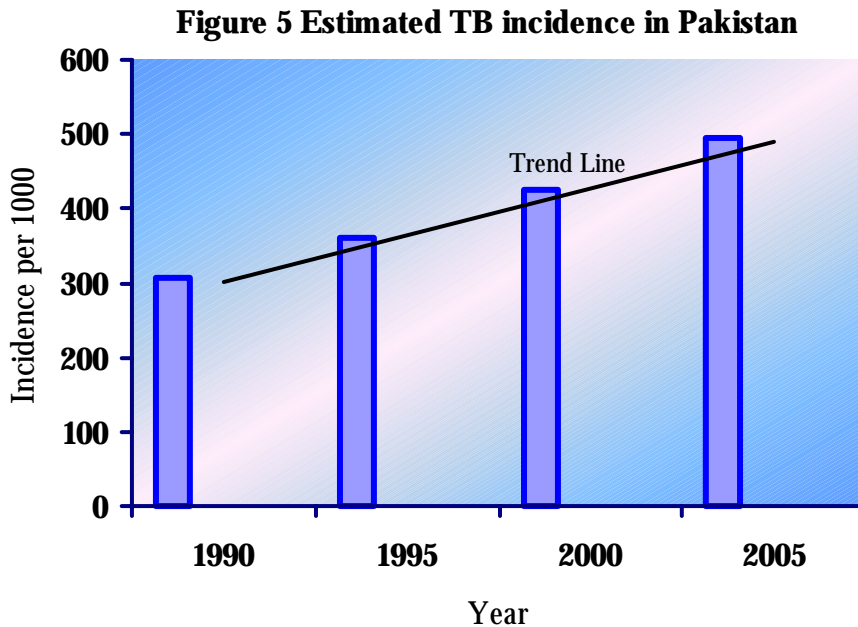
Illustrated in the figure 5 the estimated incidence of TB in Pakistan. Based on the burden of TB cases, Pakistan occupy the sixth position among the WHO ranked highly endemic countries. Tuberculosis in Pakistan afflicts nearly all age groups. But the greatest burden of tuberculosis morbidity, disability and mortality is concentrated in adults aged 15 to 59, the most economically active and productive segment of society in Pakistan. It is estimated that 26% of all the deaths in this age group is due to tuberculosis. To find a rational basis for the resource allocation that takes the comparable effectiveness or outcomes of different activities into account is a common problem, and is faced at every level of the health system. In the last few years the country has undergone through unprecedented demographic, socioeconomic and environmental turmoil, which has increased the reservoirs of infection dramatically (Karim,1993;De Muynek,2001). Coupled with the high influx of millions of refugees, sufferings due to tuberculosis in aboriginal have been overtly escalated in the refugee communities in Pakistan (Khan,2002; Arshad,1997). An increasing number of TB cases have been documented in the refugee population, which live in a close proximity to the native population (Khan al et. 2002). Simultaneously evidence reflect that the country is passing through a period of covert epidemiological transformation process where a large pocket of refugee population lives under extreme conditions.

Tracing back two historic national surveys performed in 1960-61 and 1974-78, 70 % and 83 % of the population in the age of 20-29 years respectively were found infected. In 1999 total estimated new cases of TB were 269 000 equivalent to 177 per 100 000 inhabitants and only 8 % of the total cases have access to DOTS (supervised treatment strategy; short course) (WHO,2002). Annually more than 50000 deaths are associated with TB in Pakistan (MOH,2001). While in Northern Pakistan figures show that the TB cases have mounted up to 554/100,000 annually till the end of 1998 (Khan,2002). The joint partnership of World Bank (WB) and WHO in 1993, provided a scientific framework for rationalizing investment in health, which is a suitable toll for prioritizing health problems. It is based

upon the disability-adjusted life years or DALY concept. DALYs are the measure of years of life lost owing to premature mortality and years of life lived with a disability. In comparing the costs of securing one additional year of healthy life, that is, the cost of averting one DALY (Murray,1993;Hyder A,2000).

Since the re-emergence of TB in the last two decades, TB control has been the subject of growing debate among public health authorities and clinicians in developing as well as developed world. To eradicate TB, first it needs to be prioritized among the key health authorities. This forces epidemiologists and economists around the world to develop a methodology to measures the loss of life and health due to TB with a tool that is simple to understand and easy to implement. Novel methods have been developed so far to quantify TB and to assist Government to decide and prioritized TB in order to allocate adequate resources. However due to technical and financial limitation, countries are still unable to implement and visualize the real impact. Given in Table 4 communicable diseases, tuberculosis take the greatest toll, of the Disability Adjusted Life Years (DALYs) lost. Though efforts have been given in the past, Pakistan's position remain unchanged on WHO's list of high burden countries from TB. In addition, with a growing population of more than 18 million per year and concurrent improvement of life expectancy, Pakistan finds itself in the middle of a demographic and epidemiological transition, facing a double burden of communicable and non-communicable diseases. In recent years, Pakistan has sought the support of the World Bank's and WHO and other international NGOs to provide financial and technical assistance in eliminating major health risks, improving and strengthening health systems performance, promoting health reforms, and reducing mortality and morbidity from tuberculosis. The battle is still going on at the provincial and national front.

World Development Report 1993 (WDR) presented cost effectiveness estimates for nearly 75 interventions, using comparable methods and assumptions. TB control emerged as a crucial and highly cost effective intervention, costing 3-5 US$ per DALY gained in low income countries per capita income US$ 350 and the annual cost per capita is 0.6 percent. The disease burden averted is 1.0 percent in low-income countries. TB control is one of the 11 interventions, targeted at significant causes of disease burden, that were found to be especially cost effective in low-income countries like Pakistan. TB control ranks third in the cost ranking of interventions in low-income countries and is the least expensive per capita and per DALY intervention in middle-income countries, which further strengthen the need of implementation of effective TB control Program in Pakistan. Unfortunately less research efforts has been given in terms of DALYs application, to the understanding of population dynamics and to prioritize main health risks in Pakistan. This is the reason that no successful planning and programming has been undertaken till now and hence achieving significant outcome in the TB eradication in Pakistan is overshadowed (Karim,1993;Suleman,1996;HyderA,2000). With respect to the efforts to prioritize health issues and address them in terms of the magnitude or burden of mortality and morbidity, infectious diseases including TB in Pakistan have been given less attention so far.

In an attempt to measure the burden of disease in Pakistan Adnan A al at. study introduced a new methodology called HeaLY approach (healthy life years approach, similar to DALYs, which are composite indicators of disease burden that combines mortality and mortality into a single measurement) and demographic data on population's death and causes of death (Adnan A, 2000). The study compared HeaLY and DALY approach and derived some regional assessments based on the basic tenets of the Global burden of Disease 1990 study using the national profiles in Pakistan. The approach of HeaLY is the method used

primarily for Pakistan to evaluate the loss of health life years due to premature mortality and disability. As a matter of fact DALY indicator has been developed by the Murry and Lopez for comparative purposes (Murray,1993). Both methods use model life tables and the results have been presented with discounting at 3 percent per annum. Unlike DALYs, the HeaLY method uses no age weights, and life lived at all ages is given an equal value. The input variables and discounted HeaLY per 1000 people lost in Pakistan from tuberculosis are given in the following table 4.

Table4 Lost Healthy Life Years (HeaLYs) per 1000 people in Pakistan, 1990

Condition	I	CF	Ac	Af	E(Ao)	De	Dt	HeaLY
Tuberculosis	4.00	0.3	20	30	63.08	0.5	2.00	35.74

I= incidence per 1000 people per year; CF= Case fatality ratio; Ac= age at disease onset; Af=age at fatality; E(Ao)= exception of life at Ao; De= extent of disability; Dt= duration of disability; HeaLY=healthy life-years lost per 1000, discounted at 3percent per annum; LRTI=lower respiratory infection

The results summarized the fact that overall, 456 discounted HeaLY per 1000 people were lost as a result of new cases of diseases in 1990, with 63 percent lost from premature mortality and 37 percent lost from disability. Many of the losses in Pakistan were associated with communicable diseases like tuberculosis, diarrhea, and childhood lower respiratory tract infections. Based on the data from the three national demographic surveys and hospital in Pakistan TB was ranked third among the five major causes of premature mortality and disability. The estimation of HeaLYs in 1990 proved the fact that communicable diseases including TB needs a great deal of attention from the policy makers and health authorities as it is the main cause of adolescent and adult premature mortality and morbidity in Pakistan.

To meet the long-term goal of helping reduce the incidence of infectious and drug-resistant tuberculosis the present Tuberculosis Control have done very little in terms of advancing TB on Pakistan's health. Steps taken by the Government to improve the delivery of health and TB control services to the poor masses through the established health system are not sufficient enough to cover the existing deficiencies and overcome the confronted challenges. Country's TB statistics show that NTP has remained largely oblivious to the increasing demands and left far behind in achieving significant improvement in DOTS universal implementation; use of appropriate technology; enforcement of appropriate standards of care; improved quality of service delivery through increased emphasis on training, retraining, and non-salary inputs; active participation of the private sector and NGOs; strengthening the capacity of the states and districts in program planning and implementation; and involving the beneficiaries and the communities in their own health care. Fostering TB control activities needs a wide array of research intervention examining NTP at various levels using discrete parameters. This ranges from basic medical research, operational research, community based research, clinical trails and intervention research and therapeutic research. Knowing the fact that Pakistan is presently in the embryonic stage of research far less credible information is available on various infectious diseases control interventions, adopted strategies and their impact. A unique aspect of the research undertaken is to provide vision with broader perspective and stimulate efforts to overcome not only existing anomalies in the health system but also find solutions for confronted challenges. Looking at the rapid TB emergency in Pakistan, health officials at the central and district level seems to have an optimistic view in achieving a complete hand over TB in the future.

RESEARCH INPUT TO TB CONTROL IN PAKISTAN
Unfortunately health system research in Pakistan has provided very less vision to improve the efficiency and effectiveness of TB control in Pakistan. Admittedly, the knowledge already available has also been less utilized for fortifying the performance of TB control interventions. To maximize the health benefits of interventions in the community, policy makers rarely consider socioeconomic, demographic and cultural aspects of the patients. Converging research into the health system certainly requires efforts and experts of diverse disciplines like biomedical scientists, sociologists, epidemiologists, demographers, economists, and political, organization and management scientists. For TB control such steps are of paramount importance. As a matter of fact health systems research is a continuous process of research-oriented activities, which basically focuses on all aspects and outlets of care. The statement of a Norwegian scientist put the significance of HSR in clear words

" *Thus health systems research studies a vast array of possibilities for action. It tries to establish rational uses of medical knowledge and technology, evaluate methods of investigation and treatment, and develop methods for maintaining high quality. It aims to induce logical thought and action on these matters in the health sector and among the public at large"* (Khattak F,1997).

For TB control, research embraces all vital components to explore opportunities as well as to reduce morbidity and mortality by improving treatment outcomes, through an effective intervention. Health system research in TB control aims at understanding community dynamics and potential barriers. Health system research in Pakistan is primarily considered an academic activity for which decision makers have less interest and resources available. Past experiences have shown that health system in Pakistan offers no distinction for those who are interested in the research. Hence many vital areas of research including that of TB control have remained unnoticed and untouched. Countries like Brazil, Peru, China and Malawi attained unprecedented success in TB control by taking steps in the right direction for example, health system reforms and research oriented planning and implementation in the TB control. Malawi has achieved remarkable success in identifying crucial issues in the TB control. Funded by the WHO, UK's Department of International Development the Government of Malawi established research guided TB control, which has served as a significant break through in improving the performance. Launching a three-year program in 1994 has made operational research an integral component of the interventions. Program management group was formed which developed and implemented control and research strategy (WHO,2001).

An obligatory research component was added in the TB control program, which helped to resolve many issues like improving delivery services, practices, diagnostics and DOTS implementation with significantly less cost. Based on local needs and practices, community expectations are the peculiarities, which made TB control in Malawi an exclusive example. The International Network of Rational Use of Drugs (INRUD) formed in 1989 to improve practice of anti-TB drugs through high quality research in developing countries, including Ghana, Nigeria, Uganda, Bangladesh, Indonesia and Nepal. It developed standard indicators and substantial knowledge about the rational use of drugs at the primary level. To improve TB control information from valid resources claims that there is still much to be done in terms of HSR in 22 high burden countries (WHO,2001).

With regard to research profile in Pakistan, content analysis on TB control interventions and key policy documents was performed that contained both qualitative and quantitative components. Literature (1965-2002) was traced through Midline data searching machine by

giving the subject/titles as " epidemiology of TB in Pakistan, "tuberculosis among women & children in Pakistan", "care seeking and tuberculosis in Pakistan", "adherence with TB treatment in Pakistan", "TB case management in Pakistan", "DOTS clinical trails and modification studies", "research on mycobacterium tuberculosis", "HIV/AIDS and TB synergisms-screening in Pakistan", "multiple drug resistance (MDR)-prophylaxis, efficacy of BCG in TB prevention", "operational research on tuberculosis control in Pakistan", "TB among children in Pakistan and "tuberculosis in Pakistani immigrants" and "tuberculosis in refugees".

In the quantitative components available published and unpublished documents including papers, texts, excerpt, transcripts and reports on health system performance in TB control, significance of health system research and orientation of health system towards research were reviewed. (See figure 5& 6) In the qualitative component a provincial TB control director was interviewed. For the cross assessment and to have a sense of the role of key central health authorities in consolidating research into the NTP, current profile of health system research in Pakistan, momentum and orientation towards research in TB control and the possible policy shift were chronologically examined. Content analysis containing qualitative and quantitative components provided significance clues that health system research (HSR) in Pakistan is in embryonic stage. HSR, which can improve the impact of TB control program, is still not addressed by the health system. 268 research papers were analyzed published in 1960-2002, from both national and international perspectives. The majority of the studies were on the epidemiology of TB (n=76) in Pakistan, whereas the rest of the papers addressed issues like pediatric TB (n=53), TB among Pakistani immigrants (n=35), TB-HIV synergism (n=24), care seeking (n=19), adherence with TB treatment (n=14), TB among women (n=12), TB prevention (n=12), Directly observed Treatment; Short course Strategy (DOTS) modification (n=5), TB drug resistance (n=7), operational research (n=5), TB case management (n=4) and research on mycobacterium (n=2).

Table 5 Results of content analysis (Published research articles)

	1960-70	1971-80	1981-90	1991-2000	2001-2	Total
Epidemiology of TB	7	13	14	26	16	76
TB among the vulnerable	-	1	-	8	3	12
Care seeking and tuberculosis	-	-	1	12	6	19
Adherence with TB treatment	-	-	2	10	2	14
TB case management	-	-	-	3	1	4
DOTS trails and modification	-	-	1	2	2	5
Research on mycobacterium	-	-	-	2		2
HIV/AIDS and TB synergism	-	-	4	19	1	24
Multiple Drug resistance (MDR)	-	-	-	6	1	7
Prophylaxis, efficacy of BCG *	-	-	5	6	1	12
Operational Research and TB	-	-	-	2	3	5
TB among children	5	9	10	18	11	53
TB in immigrants/refuges	-	3	14	15	3	35
Total	12	26	51	129	50	268

(*Bacillus Calmette Guerin , ▢ Areas deficient in research)

The context in which tuberculosis control is pursued has changed dramatically in many countries over the past decade. Increased global attention given to the tuberculosis epidemic, awareness of the effectiveness of the recommended basic control strategy known

as DOTS, and expanded financing for tuberculosis control, have led to the adoption of the strategy in 102 countries by the end of 1997. This, however, is still insufficient to battle the worldwide epidemic, with many of the 22 countries that account for 80% of the global tuberculosis burden making limited or no progress in expanding the approach (WHO,2002). Centralized health system and health sector reforms underway are viewed as a challenge for the current DOTS introduction and scaling up operations. Changes in the dynamics of the TB epidemic itself (principally associated with the impact of human immunodeficiency virus [HIV] associated tuberculosis and drug-resistant disease) and economic crises further complicate control efforts. They also make assessment of the association between reforming systems and tuberculosis control more difficult.

QUALITY AND VALIDITY OF THE AVAILABLE INFORMATION

Using Medline search of the United States National library of medicine, total 268 research studies published since 1965-2002 including both from local and international sources were collectively reviewed. WHO's reports, articles, editorials, short contributions, letters and research papers were included in the review. They were categorized according to the number and various research areas addressed. Table 5 and Figure 6 illustrate that the bulk of the studies was on the epidemiology of TB (n=76) in Pakistan, whereas the rest of papers addressed issues like pediatric TB (n=53), TB among Pakistani immigrants (n=35), TB-HIV synergism/ screening (n=24), care seeking (n=19), adherence with TB treatment (n=14), TB among women (n=12), TB prevention (n=12), DOTS modification (n=5), TB drug resistance (n=7), operational research (n=5), TB case management (n=4) and research on mycobacterium (n=2). Outlined in Figure 6 and Table 5 the trend of publishing research papers in Pakistan gained its momentum since early 1990s (Khan MI, 2002).

Locally published papers were mostly anecdotic. In majority of them the sample size was very small and tools used were inadequate or results were biased and left significant areas of TB control unexplained. Moreover, operational research, basic medical research and research on the synergism of HIV/AIDS and TB, community modes of infection and transmission, and the trend of research on the efficiency and effectiveness of the interventions were fairly less. With regard to the increasing mortality and morbidity among the most vulnerable group i.e., women and children research on the increasing vulnerability and responsiveness of TB care towards this particular group was scarce. The number of studies showing TB among the Pakistani immigrants overseas has been remarkably increasing (Spinaci,1989;Khan,2002). Patterns in care seeking, treatment adherence, case management and prophylactic aspects of TB were less adequately addressed in the literature.

Figure 6 Synopsis of Published Research Papers in Pakistan
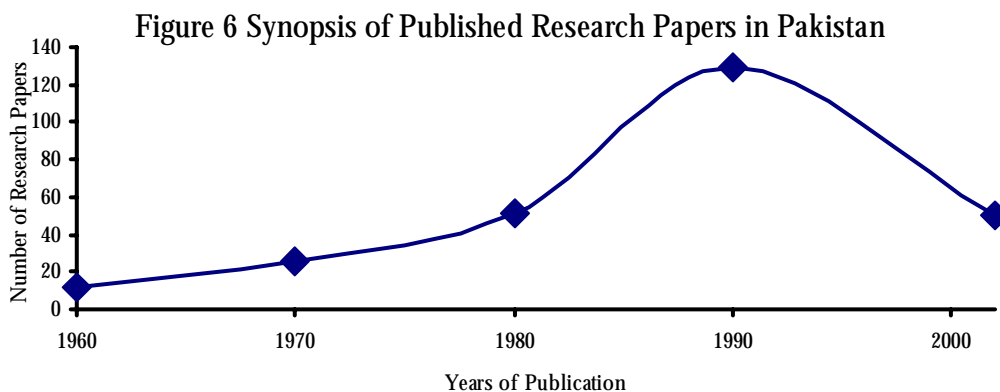
The revised version of NTP (Amsterdam Declaration on the 24th March 2000) set the targets of 100% TB coverage by the year 2005; with the detection of 70% of all cases and 85% for successful treatment; reducing prevalence and deaths due to TB by 50% by the year 2010 (WHO,2002). Only 0.2% of the gross national product is allocated to research (Khattak,1997). For research, no specifications have been made so far and several questions arise how to achieve this state of coverage in the given time period. Responding to the issue of TB control, demand for an extensive research in order to provide broad based scientific vision on country's vital issues. The significance of research and particularly operational research in Pakistan has been realized in the recent times but still only a handful of institutions have contributed to it. Pakistan Medical Research Council, National Institute of Health- Islamabad, and the Agha Khan University of Health Sciences-Karachi in the private sector are the pioneers.

The qualitative assessment provided an insight into the issue, which impacts upon the intentions and orientation of the health system towards research. In Pakistan health policy and key planning decisions come under the domain of the Federal Government with the assistance of the health departments where institutional accreditation in research activities and making it part of the health care system is not entirely incorporated. The decision-making hierarchy usually oversees the scarcity of research-guided interventions and rarely funds are allocated for such initiatives. This greatly undermines efforts to launch nation wide research based surveillance network that can explore ways and means to prevent complications, early detection, improve the quality of care and use resources in a more effective way. In the existing system of policy-making there is a risk of negligence of community interest or a lack of understanding of the community perspectives at the grass-roots level. Although Pakistan has adopted health for all treaty but still effective steps and commitments to achieve desired targets are awaited. Reliable information depicting epidemiological transition is rare and those collected from various conventional outlets are not systematically processed, analyzed and utilized to fine tune the performance of HS. Widely known anomalies of health system like centralized decision making and retarded processing of information and feed back usually delays outcome and proper implementation (Khattak,1996;Karim,1993). Information from sources like vital TB registers, population and housing surveys, routine health services records, and the key health authorities do not adequately extrapolate epidemiological data. Monitoring, evaluation, and infusion of TB data into the policy and intervention are not potent enough to achieve the desired outcome. The increasing sufferings of rural and vulnerable population are unnoticed by the authorities. If used health system research can serve as an essence of TB control, which can improve activities with an effective tool, guide the equity-based allocation of resources.

Scientific and research evolution in Pakistan has been very slow (Hyder A,2000). The reasons can be categorized into; firstly lack of emphasis on research in health policy and research oriented medical institutions; secondly, an intellectual environment conducive to attract those interested in research are in the country's academic institution is direly lacking. Thirdly, meager financial resources allocated to HSR. Decision-making and health planning is anecdotic and for most interventions size of population is considered a criterion. Except two historical surveys in 1961 and 1978, periodic TB surveillance in Pakistan is rarely practiced and several facets of TB control in the community are simply not known. Educational and research oriented activities are more or less isolated and collaboration with international counter part is extremely weak. A famous Pakistani scientist Professor Dr. A. Salam commented on the current situation

" *isolation in science leads to stagnation and stagnation leads to intellectual death*" (Khattak,1997).

Pakistan's efforts to get strong hold over TB started back in 1965. In addition to the programmatic flaws, lack of financial resources and political back up caused sever blows to the sustainability of TB control. NTP was suspended in 1985 and country remained with out any TB program for about a decade. Realizing the seriousness of the situation Pakistan revised its NTP in 1994. The importance of the research approach became evident in 1999 when DOTS was rapidly expanded and the constraints in DOTS implementation activities became clearer. Research gaps widened with the passage of time. As a crucial element, medical research was included in the Sixth Five-year Plan of Pakistan for 1983-88. National Clinical Research Institute was established to conduct researches on national health problems and provide guidance for improving the program of primary health care. Establishing and strengthening of research centers in the teaching institutions, creation of a cadre of medical research workers with an appropriate career structure, augmentation of health services research with involvement of planning and executing agencies and academia were greatly emphasized. Unfortunately research initiative in the sixth, seventh and eighth five year plan could not come up with satisfactory outcome (Green A,1997;Aziz,1994;Qureishi,1998;Khattak,1997).

Established in 1956 Pakistan Medical Research Council center (PMRC) was established basically to initiate, promote and strengthen its position in medical research and to coordinate with other institutions. Unfortunately the spirit of the research intentions was largely hampered when the budget of National Scientific Research and Development Board was abruptly reduced. However nation's major public health threats and killer diseases remained still out of focus of research. WHO Report in 1986 on Health Research Strategy commented that the aims of health for all treaty could only be achieved until the problems in the HS are not adequately addressed. Using research tools, challenges, barriers and gaps should first be identified and then dealt with on the basis of priority and severity. Clinical and laboratory research might not only be directly related to the decision-makers and health managers but it also helps to confirm the existence of disease which allows a strategy to be formulated and combine with that of the community research and intervention research accordingly. It is therefore necessary to emphasize clinical and laboratory research within the general health systems research. To rejuvenate research activities it is considered crucial for NTP to launch triad of operational research committee including NTP managers, key epidemiologists and international experts to provide a forum for debating research priorities at the national level.

CURRENT TB CONTROL PARAMETERS

Nationally achieved figures reveal that TB control indicators in Pakistan have remained explicitly quiescent in the past. TB control program though has succeeded in detecting large number of sputum smear positive cases, however, it could not assure the treatment completion of all registered TB cases till the end. Weak and poorly equipped TB centres offer care which is deficient in many aspects, for example, poor follow up and contact tracing, and increasing number of defaulters. Principles of TB control emphasises more on patient's adherence and effective follow up practices rather than merely detecting TB individuals. TB control care in Pakistan, unfortunately could provide this basic element which has inversely affected the impact of the program. A sizeable proportion of the country's population is currently under the grip of the deadly Mycobacterium. With respect to the magnitude of the TB problem merely a fraction of the passively detected smear positive cases are under the WHO recommended universal TB control strategy namely

DOTS. DOTS was formulated to respond swiftly to the increased risks of multiple drug resistance and make a significant impact in slowing down the TB cycle of infection.

Reported results of the 1998 cohort, a total of 4145 smear positive cases were notified and only 1918 registered for the treatment under DOTS Strategy in Pakistan. The non-DOTS strategy notified 10829 cases and 27470 were registered officially. These cases were diagnosed during 1998 and treated/followed-up through 1999. Based on the WHO's results of treatment outcomes 53% of the total cases were cured under DOTS strategy while only 20% of the non-DOTS cases could be cured respectively. Case detection was high under DOTS than non-DOTS program. Indicators of successful treatment outcome under non-DOTS varied markedly from that of DOTS. Apart from the high defaulted cases in the non-DOTS program a striking fact that apparently showed that NTP is not efficient enough, as treatment outcome was not evaluated in 24% of the total registered cases. For the indicators like failure cases and treatment completion no significant information or data was submitted. Achieving sound and successful treatment outcomes were apparent in the areas or units where DOTS was primarily implemented. Inadequate information on the case fatalities, treatment completion, as well as on treatment failure was not retrievable from non-DOTS program.

Pakistan adopted DOTS strategy in 1995 and started DOTS related demonstration activities in selected areas. Only 9% of the total detected smear-positive population was under the treatment of DOTS till the end of 1998 (WHO, 2000). In 2001 DOTS expansion reached to merely 15 %. However significant proportion of smear positive cases are out of DOTS,s reach and have no access to supervised TB care. Targeting the infectious TB sub-groups of smear-positive individuals through passive case finding; using sputum examination as basis for diagnosis and treatment evaluation; prescribing a six to eight month supervised-treatment regimen; emphasising treatment completion and cohort analysis at the sub-district level are the areas which require significant consideration from the health authorities. No appropriate attention has been given to the updating and equipping peripheral and primary care health units/ TB units across the rural population. Table 6 shows countrywide DOTS coverage plan, which was in progress for implementation in 1999-2000. Almost 25 different sites were selected as DOTS demonstration areas in Pakistan. NTP in Pakistan has two major outlets services delivery i.e., TB care under DOTS and Non-DOTS. In addition a large number of private practitioners have their individual approach in TB control, which is more non-DOTS oriented than DOTS. Outlined in the table 6 and figure 7 NTP's outcome and DOTS implementation in the country.

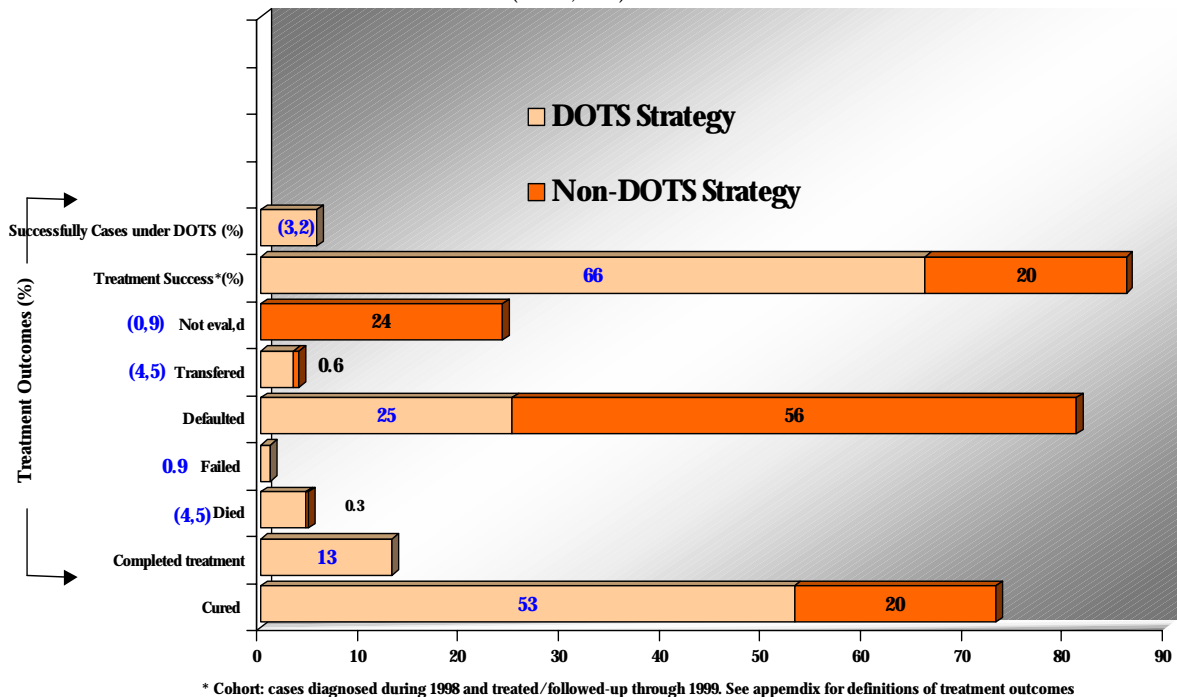Table 6 Province wise DOTS Profile [1999-2000]

Province	DOTS sites	Coverage
Federal	Rural Islamabad	100,000
Punjab	Rawalpindi, Nankana Sahib, War Bartan, Sialkot [NGO run] Gujranwala [NGO run], Sahiwal [NGO]	2500000
Sindh	Karachi Urban [4], Maleer, Nazmabad, Orangi, North Karachi, Sindh Rural [2], Hala, Nasir abad	7600000
NWFP	Peshawar, Charasada, Mardan, Dikhan, Swat, Chitral, Manshera, Bunair, Bannu	6600000
Balochistan	Mushtang, Dera Jamali, Der Bughti, Qila Abullah, Peshin	500000
Total	25	17300000

Source: MOH, 2000

As evident from the above table 6, DOTS availability and coverage is very limited with respect to the population figures and several areas in NWFP and Balochistan where the caseload is not only very high but also the influx of refugees is high, are deprived of supervised treatment facility. Majority of population in Northern Pakistan resides in rural areas where access to TB care and sustainability is a challenge. TB units and health facilities in the area have faced severe difficulties in the introduction and implementation of DOTS. National program has no evaluation report on the status of chronically and long registered TB patients from the rural outskirts. TB units in general suffer from lack of trained staff and logistics that affect regular reporting of cases. Their incapacitates ranged from limited diagnostics and shortage of drug facilities and drug sensitivity testing which obviously undermine the realization of DOTS plans in largely affected areas. Causes of failure in implementation was evident in several TB units and health facilities whereas actions were taken without proper TB guidelines and area specific knowledge.

Figure 7 Treatment Outcomes for smear + cases in Pakistan, 1998 Cohort (5,6) (WHO,2001)

* Cohort: cases diagnosed during 1998 and treated/followed-up through 1999. See appemdix for definitions of treatment outcomes

With the population of more than 20 million, TB control in the Northern Pakistan (NWFP) received considerable amount of international attention due to Afghan refugees than the rest of the country. An Italian NGO called ICD (Italian Cooperation for Development) profoundly dominated the efforts of TB control. ICD have provided satisfactory TB diagnostic and treatment facilities to a large proportion of refugee and native population in the area. With the joint collaboration of ICD, DOTS was first introduced in some of the demonstration districts in 1996 in NWFP and later in the Balochistan Province. ICD covered 25 percent of the infected population till 1998 (ICD,1999). The approach adopted was more decentralized. Districts were given their managerial powers, affective supervision, technical and training facilities organized jointly by the ICD and WHO.

During 2000, the Federal Ministry of Health took the vital step of establishing an NTP central unit with strong leadership and allocation of sufficient resources through SAPP II and governmental funds. DOTS coverage was 15% in 2001, substantially greater than 9% in 2000 and 8% in 1999. The latest data on case notifications under DOTS appear to reflect the relatively small improvement in DOTS coverage between 1999 and 2000: the number of smear positive cases only increased from 2 269 to 3 285, i.e. from 2.1% to 3.0% of the estimated total. (The total number of new TB cases reported increased from 4 651 to 11 050, but this total includes an unusually large proportion of pulmonary smear-negative cases (63%), raising questions about the quality of diagnosis.) Treatment success in the 2000 cohort remained low at 70%, mainly because 21% of patients defaulted. The poor and erratic performance of the NTP persisted up until 2000; it is too early to see whether the step up in DOTS coverage during 2001 has been accompanied by improved case finding, diagnosis, and treatment.

The attempts of the ICD supervised TB units has been successful in improving the control situation and providing good quality services. The DOTS guidelines were formulated and provincial roles were redefined to create greater efficiency and effectiveness. More emphasis was placed on case detection by sputum microscopy. DOTS was implemented initially in four pilot districts of Peshawar, Mardan, DI Khan and Chitral with the help of NHWs. With the objective of direct supervision for the initial two months of the treatment of all registered sputum smear cases; the program was later extended to other districts. Province wide DOTS's coverage plan is under way of construction for all districts in NWFP till the end of 2003. Greater efforts were given to overcome local barriers in the realization of NTP. In spite the fact that NTP exists more than a decade, credible nationwide statistics on the level of multiple drugs resistance in the country (MDR) are lacking. This does not entail that drug-resistance is non-existent but it is more related to the facilities available for resistance detection and reporting to the district and national authorities. However, sporadic studies reflecting the resistance indices have become more and more frequent in the current review of TB control profile in the country. (see table 7)

The increasing acquired resistance in the country shows not only the efficiency of the existing control program but also reflect programmatic shortcomings and recent mismanagement and has created doubts in the effectiveness of the regimens given. Review of published and unpublished literature provided an insight into the context of the issue and consolidated the fact that the resistance to TB drugs existed since long time but efforts to measure its magnitude are unfortunately insufficient. Table 7 given in the following explicates the magnitude and mode of resistance noticed in various parts of the country. Studies showed increasing concerns about the rapidly increasing number of failure, defaulters and relapse cases as they have the potential to develop resistance anytime and should be the focus of TB control program. (Sloan, 1995 & Khan MI, 2002).

Table 7 Synopsis of Reported Multiple Drug Resistance In Pakistan

Source & Year	Type & Degree of Resistance	Location
Gilani S et al, 1962	27 % Primary resistance to INH	Lahore
Zahid M, 1970	44 % Primary resistance to INH	Peshawar
Siddiqi et al. 1976	46 % Primary resistance to INH, S & PAS	Lahore
	87 % Acquired resistance to INH, S & PAS	
Raja SM et al, 1987	41 % Primary resistance to INH	Lahore
Aziz A et al. 1989	33 % Primary resistance to S, INH	Lahore
ICD study, 1992-93	10 % Primary resistance to S, 1 % INH	Peshawar
	57 % Acquired resistance to INH & P & 50 % to R & E, 46 % to S	
Khan J et al. 1993	17 % Primary resistance to INH	Karachi
	36 % Acquired resistance INH, R	
Ghazala A et al. 1996	10 % Primary resistance to INH	Karachi
	55 % Acquired resistance INH, R & S	
Hussain R et al. 1996	27% to INH, 15 % to E, 11% to R, 13% to S	Karachi
ICD study, 1994	Primary resistance were not significant, 9 % Acquired resistance to S, 13 % to INH-S-R, 20 % to INH-S-R-E & P	Peshawar
Karamat K et al, 1999	28 % Primary resistance to S, 26 % INH, 24 % R, & 23 % to E	Rawalpindi
Sardar A et al, 1999	75 % Acquired resistance to INH-S, 42 % only INH, 12 % INH-S-E & 3 % INH-S-E-R	Gujranwala

Isoniazid: INH, Streptomycin : S, Para amine salysalic acid: PAS, E: Ethambutal, Pyrazinamide: P, Rifampicine: R

On the contrary the facility of drug susceptibility testing (DST) is confined only to some district TB units or TB units at the city level and many of such cases are simply escaped due to non-vigilance of the system (Khan el at., 2002). No definite system exists which focuses on tracing out the existing or potential defaulters, relapse cases and resistance provide them nationally funded supervised treatment. In addition to the cases of drug resistance, eleven multiple drug-resistant cases have been revealed in a recent rapid assessment survey (RAS), in one of the district (Mardan), Northern Pakistan, within a period of less than six months. Nine (9/11) cases were from the same area within the 10 kilometres radius. After a meticulous appraisal of their socio-economic, medical, microbiological profiles revealed that; majority of the cases had acquired resistance and alleged history of prior interruption of the treatment; culture sensitivity tests were delayed in spite of repeated positive smear results. It is anticipated that the present number presents only a tip of the iceberg and a huge bulk of covert cases are out of sight and reach of NTP.

CHRONOLOGY OF TUBERCULOSIS CONTROL (NTP)
The Ministry of Health (MOH) launched the first NTP in 1965 with the back up support of Federal Government in order to curb TB across the country. The core focus was to establish specialized TB centers and TB wards at the district headquarter hospitals. The program was launched without prior goal setting and adopting standardized guidelines. NTP was dependent on mainly the foreign donor's support for financial and technical matters. Withdrawal of the international donor's aids later caused severs financial blows to the sustainability of NTP, which largely hampered the TB control activities and DOTS

expansion in the country. The program couldn't achieve its proposed targets and ended up an absolute failure in 1985. Several reasons are held responsible for this. First NTP had some obvious design flaws for example, 1) there was no uniform treatment policy, recording and reporting system and weak coordination, 2) The program was mainly urban based and obviously ignored the majority (70%) of the rural population, 3) lack of community based approach and more emphasis on preliminary diagnosis with x-rays, 4) Poor quality of services with inadequate drugs provision, 5) Poor contact tracing, imparting health education and weak preventive measures. Adding more to the failure of the NTP lack of commitment and political back up strongly undermined the impact of the program.

Surprisingly the country remained without any TB control Program till late 1994. Though periodic surveillance is not a tradition but studies have reported increasing number of failure, relapse and resistant TB cases reported from various parts of the country. Realizing the seriousness of the situation Pakistan revised its NTP in 1994 and formulated new TB control guidelines in accordance with WHO strategy and formally agreed to adopt DOTS in 1995. The revised version of NTP aims mainly at reducing the mortality, morbidity and transmission of TB and preventing drug resistance by adopting DOTS. Increasing the case detection to 70 % of the estimated incidence and cure rates of sputum smear positive pulmonary cases to 85%. To achieve these aims responsibilities are assigned to various components i.e., from ministry to provinces and from provinces to districts and to peripheral units, which are the ultimate unit of implementation. In spite of the decision to incorporate DOTS in a stepwise manner into the entire anatomy of NTP till the end of 2001, the implementation and efficient scaling up of DOTS from pilot districts to the regional and national level could not proceed significantly in the last years. An account of some of the key reasons will be given here.

FINANCIAL EFFICIENCY IN TB CONTROL PROGRAM
In 2000, federal and provincial Ministries of Health allocated funds for DOTS expansion through Social Action Program (SAPP) II and regular national budgets. For the next three years, provinces have allocated 355 million Pakistani Rupees (approximately 6 US$ million), while Balochistan, Punjab and Sindh have also secured funds for drug procurement from their regular budgets. With this allocation, federal and provincial ministries have established posts for TB managers and their staff, and started DOTS pilot activities in the country. Balochistan, NWFP and Sindh are planning to achieve 100% DOTS coverage by 2005. Punjab the largest province in Pakistan is planning to achieve 100% DOTS coverage by 2005. Due to the alarming situation provinces have developed DOTS expansion plans for the next 3 years so far. These include funds of 6 US$ million. Additional funds from regular budgets are available for drug procurement, however, (See table 8) the resource gap identified of approximately 5 US$ million per year, exceeds the limits of NTP allocated resources.

To resuscitate TB control in Pakistan, alternatives and resolutions have to be found for the alleged financial gaps, which expectedly will strongly undermine TB control. There is a strong urge for organizing TB control at the Federal and Provincial levels and to cover the gaps of insufficient managerial capacities and field operations. Substantial support has been demanded by the MOH for cost of staff for the newly recommended posts for various purposes. Among them, the most urgent need is for the costs of 180 000 US$ for recruiting 15 national staff, 5 international staff for 750,000 US$, 400,000 US$ for 10 vehicles and additional funds for information technology use which is 100,000 US$ and to establish interagency coordination committee (10,000 US$). Several other areas which are crucial for the sustainability and DOTS scaling up process have been currently identified.

Due to limited experiences and materials, human resource development also direly requires financial assistance. Development of training materials for all cadres of health personnel requires 20,000 US$. Additional funds of 500,000 US$ required for meetings/supervision at tehsil, district, & provincial levels. More vital to the issue are funds for national reserve stock, for example, drug bank (2,000,000 US$) and funds/ technical assistance for reference laboratories (700,000 US$), additional funds for quality control/ laboratory supervision (100,000 US$), funds/ technical assistance for drug resistance surveillance (150,000 US$). Program has been suffering due to the limited research capacities in the past. This additionally needs more funds/ technical assistance to develop research capacity & carry out operational research (100,000 US$) No official and countrywide program review or evaluation has been performed in the past. Estimated shows that fund of 20,000 US$ and technical assistance will be required for the annual review. To accomplish these tasks TB control program is currently depending on international donors and social action program and World Bank, which will be described in the later section of the chapter. Uncertainty prevails as long as effective and durable partnership is not achieved for the future proposed actions in the TB control. Table 8 shows further break down of individual components required for future interventions in order to strengthen and expand TB control with supervised treatment with nation-wide coverage.

Table 8 Budget estimates, existing funding, budget gaps for 2002 & 2001-5, million US$

Cost item for Pakistan	Budget 2002	Funding 2002			Budget 2001–5	Funding 2001–2005		
		Government	Grants	Gap		Government	Grants	Gap
Staff	0.5	0.5	0.02	0.03	2.7	2.6	0.1	0
Diagnosis	0.6	0.2	0	0.4	3.8	1.1	0.02	2.7
Drugs	3.1	1.5	0.6	1.0	21.1	7.7	3.0	10.4
Training	0.1	0.1	0.01	0.01	0.8	0.4	0.03	0.4
Program management & supervision	0.8	0.6	0.1	0.1	4.2	3.1	0.4	0.7
Activities to increase case detection and cure rates*	0.2	0.1	0	0.1	1.0	0.7	0	0.3
Total	5.3	3.0	0.7	1.6	33.6	15.6	3.5	14.5

*Includes health education and advocacy   (source: WHO, 2002)

More on this context, additional funds/ technical assistance to develop research capacity & carry out operational research would require approximately US$ 100,000 and about US$ 20,000 assistance is required for the annual review of TB control program. Future DOTS expansion is mainly overshadowed by the above-mentioned limitations, which require further more staff, drugs and training initiatives. Due to the high burden of TB and weak infrastructure of health services, the formerly stated input of the government is insufficient to ensure successful, high-quality DOTS expansion and maintenance in remote parts of the country. Moreover, in view of the presence of a strong private health sector and NGOs, collaboration with these partners is critical in TB control. There is an urgent need to upgrade treatment successes of smear positive cases in non-DOTS areas.

THE ANATOMY OF TB CONTROL NETWORK

TB patients in Pakistan receive care from three main sources i.e., publicly funded TB control units or centers, private clinics and others that include herbal, homeopathic and spiritual care. None of these care systems work in an organized and coordinated system. Each one of it has adopted its own approach and cost of services. For a better quality of care, patients usually tend to consult private clinics and hospitals but the costs of prolonged TB treatment are hardly endured by the patients, which eventually lead to either cessation or disruption of the treatment. Around 233 public TB control centers are currently working across the country (Khan,2002). Majority of the centers are either specific TB units or serve as a referral center to other TB specialized units. To provide control services NTP mainly relies on the infrastructure of primary health care, manpower and health centers. These health units are already overburdened and deficient in many technical aspects. The diagrammatic representation of TB control services shown in Figure 8 depicts various components involved. At primary health care centers [PHC] serving population of 1000 persons, basic health Units [BHU] for a population of 1000, rural health centers [RHC] for the population of 50,000 and at least 10 beds, District hospitals [DH] or tertiary or highly specialized TB hospitals for the population of 100,000.

PHC units, BHUs and RHCs in rural areas serve the backbone of NTP while others are located at the district level or city level. These units are remotely located and deficient in trained staff, diagnostics and treatment facilities. Though it was against the notion what the health officials stated however, it is widely documented that referral pathways in Pakistan are either non-existent or non-functioning in the majority of public health facilities (Suleman,1996;Siddiqui,2001). Significant variations have been observed in terms of TB control policy and treatment guidelines between private and public sector TB control units.

control policy and treatment guidelines between private and public sector TB control units. The strategy for TB control in the country is to provide adequate and efficient treatment i.e., short course chemotherapy (SCC)/ DOTS to at least all smear positive TB cases identified. Within the next 5 years, DOTS will be implemented country wide in a phase wise manner. Effective BCG vaccination in newborns and in early childhood has to be achieved. The main emphasis of the program is the following,

- Ensure effective chemotherapy to all patient diagnosed for the recommended duration
- Promote early detection of sputum smear pulmonary cases on the basis of sputum smear examination
- Establish the networks of laboratories in the selected health facilities and a system for ensuring quality of sputum smear microscopy
- Organize treatment delivery as close to the patient's home as possible and supervision of the program activities at the various levels of the health system
- Introduce a standard system of registration and reporting
- Ensure continues drug supply by establishing a system for the national procurement, storage, delivery, and monitoring of anti TB drugs at various levels of the system
- Monitor the results of the treatment and evaluate progress of the program by means of quarterly cohort analysis
- Provide continues training for all staff involved in the program at various levels of the system
- Strengthen cooperation and coordination between NGOs and bilateral donors involved in the TB control program
- Coordinate TB control activities with all other health care programs

The program guidelines and key points cover all essential components which are required for effective TB control in a high burden country. However, several proposed points still need still practical actions and steps for its realization. As mentioned earlier, issues undermine the intentions to provide effective TB care across the country. Without significant political commitment among the NTP and relevant authorities, and the support and participation of the community, no plan or policy can produce any impact or output.

MINISTERIAL ROLE IN THE NTP
Federal Government, Ministry of health (MOH) deals with the decisions like health policy, formulation of plans and the primary health care issues, user charges, co-ordination and health insurance etc. Key decisions regarding financing, planning and primary health care issues like EPI, MCH, AIDS and TB, drug policy are made by MOH. The provincial hierarchy includes divisional directors, project directors, principals of medical colleges medical technicians, nurses and national health workers. All other components of the health system are confined to their respective districts and provincial health directorates (see figure 8). In addition two TB control boards, one each at federal and provincial level respectively are organized to provide extra technical, advisory and managerial assistance to their concerned units. Department of Planning and Finance (FMP & D) plays decisive role in approving financial budgets for the program. In the urge to achieve fully democratic and decentralize health system, merely deconcentration has been taken place, which kept the power of decisions limited to the center and have made provinces or lower units unnecessarily dependent on the center.

The Federal Ministry of Planning and Development (FMP &D) serves as a Planning Commission (PC) and is primarily responsible for long term and strategic planning and approval of financial funds. Furthermore MOH and provincial health directorate design their plans in line with the overall policies of the planning commission. Key role of MOH in the realization of NTP is to a) Formulate National TB Policy and control guidelines, b) Provide financial and technical assistance to provinces, c) Inter-provincial & international coordination, d) Monitoring, surveillance, research development and advocacy. National treatment guidelines are made for TB units. Implementation of supervised component of DOTS is planned through the national health workers (NHW) and medical officers (MOs) at the peripheral units.

TB CONTROL AT THE DISTRICT & PERIPHERAL FRONT
NTP at the provincial level is mainly responsible for a) Planning to operationalize the national policies and provincial strategic framework, b) Implementing community based TB care including DOTS through general health services, c) Arranging training programs and resources (from the provincial budget & other possible sources) d) Monitoring and supervising regularly as well as evaluating the program periodically. As illustrated in the Figure 8. provincial pathways for the realization of NTP are mainly districts and peripheral TB units. Further implementation is done through the channel of district TB control offices, tertiary and district hospitals, RHUs, BHUs and family health centers. The provincial cadre consists also of two components like health secretariat (HS) and health directorate (HD). The former is mainly concerned with setting policy and strategic plans, whilst the latter is related more to overall operational management of health care provisions at the district level. The provincial director general designates the district TB coordinator for each district, who has administrative power and an assistant district TB officer for the implementation of NTP and other relevant activities at the peripheral level. Districts and peripheral TB units/centers are in close and direct contact. Technical insufficiency was very evident in the lower echelons of the NTP. TB units at the peripheral level were mostly deficient in terms of drugs supply, laboratory equipments, trained personal and especially in female staff to deal with the increasing caseload.

Past experiences revealed the significant problems that were encountered upon the early implementation of DOTS at the district level. They were basically products of the problems of the district health system that already existed. It included problems related to inadequate technical and feedback support provided by the central level to the district health authorities. The second group includes problems related to planning and management capacity at the district level. The third group includes problems related to training, support and supervision of human resources in DOTS implementation. The fourth group includes issues of drugs and supplies availability at the level of TB facilities. The fifth group includes those problems related to referring patients with advance and associated debilitating illnesses. The sixth group includes problems related to the community dynamics of DOTS. Before any analysis is made, it is very important to define and understand what exactly constitutes a district health system and why should it be considered as essential step towards effective DOTS implementation.

A district health system based on primary health care is a more or less self-contained segment of the national health system. It comprises first and foremost "a well-defined population living within a clearly delineated administrative and geographical area. lt includes all the relevant health care activities in the area, whether governmental or otherwise. It therefore consists of a large variety of interrelated elements that contribute to health in homes, schools, workplaces, communities, the health sector, and related social

and economic sectors. lt includes self-care and all health personnel and facilities, whether governmental or nongovernmental, up to and including the hospital at the first referral level, and the appropriate support services, such as laboratory, diagnostic, and logistic support. lt needs to be managed as a single entity, normally under a single full-time manager who has public health as well as curative responsibilities, in order to draw together all these elements and institutions into a fully comprehensive range of promotive, preventive, curative and rehabilitative health activities, and to monitor progress. lt is people-centred, emphasizing all the health related elements of their behavior and their environment, and their right to shape their own health care with professional help.

The network of manpower and facilities providing health care at district level varies greatly from country to country. At the most peripheral level of contact between the community and the organized health service, there are health units bearing different names in different countries: dispensary, clinic, health post, health centre, health sub-centre, general practitioner's office, etc. Somewhere in the district, usually in the main town, there is a district hospital. There may also be other hospitals, often belonging to nongovernmental organizations, such as missions and societies. Within the community itself, there may be community health workers. Also, many individuals, families, grouping within communities, and other sectors will be involved in health care activities. A district health system consists of three main interrelated components, which are: Basic Health Units/ Health services Facilities (HSF), Health Service Management Structures (HSMS) and Health Development Structures (HDS). Health Service Facilities include all the service-providing stations at the district level such as health posts, health centres, district hospitals, etc. Health Services Management includes the managerial and administrative capacities at the district level. These are district medical/health officers, heads of health centres, heads of health posts, etc. Finally, Health Development Structures include all community-based groups that have direct roles in health or health-related development. They may include development committees and councils at the district, sub-districts and village level and special interest bodies at various levels of districts, such as women's, farmers' or youth councils.

The BHU at the district level starts with a network of health centres. The term health centre refers to frontline facilities capable of providing health promotion, health protection, as well as treatment, rehabilitation and care services. Health centres are known by different names. Smaller ones are dispensaries, health posts or health stations, depending on the resources available to them and the level of services provided. Whatever its size, the health centre is the essential part of primary health care at the district level, working closely with other structures. Health centres being the interface between the community and the health system, have the potential to: respond to the local needs and demands; maintain an ongoing dialogue with individuals, families and communities; provide promotive, preventive, curative and rehabilitation activities, Work with other sectors in promoting activities and initiatives related to health; Function as a health development unit and not simply as a clinical service point; Provide equitable and quality care to all in a catchments population. Hospitals are part of the district health system. Their function should be complementary to and supportive of the health centres in the district. They provide the core facilities for maintenance, information and supply systems and the laboratory and other diagnostic investigations requested by other providers of health care. The district head quarter hospital is usually accountable to and under the control of the district health authority to ensure that services are integrated.

For DOTS to get started, districts need support from the central level (either MOH or regional). Support involve areas required by the districts for sustainable and effective

implementation of DOTS. From the guidelines of introducing DOTS, it has been agreed that this support should cover the gaps in the provision of information about DOTS and help in building consensus at the district level; provision of political backup and endorsement for DOTS implementation in the district; brining in legal and organizational changes that authorize district managers from performing their roles in implementing DOTS in their districts; preparation of DOTS; building of capacity at the district level for planning, training, support and supervision and monitoring; guidelines/materials consistent with national policies treatment guidelines. Countries experiences revealed that these functions have been generally fulfilled by the central level. However, there are still significant problems to be addressed. Relevant problems of central-level support to districts are discussed in the following sections.

STRUCTURAL ANOMALIES OF THE HEALTH SYSTEM

Significant barricades exist in the current health system and in the NTP cadre that hamper decentralized and locally monitored TB care. Structural transformations required to empower the lower TB units in the implementation of DOTS are not done yet. For example, DOTS has no formal institutional structure within the ministry of health and such structure is, therefore, missing at the district level as at the peripheral level. Meanwhile, there are several other programs and departments working in the area of TB control at the district level that have belonged to structures within the ministry of health. This situation is confusing and exerts unnecessary workload on health personal at the district level because they are required to implement DOTS and activities related to other departments and programs. Orientation and implementation skills of the district managers are not sufficient. Usually, orientation for districts is done through short meetings, in which central level staff present the DOTS strategy and what is required from district to do. Country experience indicate that this strategy is not helpful for district managers who need to get involved in a process that enables them from understanding DOTS and from translating it into plans and activities. Furthermore, because the time given for the orientation time is limited, the three components of DOTS are not equally addressed with a tendency to focus on the clinical guidelines and ignore the community component. Meso-level (provincial or regional) is often bypassed or not adequately involved by the central level. Experience of the high burden TB countries showed that there is a tendency from the central level to directly communicate with districts without adequately including the regions or the provinces, to which the districts belong. Inadequate involvement of meso-level structures does implementing DOTS, but also puts district planners in a conflict with their regional counterparts.

A conflict exists between policies of vertical programs and DOTS. This conflict usually takes place as a result of inadequate involvement of vertical programs in the coordinating committee of DOTS or inadequate planning and coordination in spite of their involvement. Such conflicts can be very distracting at the district level if health workers get contradictory instructions from different programs. Among the tasks of the central coordinating committee is to review the existing national policies and treatment guidelines to check whether or not there exists any contradictions or inconsistencies with DOTS. Such inconsistencies have to be resolved before implementing DOTS in districts in order to avoid situation where health workers are instructed to perform in a way that is not legal or even appreciated. Resolving such inconsistencies is not an easy task; however, it is a very important prerequisite for DOTS implementation in such a complex situation. TB classification system, as a second example, does not match that used for the national health information system in all countries. Planning and management capacities are severely

deficient at the district levels. This is an inherent trait in the district health systems in almost all developing countries. Severe shortage of well-trained district managers is expected to influence all activities implemented within the district health system including and particularly DOTS. This notion was consistent in all country reviews. A detailed account on the problems and gaps in planning and management at the district level will be given in the following sections.

PLANNING AND MANAGEMENT'S PROFILE

District planners are usually medical doctors with some or no background in public health or management. They are responsible for managing all activities carried out in their respective districts. Often, they have additional clinical assignments in their private clinics and other health facilities. The district management team consists of one medical officer and one paramedical officer. Therefore, they have very limited capacities and time for planning and management. Country experience showed that DOTS is contributing to the increased workload for the district management team and that implementation of DOTS can be aborted because of this. For example, implementation of DOTS in the district Mardan, Pakistan and many others were delayed because of insufficient managerial manpower. Discussions showed that other programs were not successful in the same district. As a result, a decision was taken to exclude the district and replace it with another one. Orientation for the district managers is insufficient and they need to get better oriented. Orientation takes the form of a course, which is too short and too superficial. Indeed, there is no real chance for district managers to learn why and how to implement DOTS in one day course. In most of the cases, district planners have no background in planning and Management but very little experience acquired throughout their work. Therefore, they lack the basic planning and Management skills. They need to be equipped with knowledge, skills and attitudes necessary for developing a plan for DOTS, conduct it and then evaluate it. Furthermore and equally important, they need in-job support and guidance to get their job done. DOTS is commonly misconceptualised as a component of TB control program. In such cases, confusion jeopardizes chances to get DOTS implemented as planned. This notion was mentioned in country reviews and it has to be taken seriously. District planners were marginalized and bypassed by the vertical programs. If they were involved, they have not really given significant roles.

District planners are seldom capable to develop satisfactory plans and often have no background in health economics or costing. Therefore, in several countries including the experiences and observations in Pakistan reviewed that district planners developed no plans or budgets before implementing DOTS in their districts. Strategy and guidelines for implementation were not made. Problems related to financial resources, manpower, availability of drugs, etc are usually discovered during implementation. DOTS assumes that districts have a certain degree of autonomy that allow with the endorsement of central levels from bringing changes required for DOTS implementation. For example, solving problems like support and supervision, human resources development and coordination requires innovative and district-specific solutions that might vary from district to district. This cannot be done without ensuring certain degree of autonomy and authority in the hands of district managers. However, in today's reality, district managers are, more or less, articulating joints between districts and more central levels. They have very limited authorities and they have minimal space to innovate.

There is no doubt that the level of district managers' motivation determines to a large extent their performance. There is more than one good reason for district managers to become less motivated. Always they are underpaid and are often running private clinics to

improve their earnings. Facts in the reality seem too difficult to improve and they have limited control over things. They have very limited resources in hand and have been marginalized by vertical programs, which took over most of their responsibilities. Taking into consideration the emphasis DOTS places on the district health system, motivating district managers becomes a priority area where operational research is needed. Frequent transfer of health workers particularly district managers from one district to another is a fact of life in developing countries. This instability posed on district managers where DOTS is implemented constitutes unnecessary waste of resources and reduces their level of motivation.

Problems related to training and supervision of health workers in DOTS are related to the availability of training manpower, availability and readiness of training sites, the quality of training materials and the background of the trainees. These problems are discussed here. For effective training on DOTS to occur, training sites should satisfy certain selection criteria. These criteria include: 1) the directors and the staff of the site are interested in DOTS; 2) the site is being providing acceptable quality of care; 3) there is sufficient case load; 4) adequate equipment and supplies are available; and 5) experience in organizing training courses is available. Sites that can satisfy these requirements are very few and sometimes are not existing at the district level. Utilization of service is very low and consequently patients' flow is very weak. This is particularly true for young children and women. Given the limited number of qualified trainers and the need to keep the trainee/trainer ration low, the need to get more trainers is still there.

Except the known fact of scarce financial resources allocated for TB control in the national budget centralized decision making [top to bottom approach] and planning ignores usually potential operational shortcomings, needs and priorities of the district TB and peripheral TB centers and also the vision to oversee NTP weaknesses is widely lacking. Limited autonomy of the provinces and districts keep operations pending unless the central authorities approve them. Channels of coordination and communication are not actively functioning between center and provinces and supervisory visits are performed less frequently due to lack of appropriate logistics. This also partly paralyzes community outreach activities. The release of approved funds for recommended actions is time consuming and complex, which eventually delay outcome. Components at ministerial level like Federal NTP Unit/TB Boards that were designed to strengthen and facilitate TB control activities are still non-existing. Above all the post of National TB director at the center was vacant in the past, which has bedeviled crucial activities.

Surveillance and operational, clinical and therapeutic research on the rapidly emerging threats of resistant TB, TB/HIV synergism is not yet reinforced. Programmatic shortcomings need prompt attention of the high echelons of the health system. Technical and operational guidelines for the future DOTS implementation in highly deprived and culturally dominated areas are lacking. Neither private nor the public sector work within a regulatory framework to align their approaches in effective TB control. The incidence of sputum smear (SS) positive pulmonary TB is a key epidemiological indicator for evaluating the burden of TB. The actual incidence can only be estimated on the basis of cases notifications and epidemiological surveys. However TB case notifications in turns reflect the case detection and case reporting activities of national program. So if these programs perform poorly, bias in under reporting are expected. Health system in general and NTP in specific have not yet fully integrated with the private sector, which is considered crucial for a successful TB control. Private sector physicians and traditional healers who have a large influence on the rural communities are not yet incorporated in any of the national plans.

This has added potentially to the programmatic bias of NTP. The majority of the health care providers in the public sector are not properly trained in TB control.

NGOs mostly work in isolation and no regular channel of communication, participation and collaboration as well as coordination exists among them. Coupled with the large number of local private practitioners and traditional healers, the number of non-complaint TB units exerts serious blows to the overall impact and spirit of NTP. Alone in the district of Mardan in Northern Pakistan (NWFP), more than three different TB centers/Units and public TB Units are working under various NGOs, all located within the distance of 20 kilometers. Such apparent anomalies of TB networking condensed in one area have been ignored by the NTP central authorities. This leads not only to duplication and wastage of resources in one locality but also simultaneously ignores those who live in far-flung areas where health facilities are scarce and transport hampers their regular visits. The leaders within the three-tier system i.e., ministerial, provincial and district level vary in their approaches towards TB control. This resulted in an institutional disharmony which disrupted matters related to overall impact of TB control.

Distorted forms of DOTS like DOTS to WOTS and MOTS i.e., weekly or monthly-observed treatment strategies respectively have been reported from some peripheral TB units where DOTS was initially implemented. This transformation took place partly due to some patient related factors like the inability to collect drugs on daily basis and also because the TB units could not cope with patient's routine visits. Periodic examination of sputum smear is less frequently done and sputum conversion poorly followed. Contact tracing which is the corner stone of any NTP is not done. Preventive aspects like BCG vaccination and prophylaxis are less emphasized. Besides, irregularities and errors have been observed in the submission of quarterly TB cohort reports to the district TB offices. Large population with varied socio-cultural, demographic and ethnic background is a challenge for effective DOTS implementation (Jadoon,1999) .

TB case management has been a serious problem and reported from all across the TB clinics in the country. In many private clinics as well some of poorly compliant TB units still rely more on long-course chemotherapy (LCC) treatment of either 12 or 18 months and discard the notion of supervised chemotherapy for smear positive cases. Although short-course chemotherapy (SCC) has been introduced in twenty-five districts across the country, however potent diagnostics from smear microscopy to the drug sensitivity testing (DST) and more important essential TB drugs are often unavailable or treatment is administered without direct observation and appropriate patient follow-up. The shortage of drugs, the lack of adequate information available to doctors and patients, and the fact that pharmaceutical companies advertise only the drugs they produce and not all the drugs needed for cure, has led to a proliferation of treatment regimens. This, in turn, has led to low treatment completion and cure rates and has raised considerably the risk of increased drug-resistant TB. One of Pakistan's major problems with TB is the number of re-treatment cases resulting from previous incomplete treatments.

Despite the program's objectives and the importance of the tuberculosis problem, the NTP has been unable to make a significant reduction in the TB caseload in Pakistan (see Table 7 & Figure 7). Case detection was more emphasized than the cure, treatment completion and tracing and prophylaxis of potential TB cases or defaulted cases. Among other key issues which have been the cause of poor performance of current NTP can be summarized as (i) low political commitment and serious lack of funds at the central and efficient management at the district levels; (ii) institutional and managerial weakness due to insufficient trained

staff, vacant posts and weak linkages with the other TB services and the health system in the periphery; (iii) technical weakness characterized by lack of rigor in the use of short-course chemotherapy (SCC) and reliance on X-ray instead of sputum analysis for diagnosis; (iv) a proliferation of drug regimens other than the recommended ones; (v) a private sector which treats over 50% of new TB with an extraordinary variety of ineffective and potentially harmful drug regimens; (vi) a lack of systematic training, quality control and regular supply of drugs; (vii) lack of strategies to ensure the poor have access to TB care and complete treatment; (viii) reluctance of service providers to give adequate information to patients because of stigma and lack of good communication skills; (ix) a poor recording and monitoring system; (x) lack of quality control of laboratory results, and (xi) low cure rates.

Figure 8 Operational Illustration of TB control Network in Pakistan
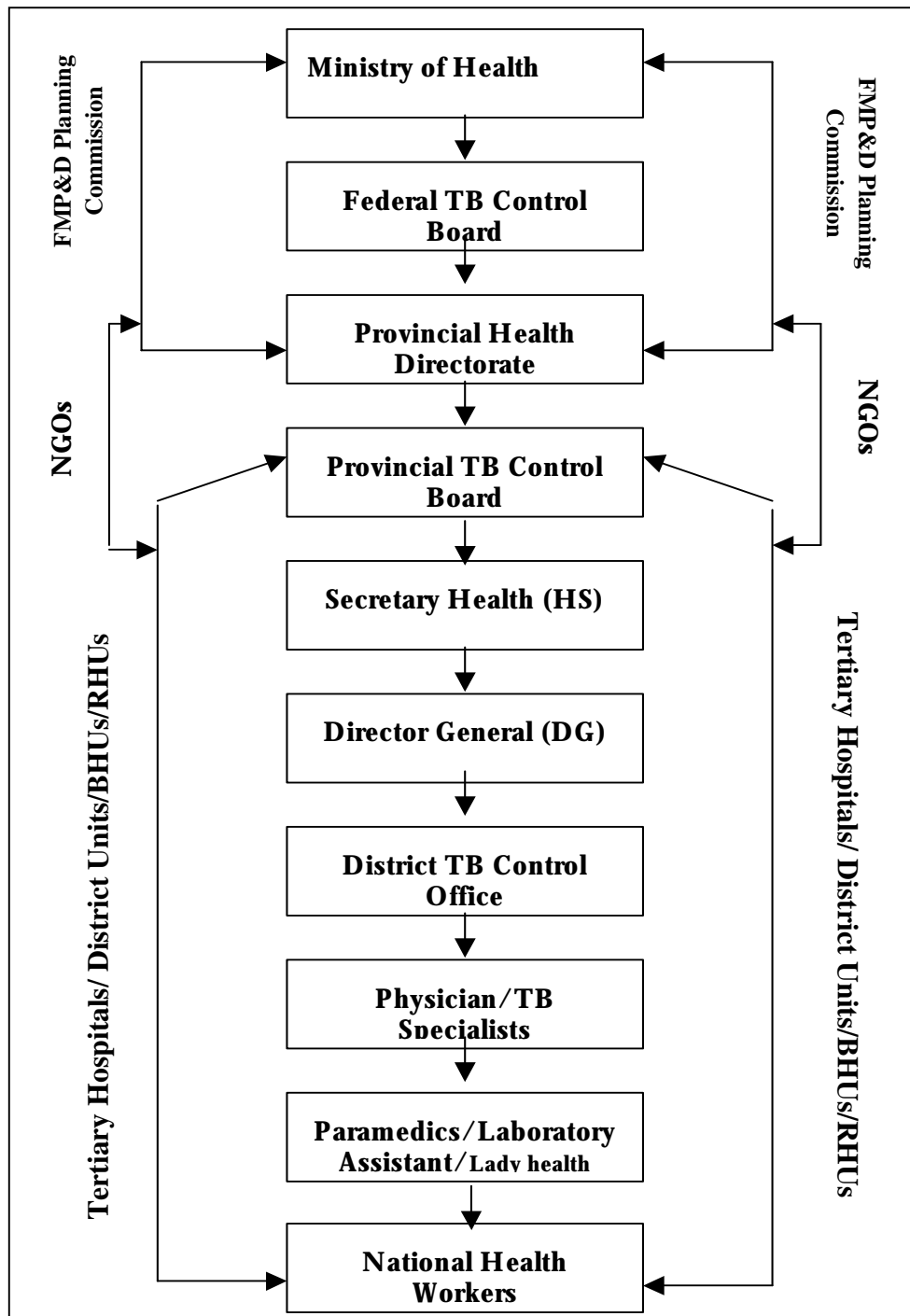
THE ROLE OF NON-GOVERNMENTAL ORGANIZATION (NGOs)

Pakistan does not have a very long tradition of civil society movements and non-governmental organizations. The country spent 24 out of its first 50 years of existence under military rule. Repeated spells of military dictatorship have meant that there is very little tradition of "democratic and decentralized", "civil" activity. In recent times, however, this has begun to change and the trend of privatization is gaining its ultimate momentum. The presence of large numbers of refugees from Afghanistan in the country led many international NGOs (non-governmental organizations) to set up their presence in Pakistan, especially in NWFP. As a matter of fact TB control similar to other program, is a joint activity that requires overwhelming communication, cooperation, coordination and collaboration from other sectors. Still limited but collaboration of NTP with other organization/agencies has been increased in the last few years. In some parts of the country in the recent years the National Tuberculosis Control Program has been working in coordination with various national and international partners agencies.

NGOs contribute in TB control in many different ways, for example, service delivery, education, advocacy or community based care in NWFP. The traditional model for NGO involvement in TB control has been service delivery through TB clinics and hospitals. In this race several NGOs at local or national level are contributing. In a service delivery approach, the NGO is responsible for diagnosing and treating people with TB. These treatment services are specifically for TB patients, for example a TB clinic or TB hospital. Alternatively services are provided as part of general health services, for example, in a hospital or health care center. In the last decade, their number has grown substantially. Due to their foreign financial support, these organizations often are large employers, providing educated Pakistanis with good employment opportunities and equivalent salaries. More importantly, however, a wave of local development NGOs and Community Based Organizations (CBOs) followed the influx of international NGOs all in Northern (NWFP) Pakistan. In the social and health sectors a host of local organizations have grown up. Although many of these organizations were financially dependent on the international development NGOs, at present, many Pakistani Development NGO's are trying to muster financial support from their own society. Pakistan is low income country where the survival of NGOs is solely based on their own funds with either no or little contribution from the Government.

Pakistani Government is realizing the benefits of working through non-governmental organizations however a bulk of Pakistani NGOs and CBOs depend for their funding from international donors. Governmental donors spend large amounts of money through their Embassies. For example in Pakistan funds for TB control or health development are available from the Dutch Embassy's "Small Embassy Fund", German Embassy "for the TB and Leprosy control" Saudi & Italian Government for " the TB control" the Canadian High Commission's "Women In Development" and "Canada" Funds, the Japanese Embassy's "Grass-roots Assistance" program and since October 1997, from USAID's budget (WHO,2000). There exist indirect funding as well. For example the Swiss Government, provides funds for local NGOs through its NGO Program and USAID funds are being channeled through the Asia Foundation for the Pakistan NGO Initiative (PNI). The NGOs working in NWFP or somewhere else in Pakistan, receives a limited range of financial assistance or technical assistance from the provincial government, which makes many NGOs unstable and influence the proper functioning. International bodies such as the European Union and the World Bank also contribute to many NGO program in Pakistan. EU funds are mainly used for food aid, institution building or emergency aid to

Afghanistan and Afghan refugees in Pakistan. Other forms of foreign assistance include grants from international grant foundations. Limited funding from the Government is available. Since the adoption of the "Social Action Program" (SAP) in 1992, the government's commitment to funding in the social sector has increased. Some of the overall policy principles of the SAP relate to the "improvement of cost-effectiveness of social sector services", giving a "greater role for NGOs and the private sector" and "creating awareness of social sector issues and support for social sector development". Funding opportunities both for foreign and domestic are scarce, however there is general appreciation of the work done by the private (NGO) sector. The type, quality, treatment strategy/ policy and the extent of control services varies in each of these NGOs. Most of the NGOs started their TB control services basically as humanitarian relief for the Afghans refugees across the far flung areas in NWFP. The leading NGOs actively participating at present in the TB control activities in NWFP are namely four, Italy funded Italian Corporation of Development(ICD), Swiss funded- Anti-TB Association Geneva(ATAG), Saudi funded hospital by Saudi Red Crescent Society (SRCS), and German Leprosy and TB control program by Germany.

Most of the these NGOs are acting as non profitable organization, partly or fully supported by the Government of Pakistan. NGOs, at present, many Pakistani Development NGO's are trying to muster financial support from their own society. Due to complex humanitarian situation in the NWFP several NGOs established their base to provide relief services and health coverage along with TB control. An Italian NGO called ICD (Italian Cooperation for Development) is providing an extensive network of TB control services for the ailing refugees (see table 9). Later in 1991 the ICD extended its services from Afghan refugees to the native community. ICD has a close alliance with Provincial NTP health authorities and comply strongly with the NTP progressive detection and cure targets. Technical and financial assistance by ICD has resolved several key issues of NTP at the provincial level and greatly improved screening. Among others Agha Khan Trust (AKT), Marie Adelaide Association (MAA) are currently playing a leading role.

Marie Adelaid Leprosy control(MALC), Karachi has extended their financial and technical support to TB control in Azad Jummo Kashmir and Northern Areas. The NWFP TB Association, Red Crescent Pakistan and other NGOs, are providing TB care through their chest clinics. These NGOs are being technically supported partly by the NTP to establish standardized case management practices at their clinics/centers. An account of selected TB centers and their TB control activities run by various international NGOs is given in Table 9. Except ICD all TB units either run privately or publicly were lagging behind in achieving their proposed control targets. National TB Control Program has hitherto seen as a public health matter dealt by the Ministry of Health. However, because of the behavioural nature and the strong socio-economic implications, the disease requires to be treated as a developmental issue which impinges on various economic and social sectors of Government and non-Governmental activity. As economically productive sections of the populations are the most susceptible to the disease, organised, unorganised sector industry and Ministries like Railways, Surface Transport, Heavy Industry, Steel, Coal, Mines and other public sector undertakings employing large work force require to be actively involved in the program. TB is a national calamity and can only be fought by forging united co-ordination, and convergence in respect of TB prevention control strategies between civil society, voluntary and Governmental and private sectors. The overall vision of the National TB Control is to lead and catalyse an expanded response to the TB epidemic in order to contain the spread of infection, reduce people's vulnerability to TB, promote community &

Family based care to TB cases within an enabling environment without any stigmatisation and discrimination, and alleviate the epidemic's devastating social and economic impact.

VIGILANCE TO THE TRANSMISSION OF INFECTION THE BORDERS

Tuberculosis in Afghanistan has strong repercussions on Pakistan. The migration of infected individuals to Pakistan border areas and beyond exert serious threats to TB control (Khan MI, 2002). The difficulty in identifying these individuals and ensuring continuity of treatment serve additional risk of TB epidemic. The 2500 km long Pakistan-Afghan border. High morbidity and mortality rates have been reported among Afghan living inside of Pakistan. Poor control measures among desperately living refugee poses serious threats to the communities (Khan,2002). With respect to the growing number of immigrants, the capacities, resources and preparedness of health system is extremely inadequate. International agencies and native government have established emergency relief services however, TB control in large and unstable population is a daunting task. Reduced incidence and transmission of TB cannot be achieved solely through prevention and control activities among the Pakistan-Afghan border i.e., populations in the NWFP. Infected persons arrive in the border areas daily from the southern part of the country where economic and social conditions favour continued TB transmission. On the contrary TB control in the area is not competent to provide effective care under supervised therapy.

Tuberculosis is easily spread from person to person especially among those living in cramped with extremely poor environmental conditions. Such circumstances are not only favorable for spread, but also for renewed illness as well. However those who are previously infected, make others at risk. As known from the natural history of Mycobacterium, dormant TB bacilli can spring back to life and cause serious illness when people are especially stressed, not adequately nourished and immune-compromised remaining in close contact with the infection source. The net migration rate is 11.54 migrant(s)/1,000 (2000 est.) population (WHO,2002). The circumstances in refuges camps are extremely poor and increase the risk of infection and re-infection many folds.

Shown in table 9 a unique epidemiological association can be established between two highly endemic countries i.e., native Afghans or Afghans refuges and aboriginal population in Pakistan. A large bulk of pulmonary sputum smear positive cases has been notified so far but no authentic information is available on the outcome of the treatment of this particular community. Refugees are in the state of constant mobility or migration, which offer countless challenges to the TB control. More in this regard was determined by a tuberculin survey in 1985 (Spinaci,1989). Conducted by an Italian NGO (Italian Cooperation of development) in Northern Western Frontier Province (NWFP) survey revealed that the annual risk of infection (ARI) was 13.7 % in a sample of 4108 afghan school children using a criterion of transverse diameter of 10 mm indurations or more while it was 13 % in Pakistani school children of the age 5-9years. 1358 of them, average age of 7.8 years, had not been vaccinated with Bacilli Calmette-Guerin (BCG). With respect to the prophylaxis parameters the coverage of BCG apparently halted as almost all health care centers both public and private stopped their activities due to financial crisis, cessation of vaccination kits and drugs supply and other national and international relief activities.

Table 9 Synopsis of TB control activities in NWFP, Pakistan

Registered	Afghan cases (1985-98)
Total number of patients examined	392,839
Sputum smear slides examined	914,941
Slides cross checked	42,553
Culture & sensitivity Tests	5,668
New Pulmonary positive cases	19,264
New Pulmonary TB Negative cases	30,813
New Extra Pulmonary TB Case	24,265
Total New TB	74,342

Sours: Khan MI, 2002

The high prevalence of communicable diseases specifically the pulmonary tuberculosis in adults estimated in a National Survey still continues to be a major public health problem. In the mean time, when the country was trying to cope with the diverse domestically confronted political and economic instability, externally inflected challenges fueled the magnitude of internal problems, which in turn affected every sphere of life in the country including health for example the problems aroused due to Afghan refugees. Since the 1979 Russian regimen in Afghanistan, massive migration of Afghan refugees took place in search of safe shelter in Pakistan. According to the official statistics, alone in NWFP, more than 2.6 millions of Afghans are currently registered with the Pakistani authorities. According to the estimation in the year 2000, the net migration rate in Pakistan is 0.9 migrant (s) per 1,000 population. This is a global record for a country like Pakistan accommodating such a huge number of refugees exerting diverse economic pressures and challenges on the health system.

Overcrowded refugee camps, located mostly in rural slums of NWFP, where health care and environmental hygiene are extremely poor, predisposes the lives of refugees to more risks. Most of the Afghans refugees live in close contact with the native population, facing the same socio-economic and health related problems. High risk of annual TB infection (ARTI) in Pakistan is 1.72 percent. In 1981 X-ray based survey among Afghan refugee children in Balochistan and NWFP gave alarming results, suggesting the disease to be twice as high as in the host Pakistani population. In order to know the prevalence of infection among the BCG unvaccinated children, as an indicator of the load of infection in the same community, a tuberculin survey on a sample of boys attending the first two grades of primary school in refugees camps(NWFP), was carried out in April, 1985. The survey was conducted by ICD in collaboration with the Commissionerate for Afghan refugees and UNHCR. Among 1,358 boys 5-9 years old, BCG unvaccinated, 187 (13.8percent) were found infected (diameter of induration of 10 mm or more). This finding is comparable to the 13 percent infectivity rate found in 1974-78 tuberculosis survey in Pakistan (Spinaci, 1989). The epidemiological characteristics and demographic dynamics of both populations justify the fact that the transfer of new or old infected cases certainly occurs from a highly endemic area to another. This would have lead to the increased incidence of TB infection many fold, both in the refugees but in the native populations as well.

On list of WHO Afghanistan is ranked one of the highly endemic country from tuberculosis with TB control program entirely paralysed during decades of war and long political conflicts. Due to consistant socio-political revolutions it is certain that the protracted Afghan conflict has helped spread tuberculosis in this impoverished country. WHO figures say that TB is killing more than 33,000 people every year. Afghanistan where poverty, absolute lack of education and health care dictates diseases like TB for more than

20 years. The Afghanistan National Tuberculosis Institute states that there are 20,000 to 30,000 new cases recorded every year in addition to 44,000 to 66,000 positive cases (Khan,2002). The disease is spreading all over the country due to the economic problems of the people. 75 percent of victims are young people among them are 70 percent female. Like Pakistan, it was hard to bring TB under control in Afghanistan, as the institutions faced sever lack of funds, and maintaining functions. The 21 year long war had interrupted all tuberculosis control programs across the country. The endeavouring efforts to rehabilitate and save many tuberculosis patients, who are waiting to die due to a lack of health care, are in the areas close to the frontlines with the NWFP. (Khan al at., 2002).

At the State level, the NTP has a similar dual structure with the Director of Medical Services and the Director of National Programs being responsible for overseeing implementation. Implementation responsibility, however, lies primarily with the State TB Officer. At the state level, in all major states, the NTP is supported by 16 State TB Demonstration and Training Centres (STDTCs) for training and research to help supplement the work of the Central Training Institutions. However, until now these centres have operated primarily as TB Centres for curative care in addition to providing epidemiological data and monitoring the Program at the state level. Their role as training institutions has been minimal. At the District level, the District Tuberculosis Officer (DTO), under the direction of the District Medical Officer and the District Public Health Officer, is responsible for implementing the program through the general health care system. The major objectives of the NTP are to: (a) diagnose as large a number of cases as possible and provide efficient treatment, giving priority to smear-positive patients; and (b) implement these activities as an integral part of the general health services.

PART B

REVIEW OF NATIONAL HEALTH POLICY AND REFORMS (1997)
A National health policy was formulated in 1990 to form the basis for the development of the country. lt aimed to address the basic problems in the health sector by strengthening the health care system on the basis of primary health care (PHC) and bringing about the needed reforms in all areas of health including that of TB control. The new health policy 1997 aims to improve the health status of the nation by providing universal coverage of quality health care through an integrated PHC approach. Good governance was the cornerstone of health sector reforms with special emphasis on strengthening the district health system. It was intended to extend the existing health facilities, strengthened and upgraded program and rationalizing human resource development. The policy gave the private sector greater responsibility for health services delivery. Community empowerment was considered an active role in the health system, which will be decentralized. Significant achievements are expected once appropriate actions are taken to implement the various policy indicators. The policy had several strong and valid points, for instance health care planning-will be based on scientific research. The heath sector will be better regulated, and made more responsive to the current and future challenges. The vulnerable and disadvantaged groups in society will be given priority as recipients of social uplift program. The policy document provides an overview of the health sector in the country, and gives guidelines for action in all priority health areas, with a vision up to the year 2010.

The Government of Pakistan have shown commitment to achieve the goal of Health For All through PHC. It aims to create a platform for social change to improve the quality of life of the people, through this' approach. The new health policy is based on a concept of health with its physical, mental and social dimensions, where health is an important indicator of quality of life and national development. All important aspects of the health care system have been addressed under the framework of the new policy. The 2010 vision for the health sector development is one of comprehensive and quality health care for all segments of the society. The burden of ill health from preventable causes would be greatly reduced. The capacity of the health care system to deal with new and emerging health threats would be adequate to ensure public safety. The available health facilities would be distributed in an equitable manner. In addition to a strong PHC program, a highly organized and well equipped tertiary level care will be available at affordable prices. The ultimate goal of all health program would be to ensure basic services and promote a better quality of life for attaining maximum national development.

The major objectives of the policy are as follows:

- *to address the health problems in the community, by providing promotive, preventive, curative and rehabilitative services to which the entire population has effective access*
- *to bring about community participation through creation of awareness, changing of attitudes, organization and mobilization of support*
- *to improve the utilization of health facilities by bridging the gap between the community and health services.*
- *to expand the delivery of reproductive health services including family planning both in urban and rural areas of Pakistan*
- *to gradually integrate existing health care delivery program like EPI, malaria control, nutrition and MCH within the PHC.*
- *to improve the nutrition status of mothers and children and reduce the prevalence of malnutrition*

- *to promote proper inter-sectoral action and coordination at all levels.*
- *strengthen the district health system to deliver the essential elements of PHC and provide the necessary support mechanism in terms of training and logistics to effectively supervise the performance of health workers at all levels*
- *ensure satisfactory staff levels at RHCs/BHUs and promote the deployment of female workers as a human resource capacity building for the district health system*
- *introduce the necessary directives to develop and support decentralization strategies in the organization, planning and management of the national health system.*
- *improve the functions of the referral system to ensure equitable accessibility to emergency, secondary and tertiary health care services*
- *ensure direct and effective community involvement and bring about coordination and collaboration between health and other government sectors and NG0s*
- *introduce alternative approaches to financing health care through the involvement of the private sector and the national health care schemes*
- *integrate all vertical program in to PHC at the operational level to create an effective district health services system based on comprehensive PHC*
- *deliver reproductive health services including family planning in all activities and at the household level through home health care*
- *promote innovative control strategies for the prevailing communicable diseases such as tuberculosis, viral hepatitis and acute respiratory infections (ARI) and diarrhoeal diseases, and undertake the control of major prevalent non-communicable diseases*
- *planning would be decentralized to the grass-roots level and community would be given active participatory role*

The ultimate aim of this health plan was to improve the levels of health in the population. The first priority will constitute a concerted effort on the most serious health problems, from the prospective of mortality and morbidity indicators. A package of managerial support is also considered to ensure their successful implementation. A second priority to be addressed by this plan is the risk of population trap. The promotion of extensive reproductive health services including family planning through a comprehensive package of community and family based PHC health services will be the key for realizing this objective. Another realization of the health sector is that poverty constitutes the underlying cause of ill-health, and for a considerable proportion of the people, survival acquires the greatest urgency. Reviewing Pakistan's previous national health policies a major shift becomes more vividly appearing. Previous policies have been more centralized with limited power to the lower echelon of the heath system and curative interventions in the urban areas while the recent policy realized major community oriented problems with greater emphasis on decentralization. How much of these vital components of the policy have been translated into the realities is beyond the scope of this attempt however one can predict that massive actions have to be taken to make the TB control more effective, accessible, affordable flexible and simplified according to the needs of the community.

The discussions held with the key TB control officials gave an impression that policy implementation in its entirety need radical changes and efforts from all sectors. Political flexibility and backing up has been significantly transformed in the recent past however several vital policy components, which have a vital relation with TB control, are still to be achieved. The current policy is conscious to the major challenges, which are the structural reforms. In order to simplify health care provision, strengthening and decentralizing district health care are essential steps.

STRUCTURAL REFORMS IN HEALTH CARE SYSTEM

The National Health Policy intended health reforms till 2003 will include the development and capacity building of the health services infrastructure i.e., facilities, human resource, management, information system and logistics. This will improve the support to health services and the interaction between the different levels of care on one hand and the community on the other. To improve the efficiency of the health care system there will be a re-organization at all levels to bring about close coordination between all programs, between federal and provincial departments, between different levels of health care and between the community and the health care system. The District Health System (DHS) consists of different levels of health care, namely families, community, Health Houses, BHUs/RHCs, THQHs and DHQHs. In addition, there are private practitioners, NGOs, CB0s etc. The DHS will be supervised by the District Health Authorities (DHAs) comprising health professionals, elected members and community leaders. The DHO will be the in charge of running the health facilities in his district, with the district management team and tehsil management team.

Packages of services and standards of care will be developed for each level of care and each level will be staffed and equipped accordingly. Home and self health care program will be focused at the household level. The community health workers will he trained as multi-purpose workers to deliver essential services at the community level and form a link between the community and the health system. Program like EPI, Malaria, AlDS and TB control will be integrated with the PHC delivery system, and the resources will be transferred from Federal Health Ministry to the Provincial Health Departments. This will reduce duplication of resources in the federal and provincial health departments, improve the coverage and quality of the services, reduce cost of health delivery and optimise scarce resources, avoid duplication of training and facilitate the accountability of health providers. This approach will require an integrated organizational set-up and training of multi-purpose workers. The Federal Ministry of Health and Provincial Health Departments is re-organized under PHC for coordinated planning and integrated service delivery through the existing health infrastructure. A Task Force is set up to work out the modalities of the structural reorganization.

According to the revised national health policy, TB control program (NTP) is among one of the thirteen priority health (vertical) programs. The revised NTP aimed at reducing the mortality, morbidity and transmission of T.B. and preventing drug resistance by the introduction of Directly Observed Therapy of Short duration (DOTS) Strategy. The Program intended to integrate the PHC delivery system. After initial implementation in selected demonstration sites, expansion of the Program will take place district by district, with full coverage by 2000/2001. An organizational framework will be established for the implementation of the revised Program. A regular supply of anti-TB drugs will be ensured. The NG0s and private sector will be involved in the Program. Islamabad Declaration of MOH is a modified version of Amsterdam declaration (24th March, 2000) reaffirming the pledge and determination for the fight against TB (WHO,2002). Coupled with its focus on other major shortcomings, it has declared TB as a national emergency and emphasized the importance of operational and drug resistance surveillance across the country. However targets have been proposed 2003 irrespective of scarce financial resources and institutional incapacities, which are still potential barriers in the efforts to conduct nationwide DOTS coverage. But the declaration intends to accelerate basic and operational research for the development and delivery of new tools, including diagnostics, drugs and vaccines for the eradication of TB.

PAKISTAN'S SOCIAL ACTION PROGRAM (SAP)
Social Action Program (SAP) is considered one of the country's main instrument through which it is aimed to expand access and improve the quality of basic social services since 1992. At its core, SAP aimed to increasing government spending on basic social services (education, health, population, rural water and sanitation). Expenditures did increase sharply during the early years both as a share of GDP and total Government expenditure, but there was a sharp decline subsequently in these ratios, such that spending in fiscal year 2000 had fallen below pre-SAP levels. Budget allocations began improving in fiscal year 2001 and fiscal year 2002 commitments show a considerable improvement. However past experience suggests low utilization of budget allocations, partly the result of delayed releases of funds to provinces and to provincial line spending ministries, cumbersome administrative procedures and weak institutional capacity. In recognition that increased expenditure is a necessary but not sufficient condition to expand access and improve the quality of social services, SAP also addressed on the institutional reforms, improvement in governance and placed emphasis on certain programs like TB control. Of these, governance dimensions emerged as a priority area. Performance monitoring of recruitment, procurement, absenteeism and site selection showed some improvement across most indicators, but staff absenteeism has continued to be a problem. Government has launched an accountability drive and early indications suggest some success. However, these measures come too late to address the poor performance of social service delivery during the SAP years. The judgment that improvements in outcomes and delivery of social services either did not occur or occurred at a very slow pace, together with the advent of district level governments has led government and donors together to abandon the SAP instrument and to rethink the strategy.

The Government has taken a number of key steps to rebuild severely eroded services provision, re-establish confidence in public institutions and improve the investment climate. Comprehensive program of structural reforms as part of its Poverty Reduction Strategy has been launched parallel to the macroeconomic stabilization program. Addressing social sector issues has become increasingly important in this context, with new strategies in health and education reflecting the government's commitment. An ambitious devolution/decentralization of government rounds out the reform program. The momentum of governmental efforts to strengthen the NGOs initiatives in health development, and to build an active network of collaboration with a private sector and NGOs were not vigorous until Pakistan revised its health policy and launched the Social Action Program(SAP). In the nation-wide effort to improve basic social services the World Bank sanctioned 250 US$ million equivalent credit to support the Government of Pakistan's Social Action Program. The measured impact of SAP to date includes higher school enrollment for girls, particularly in rural areas, significantly increased immunizations of children, and increased awareness of family planning. Based on the initial progress in SAP 1, SAPP II came to action in which the Government initiated to raise the enrollment and literacy rates further, by providing adequate basic health care for rural areas, reduction infant mortality, and increased access to safe water supplies and sanitation.

The second SAP focused on NGOs development and promoted NGOs initiatives and clearly defined the importance of their role by involving NGOs in the national health development. With the key features like decentralization, community involvement in running government health facilities, better coordination between NGOs, more female health workers and broadening the use of health insurance, along with more specific projects for communicable diseases, reproductive health, child health, nutrition and health education. The Government according to the latest estimates, amounts to 10$ billion, with

2$ billion provided by the bank and other donors and the rest funded by federal and provincial Government. Particular emphasis has been placed on helping the very poor, who currently have little or no access to these basic services; women, who in particular need improved services for family planning, maternal care and clean water; and girls, who need better access to education. Critics exist that social action program was ineffective, added unnecessary constraints on Government and had a limited success but it did manage, to raise awareness of Pakistan's poor health indicators, and encouraged greater spending on public health and preventive services, but was unsuccessful in increasing the proportion of gross domestic product spent on health section.

TB CONTROL AS A PART OF HEALTH SYSTEM REFORM

Health sector reform is a non-specific term for a wide range of actions meant to improve health system performance. It is concerned with 'defining priorities, refining policies, and reforming the institutions through which those policies are implemented' (Feilden R, 1998; Chaulet P, 1998; Merrick T, 1999; Berman P,1999; Musgrove P, 1999). Throughout the developing world, publicly-funded health systems have been criticized for not achieving adequate improvements in health outcomes, especially for the poor. The reasons given have included: lack of prioritization of cost-effective measures, poor access to quality services and resulting low utilization, non-sustainable financing and poor cost-control (Cassels A, 1995; Cassels A, 1997; Feilden R, 1998; Chaulet P, 1998; Merrick T, 1999; Berman P,1999; Musgrove P, 1999).There is also a widespread concern that, due to donor dominance, low-Income nations have had little ownership of their systems, thereby limiting motivation and flexibility to respond to local needs and expressed demand.(Cassels A, 1997; Weil; 2000) Improving efficiency, equity and quality are over-arching objectives of reform.

Reforming and reorganizing the health system has its political dimensions. Five specific reasons can be proposed to explain the political dimensions of the policy reform: 1) reform represents a selection of values that express a particular view of the good society; 2) reform has distinct distributional consequences in the allocation of both benefits and harms; 3) reform promotes competition among groups that seek to influence the distributional consequences; 4) the enactment or non-enactment of reform is often associated with regular political events or with political crises; and 5) reform can have significant consequences for a regime's political stability or longevity. Understanding the political dimensions of the reform process is essential to conceptualise, for instance, to what extent certain country will go ahead with decentralization and with which intentions.

EVOLUTION OF HEALTH SYSTEM REFORMS

After getting independence from the British rule in 1947 Pakistan started with a very weak base in the health sector. The country inherited very poor medical facilities at the time of independence for instance, one medical college, 78 doctors, widespread malnutrition with poor environmental conditions and a high prevalence of communicable diseases. The rate of expansion of health facilities and health manpower remained very sluggish for many years, because of the low priority given to the health sector, which led to extremely inadequate and inequitable distribution of health facilities in both urban and rural areas (Akbar,1985;Suleman,1996;Midhet,1998;Khan,2002). In the first 25 to 30 years after independence, hospitals, medical colleges, and curative health care development received priority. This resulted in the establishment of large number of hospitals and more emphasis on producing doctors. The primary health care and preventive services remained largely neglected and were under-funded. Ministry of Health (MOH) took the responsibility of country's public health system and the situation changed in the late 70's when basic rural health program received a greater focus and was substantially expanded after the famous

Alma-Ata Declaration in 1978. However awareness to the nation's priority areas i.e. communicable diseases control, combat malnutrition, and address the needs of specific groups, such as high infant mortality and maternal mortality (Table 3,13,14 & Figure 19) were not given its due attention. Since 1991 the constitution of Pakistan considered health as the responsibility of provincial governments, except in the federally administered territories. The federal government (MOH) is however responsible for planning and formulating national health policies, although the responsibility for implementation rests largely upon the provincial governments. MOH is responsible for the implementation of some vertical program on AIDS, TB and malaria and extended program of immunization. All these programs are centrally controlled and monitored. Health care provision in Pakistan comprises of private and public services where private sector serves nearly 70% of the population.

Formal health planning in Pakistan has a longer history (Khattak, 1996) than most other countries. Its origins lie in the Bhore Committee set up in 1943 to develop strategies for the health sector and which set out a number of key principles including emphasis on equity, preventive health care and community participation (well in advance of the Alma Ata Declaration). Following the independence, the health planning process was formally constituted as part of the overall Planning Commission's planning system. Planning has revolved around the production of longer-term 5 and 15 year perspective plans (see table 12 in chapter 3 **)**, and the short-term annual development plan (ADP) and annual recurrent budget (Khattak,1996). In Pakistan the term development (budget) is used widely for what is known elsewhere as capital. Similarly the term revenue or non-development refers to what is termed commonly recurrent (Green A, 1997). Various organizational levels of the public sector are involved in the planning process, including:

- *Federal level Planning Commission, which includes a health section, with responsibility, inter alia, for overall economic and development policy and for the production of 5-year plans;*
- *Federal level Ministry of Health with national responsibility for health policy;*
- *Provincial level Department of Finance with overall responsibility for budgets and particular responsibility for recurrent budgets;*
- *Provincial level Department of Planning and Development with prime responsibility for the production of the ADP which focuses on the capital (development) budget;*
- *Provincial level Department of Health with technical responsibility for health matters.*

There are various levels within the department including the secretariat (policy level), the directorate (technical responsibility for services), divisional and district levels (limited operational management). The planning process is very structured and formalized. The most well known is the PC-1 form which functions as a project document. Attaining sustainable improvement in health has proved a difficult goal to achieve. The basic health statistics and associated measures of social development for the country are disappointing in comparison to other South Asian countries (Netto,1999;WHO,2002). This can be seen, as a comment on the failure of the health planning system to respond adequately to the health needs of the population. The health planning system has various strengths on which future developments can be based. Foremost amongst these is the clear administrative procedures in place, particularly those concerned with project planning. Pakistan also possesses mechanisms for establishing a long-term vision for the future. Linked to each 5-year plan is a 15-year perspective plan. These tend to be rather cursory statements, and for sustainable improvements in health they must take greater prominence and be accorded greater importance. However, a framework does exist. These strengths, however, are outweighed by critical weaknesses in this system. In Pakistan it has not been only the

inability to form longer plans for the future that has bedevilled health planning but rather, it has been the inability to translate these plans into shorter-term actions. Longer-term plans have often laid down clear and valid health objectives, but these have not been linked to the shorter-term plans. Short-term plans usually respond to the immediate perceived needs and are often subject to political pressures and shifts in the governments. Inadequate attention has been given to the more deeply infiltrated and multi-sectoral nature of many health sector problems. Some key points that show weaknesses in the health system planning will be discussed here. The centralized nature of the planning system has got a very limited appreciation of health problems and objectives. As a result, planning has failed to build upon the knowledge, experiences and perceptions of both health service providers and communities.

The lack of cohesive strategy is also the output of uncertainty over relative functions and roles. The precise relationship between organizational levels is unclear, leading to ambiguity over policy and management roles. Constitutionally health has been a provincial matter. However, the implications of this for the functions of the national and provincial levels have yet to be finalized. For example, the Federal level MOH still manages a number of national vertical program including that of TB control and has taken the lead in initiating health reform policies. At the Provincial level (which intend to take the lead on setting policy and strategic plans), the central management tier (responsible for the overall operational management of health services) is sub-divided into a secretariat and a directorate. However, lack of shared understanding between strategic and operational planning often leads to controversies among the various cadre (Green A, 1997; Daniels N, 2000).

Similar ambiguity permeates the relative roles of politicians and civil servants. Both consider that their decision-making territory is regularly invaded by the other group. Politicians consider themselves as essential component of every institution and consider it legitimate right to setting policy and allocating resources to issue about which they have very limited knowledge or skills. This trend subject usually decisions in the health system to profound bias and lead often to unnecessary interruptions. Observations based on previous experiences showed that health sector planning in Pakistan is competent at planning but not at implementation and a mistaken assumption prevails widely that the two processes are separable. Some sophisticated plans have been produced, but unfortunately have not read or not understood, and rarely implemented (Daniels N, 2000;Green A, 2000;Varghese J,2001; Green A, 2001; Akhter MN,2001). Total resource levels' entering the sector is low in comparison to other regional countries (see Table 11, chap.3). At the broadest level, the efficiency of the health sector can be considered in terms of provision of resources and services to meet health needs. The absence of cohesive strategy towards the health sector, the centralized decision-making, and the resultant fragmentation of decision processes have led to inequity and inefficiency in the allocation of resources. Imbalances occur at a number of levels between different districts, levels of services, expenditure on different budget line items such as staff and drugs and between various health problems (see table 12, chap.3).

For instance in Balochistan salary costs amount to between 70 and 80 per cent of total costs in primary and secondary facilities, but are only 48 per cent of costs in tertiary facilities. Allocations to hospitals with similar apparent needs, based on the number of beds and utilization. In Sindh, 45 per cent of the total medical staff is located in the main city of Karachi, which has around 25 per cent of the provincial population (Government of Sindh, 1994). These and other resource imbalances lead to poor quality and inefficient services

which, in turn, can be held responsible for the very low rates of service utilization seen in Pakistan. In Balochistan an average of 0.7 visits per person per year is made to government health facilities. Even in the State of Azad Jammu and Kashmir, where the utilization of public services is the highest in Pakistan, district utilization rates do not exceed 1.5 visits per person per year (Karim MS, 1993; Suleman M, 1996; Khattak, 1996; Green A, 1997; MOH, 1999; Hasan IJ,2000)

PERCEPTIONS AND PRACTICE OF REFORMS IN PAKISTAN

The term "decentralization" embraces a variety of concepts which need to be carefully examined in any particular country before determining if projects or programs should support reorganization of financial, administrative, or service delivery systems. Decentralization is a complex multifaceted concept. Used primarily with reforms and means the transfer of authority and responsibility for public functions from the central government to intermediate and local governments or quasi-independent government organizations and/or the private sector (WHO,2000). Different types of decentralization should be distinguished because they have different characteristics, policy implications, and conditions for success. Types of decentralization mainly include political, administrative, fiscal, and market decentralization (UNDP,2000). In the contemporary world, decentralization is acquiring a pivotal position in the structure of governance. According to one recent study (Willinger, 1994) more than sixty developing and transitional countries claim to have embarked on a program of transfer of power to the local units of government (Qureishi S, 1999). Historical movements towards democracy made it realized that democracy is more than mechanics of holding periodic elections. In the words of Human Development Report 1993 (pages 3, 23)

"Just as economic growth means little unless it is translated into improvements in human living, so democracy can be merely an empty ritual of periodic elections unless people participate, aware and empowered, in all institutions of civil society. On the economic plane, "the purpose of development is to widen the range of people's choices. Income is one of those choices, but not the sum-total of human life. Human development is development of the people, for the people, by the people. Development of the people means investing in education, and training, developments for the people, means fair distribution of the benefits of growth, and development by the people means giving everyone a chance to participate".

There are sound and compelling reasons for the health systems to be more inclusive and participative especially in infectious disease control. In the era of globalization, the capacity of a centralized system to withstand the shocks from other markets, which are now more powerful than the national governments, decentralization has become more crucial. Only a diffused system with a diversified base can compete with such outbreaks and absorb financial blows in order to provide options for viable alternatives. Decentralized structures can offer the diversity needed for flexibility of response in a complex situation. Another most significant reasons for decentralization of health care in Pakistan is inequity in the health care interventions, implementation and developmental processes. Today, about 70% of population lives in the rural areas of Pakistan, but they have been disenfranchised in the decision making processes that affect their daily life. Their representatives who do not share their deprivations and local needs are simply ignorant to their priorities. It is not merely the flow to the government that matters. The reverse flow enhances the understanding of government policies and programs because the local representatives act as a conduit for such information. It also helps to provide early warning for epidemics and disasters. Experience indicates no significant gains in fighting diseases like TB particularly in remote areas where the usual public system warning system fails to respond. Another

gain of decentralized system is that it brings improvement in transparency and accountability and enhance compliance health care services.

The case of Tamil Nadu in India where local community health workers proved more useful than junior doctors and cost up to 75% less. Service delivery, and natural resource management, has generally been improved by sustained participation of the local communities. Where use of local resources is involved, there is generally an emphasis on cost recovery. This means that local involvement also broadens the financing base, because it provides an opportunity for voluntary contributions. In the Punjab Province of Pakistan, a matching grants program was introduced in 1979, and became immensely popular (HDR, 1993). Decentralization is also conducive to sustainability. When the people are involved in the decision-making processes from concept to action, the level of commitment get strengthened. Deeper concerns are about the erosion in the roots of democratic governance in Pakistan. There is still an increasing disillusion with the political leadership that does not live up to its promise, and is found thoroughly incapable of measuring up to the expectations of people in Pakistan, particularly where the capture of resources by the elite becomes a significant feature. Frustration and resentment that the processes generate is an ingredient of revolutions, and fundamentalist. In country like Pakistan where governance is weak, the survival of the system can only be ensured by decentralization, by dispersal of power, by devolution of functions. The argument holds water when it is applied particularly to the TB control. It is this type of sustainability that provides a deeper justification for decentralization by punctuating failure with success stories in TB control like the examples of Morocco in TB control. In Pakistan, there was a political bipartisan consensus on the need for decentralization, as reflected in the manifestos of the two major political parties. Muslim League Manifesto (1997) in the section on Good Governance, undertakes that

> *"In order to reduce red tape and make government more responsive to the needs of the people, decisive steps will be taken for devolution of authority at the federal and provincial levels and ensuring an effective role for local bodies. In the first phase, health, primary education, secondary education and police etc. would be decentralized. These services would be managed at the district or regional level with provincial or central government exercising supervisory role".*

On the other side the Manifestos of the Peoples Party 1997 in the section on Completing the Agenda emphasizes that:

> *"The State has to provide a policy framework, as well as resources, through a grand coalition of the non-governmental organization (specially those belonging to the deprived section of the society) financial institutions, cooperatives and decentralized government agencies, working under new norms, so that the weaker strata of the society are meaningfully empowered. It is only through massive involvement of the people, that the damaging side effects of open-economy industrialization can be controlled".*

Till now TB has been considered an unimportant, petty and peripheral issue and therefore has received ad hoc attention. Concentration of the health system has always been more on the symptoms rather than cure. The result has been amply demonstrated as most horrendous reversal of infectious diseases across the country. The functions of public policy have degenerated into egoism and sychophanty. Faulty diagnosis of the health problems and fragmentation in approach has invariably lead to incorrect prognoses and wrong remedies. Deeply infiltrated socio-economic inequities and political status quo strongly resists nation development. Unless, the people, as a matter of their basic

fundamentalist right, policy and law are allowed to manage their own cultural, economic, political, civic and day-to-day affairs, the country will continue to face gruesome threats to its ideological, cultural, social political, constitutional and even geographical barriers. Besides an integral for the successful TB control decentralisation and devolution of power is now universally considered as the key reforms in the health system. Greater empowerment of local governments is emerging as the main pillars of the decentralisation and devolution proceeds. Unfortunately none of the Governments in the past have put enough move from promise to performance, from consensus to implementation so that people begin to participate meaningfully in the shaping of their destiny (Qureishi S, 1999). Under appropriate conditions, all forms of decentralization can play important roles in broadening participation in political, economic and developmental activities. Where it works effectively, decentralization helps alleviate the bottlenecks in decision making that are often caused by central government planning and control of important economic and social activities. Decentralization help cut complex bureaucratic procedures and it can increase government officials' sensitivity to local conditions and needs.

Among the many positive aspects of decentralization it is considered to add to the efforts of MOH to reach larger numbers of local areas with services; allow greater political representation for diverse political, ethnic, religious, and cultural groups in decision-making; and relieve top managers in central ministries of "routine" tasks to concentrate on policy. It may also create a geographical focus at the local level for coordinating national, state, provincial, district, and local programs more effectively and can provide better opportunities for participation by local residents in decision making (Qureishi S, 1999;Brown B,2000). Some aspects should be carefully taken into account as decentralization is not a nostrum, and it does have potential disadvantages. Decentralization may not always be efficient, especially for standardized, routine, network-based services. It can cause loss of control over scarce financial resources by the central government. Weak administration or technical insufficiency at local levels can influence delivery of services. Transfer of administrative responsibilities without adequate financial resources can make equitable distribution or provision of services more difficult.

"Decentralization can sometimes make coordination of national policies more complex and may allow functions to be captured by local elites. Also, distrust between public and private sectors may undermine cooperation at the local level. Central ministries often have crucial roles in promoting and sustaining decentralization by developing appropriate and effective national policies and regulations for decentralization and strengthening local institutional capacity to assume responsibility for new functions. The success of decentralization frequently depends heavily on training for both national and local officials in decentralized administration. Technical assistance is often required for local governments, private enterprises and local non-governmental groups in the planning, financing, and management of decentralized functions"
(Walter K,2001).

The Government has begun a major initiative to devolve power and responsibilities, including those related to social services, from the federal and provincial governments to elected district level authorities and local councils. Elected Nazims (heads) and other local government officials assumed authority for local government in August 2001. Full administrative and inter-governmental fiscal arrangements are still under review and will be implemented over the next 1-2 years. Under the new district based system the Government expects that public sector effectiveness and efficiency will be enhanced by bringing those responsible for delivering services closer to their clients, with district governments accountable to their constituent populations. However challenges lying ahead are enormous. Such intentions demand a great deal of commitment and revolutionizing steps

in country's social and political set up. Repeated political turmoil and Governance crisis in Pakistan have already made it abundantly clear that decentralization should be kept on the future development agenda of the nation. Unfortunately Pakistan is often described as living a 'crisis in governance' due to low levels of inclusion, participation, transparency, accountability, and responsiveness. These factors limit economic potential and negatively condition sustainable human development and especially poverty in Pakistan.

Along with the recent revival of the economy, limited devolution and decentralization of power from the centre to the provinces and from there to the local bodies is still the most challenging task and prospects are low for any rapid transition in the country's health system. Current emphatic pronouncements of the military regimen to introduce devolution of power to the district level have however assumed a tinge of controversy. Knowing the current facts the agenda of present military regimen are inter-linked to the introduction of grass-roots democracy, future development and provision of better social and civic services emerging from a more active and beneficial interaction of the masses in governance. A healthy debate however has been generated focusing on this important subject. It has been already denoted that health democratisation will promote healthy development, which will eventually be reflected in the major priority health issues like TB control.

While reforms are required in a wide range of areas over-centralisation of the state in all spheres of national life constitutes the crux of the problem. The answer lies in granting of more provincial autonomy, which will lead to local autonomy. Provincial autonomy is the vital echelon and the crucial condition. Local autonomy (district and below) cannot be introduced without first introducing, ensuring and safeguarding provincial autonomy. Devolution as a political concept implies that there is no "centre of power" and the local governments have the discretion to form their own policies. The devolution in Pakistan perforce as per requirement of national unity and greater integration has to be done within the decentralization system in which the provinces, districts and all local bodies have to follow national policies and must function subjected to certain checks as initiation.

Decentralization in its pristine form entails real transfer of political, fiscal and administrative power to sub-national units of government such as provincial, district or even lower levels down to the village. Decentralisation concedes that there is the central authority. It is an administrative concept whereby the central authority delegates authority for flexible administration. It increases the efficiency and responsiveness of government, improves the efficiency and responsiveness of the public sector and accommodates potentially explosive and diverse political forces. One of the main objectives of decentralization and devolution is to maintain political stability in the face of pressures for localization (Qureishi S, 1999). Decentralization with caution therefore, is a crying need as it will provide an institutional mechanism for bringing all opposing and diverse groups into a formal, rule-bound bargaining process and thus restore, develop and encourage national cohesion and provincial harmony. Devolution of powers to lower levels is essential to a true and successful democracy as oxygen is for life. Decentralized TB control is more responsive to patients' needs, easily mobilizes resources, is more effective in achieving its objectives, reduces costs and government expenditures provide quicker and easily accessible redress, relief and justice. It increases manifold the masses public participation in national and civic affairs, there-by greatly enhancing national unity.

THE IMPACT OF REFORMS (DECENTRALIZATION)
When democracy was restored in November 1988, Pakistan faced major issues. It needed to take drastic measures immediately in order to reduce the high fiscal deficits that led to

massive growth in debt-result of the expansionary policies of the 1970s and 1980s; improve the quality and access to social services and address issues of gender imbalance to accelerate the impact of growth on poverty reduction; rebuild democratic institutions repressed through decades of military governments. There was a common understanding that to cope with these issues Pakistan had to raise more taxes to reduce the fiscal deficit and generate resources for priority development spending; liberalize and privatize, and more strongly integrate its economy with the rest of the world; and protect expenditures for human development during adjustment and establish mechanisms to improve service delivery. For more than ten years, all governments vowed to implement the agenda of reforms. Throughout the period of 1988 and 1999, many reforms were initiated. To protect social sector expenditures and improve their delivery a nation-wide Social Action Program (SAP) was launched with strong support from the donor community.

This SAP relieved long lasting financial crisis in the health sector and allocated considerable resources to the TB control program. In the area of economic reforms, initial progress was achieved in privatization, banking sector reform, trade liberalization, and the deregulation of the investment regime. Overwhelmed by governance problems, however, both the scope and impact of the reforms fell well short of expectations. When the military took power through a bloodless coup in October 1999, they put governance improvement at the heart of their reform agenda. Although the coup was very popular, the military were anxious to portray themselves as savior of the nation and pushed through a program of reforms, which would resonate well with Pakistan's poor and under-privileged. They started their drive to improve governance. Reform moved quickly with the devolution plan which they saw as a crucial and lasting mechanism to make a real and possibly irreversible difference to the lives of Pakistan's poor who depend on the district administration for access to crucial services (e.g. education, health, security, justice, and important infrastructure including irrigation).

Understanding the complexity of the TB control in the present political and health system reforms are under way to decentralize tuberculosis treatment to health centre level in the next five-year plan (2000-2005). With this consideration that decentralization will improve access and equity in TB care, its use in TB control will make health services efficient in satisfying local needs and reducing the amount of time it takes for smear-positive patients to contact health services for treatment. The anti-tuberculosis drug supply is not yet assured. There is a strong need of a nationwide logistical system for anti-tuberculosis drug distribution. But a major constraint is that the tuberculosis budget has not been guaranteed for the future. With the expansion of the health services, and the increased sophistication of the services provided, planning, management and evaluation have taken on greater priority. The Ministry has already strengthened its position by taking some decisive steps, and is now looking to developing further and integrating the other management information sectors of finance and personnel.

Some apprehensions have been quoted to provide an account of decentralization in the country. Many of these are the problems of transition; others reflect the risks inherent in the over-optimism inspired by decentralization as a creed. The fact remains that many barriers are offered by the country's health system and political infrastructure. The success stories quoted above apparently indicate that all the potential barricades can be successfully overcome if enough efforts are engaged. Yet it is important to realize that there is no sure prescription for an instant entry to utopia in TB control. Being aware of the fact that decentralization is a tenacious and risky exercise for the TB control in Pakistan however lessons are there for guidance to deal with nation's health priorities. In the urge of

decentralizing the system various obstacles were identified by different sources aiming at the issues other than TB control, for instance, health development, poverty reduction and rural development etc. The outcome and experiences gained through such attempts varied markedly however the conclusions notified that decentralization in the health system and particularly in the TB control presently is in its infancy. In the fragmented history of decentralization in development management, the largest experiment in Pakistan was related to Integrated Rural Development Program. This was a donor-driven program initiated by the World Bank on the basis of a policy paper prepared in 1974, to launch an integrated worldwide attack on rural poverty. The program was implemented through area development projects, covering agriculture, social services, training, rural infrastructure.

The major projects were Shadab in the Punjab, and Dawoodzai in NWFP - the latter considered more successful. The new administrative units (called markaz) which were congruous with thana (police circle) boundaries functioned only as long as aid was available. The complexities of multi-agency, multi-projects coordination were beyond the capabilities of markaz administration. A World Bank Report in 1987, identified the following causes for failure; lack of government commitment reflected in poor funding. Despite assurances given to the donors; neglect of institutional development project coordination units were staffed by expatriate or regional heads of line agencies. Local capacity was not built up; Lack of beneficiary participation. The programs were designed in a top-down approach; aggravated by the complexity of coordination work. In addition, there were difficulties in scaling up from pilot-project to regional or national level, because the intensity of human resources could not be replicated *(Ruttan-Integrated Rural Development Program-A Historical Perspective International Development Review 1975).*

In another study carried out for GTZ (German Government) in 1993, on an international level, while confirming the findings of the World Bank, concluded that the majority of the poor people were not reached, project impact was low, and the sustainability of project benefits was not ensured. An earlier experiment - the Village Aid Program initiated in 1960's with the support of U.S. AID, withered out, after the donor support was withdrawn. Drawing back on the experience of work conducted under the Balochistan Health Systems Strengthening Component (BHSSC) of the Second Family Health Project (FH2P) in Pakistan identified some key political and technical issues regarding a centralized health system which reviewed the development of an appropriate resource allocation and budgetary system for the public health sector. The resource allocation and budgetary system is a critical, yet often neglected, component of any decentralization policy. Current systems are often based on historical incrementalism that is neither efficient nor equitable. The technical work carried out in Balochistan urged to develop a system of resource allocation and budgeting that is needs-based, in line with policies of decentralization, and implementable within existing technical constraints (Green A, 2000).

It may be worthwhile to remember the instances quoted by researchers, where the initial expectations have not been honoured by history. These include such important issues as intra-regional or local disparities, reduction in government expenditure, large increases in resource mobilization, introduction of planning from below and promotion of community participation. This by no means is the final verdict. But it alerts against any wild generalizations in the TB control. According to many analysts, these experiments represented different modes of rural development, rather than a structuring of the governmental system towards decentralization. More recently, in the context of the Social Action Program, measures are being taken to decentralize decision-making, so as to speed up the implementation of the program. Emphasis is also being laid to enhance beneficiary

participation. It is early to make a judgment on these initiatives. Deconcentration has often taken the form of opening new districts, a critical tier of the provincial administration in Pakistan. (see appendix) It has generally been looked upon as a favourable development (Green A, 1997).

The above examples address the local government at the district level, including the urban set up. This does not imply that the district administration can be ignored. On the contrary, District administration has a far-reaching impact on the TB control. The system should enable it to deliver the services effectively, because on this depends the image of the government. The question is how to mark the dividing line between local government and District administration in the new paradigm. The district health system with comprehensive functions, planning, monitoring, implementation and operation has to be an integrated system comprising all agencies and all echelons of health system. It must have sufficient autonomy to function properly. Can this set up co-exist with the sectors in which the TB control is transferred to private or public units? This certainly needs a large stock of existing institutions which may need expansion, up gradation, qualitative improvement or the basic health units which are starved of technical manpower and TB drugs. Even where the local public or private units handle new programs, the bifurcation can occur at the level of implementation. Planning should be done in coordination with the district system. At any rate this instrumentability has to go through a pilot phase before it is firmed up. In that phase, the mechanisms of coordination between the district administration and local health care units can be refined.

INTERNATIONAL EXPERIENCES IN THE TB CONTROL

Decentralization has become a global and regional phenomenon. Decentralized TB care in various guises have proved an important policy shift in China, Morocco, Tanzania, Indonesia, the Philippines, Peru and Vietnam and have established a lesson for the countries in the region. Analysing international experiences offer a series of success stories on the beneficial impact of decentralization of TB control care, particularly when the empowerment of the people accompanies this effort. In the 6th annual report on global TB control included data for seven consecutive years on case notifications and treatment outcomes from all national control programs that have reported to WHO, together with an analysis of plans, finances, and constraints on DOTS expansion for 22 high-burden countries (HBC). During 2001, a standard form for reporting surveillance data was sent to 210 countries via WHO regional offices. The form requests information about policy and practice in TB control, the number and types of TB cases notified in 2000, and the outcomes of treatment and re-treatment for smear positive cases registered in 1999. NTP managers in the 22 HBC were asked to identify the major constraints to DOTS expansion, and to present 3–5 year plans and budgets to overcome these constraints as they move towards target case detection and cure rates.

The report documented that the number of countries implementing the DOTS strategy increased by 21 during 2000, bringing the total to 148 (out of 210). By the end of the year 2000, over half (55%) of the world's population lived in parts of countries providing DOTS. DOTS program notified almost two million new TB cases, more than one million of which were smear-positive. However, the 1.02 million smear positive cases notified under DOTS represent only one quarter (27%) of the estimated total, and the rate of progress in case finding between 1999 and 2000 was no faster than the average since 1994, a mean annual increment of 133 000 smear positive cases. Globally, DOTS program must recruit an extra 330 000 smear-positive patients each year to reach 70% case detection by 2005. After successful implementation of 100% DOTS Peru is out of the list of HBC, Viet

Nam was the only high-burden country to have reached targets for case detection and cure by the end of year 2000. The constraints on DOTS expansion most commonly identified were: lack of qualified staff and management skills, shortage of laboratory equipment, absence of collaboration between TB and HIV program, an unregulated private sector, and lack of decentralized TB care called DOTS. Other constraints restricted to a subset of HBC include poor access to health services (e.g. Ethiopia, Mozambique), and war (Afghanistan, DR Congo) (WHO, 2002).

Health sector reform, especially the poor progress in the decentralization of TB control activities, was identified as a major constraint in Pakistan, Indonesia and the Philippines because district and provincial governments have been reluctant to participate in, and also fund the TB control activities. By contrast, reform has been seen as an opportunity in Cambodia, Ethiopia, and Kenya, where there is now the potential for better access to DOTS. Other countries did not experience major changes in the organization of their health systems during the period under review, but those with systems that were already decentralized have found it hard to expand DOTS quickly because of the time needed to convince local authorities to participate.

To help alleviate drug shortages and over come other shortcomings in the TB control, the global drug facility supplied three countries (DR Congo, Kenya, Myanmar) in 2001, and placed orders for three additional countries (Pakistan, Uganda, Nigeria) to be delivered in the first quarter of 2002. All HBC have a secure supply of TB drugs for 2002. Except in parts of China, drugs were supplied free of charge to all patients. For each constraint identified, most national TB control program have begun to implement activities to overcome them, generally through training, advocacy, and establishment of a laboratory network. Major steps have been taken by India and China to institutionalise TB control in the government system by obtaining either a government resolution (India), or by having the national plan for TB control endorsed by the government (China) (WHO,2000). Between 1999 and 2000, global TB control continued along the steady but slow path traced since 1994. At this rate of progress, the target of 70% case detection under DOTS will not be reached until 2013. 2001 was a year for the preparation of plans and identification of funding gaps; the emphasis in 2002 will be on implementing these plans for DOTS expansion. Funds permitting, the biggest advances during 2002 are expected in Cambodia, China, India, Myanmar, Pakistan, the Philippines, and Uganda. The challenge will be to show that DOTS expansion in these and other countries can significantly accelerate case finding while high cure rates are maintained.

Iinadvertently, TB control has proved not only the legacy and destiny of developing countries but developed nations have been heavily also threatened due to health system related anomalies. TB control was decentralized in the Northwest Territories (the Northwest Territories and Nunavut) in the mid-1980s in Canada for aboriginal population, when rates of disease had declined significantly (Mark Fitz, 2000; Ottawa, 1999). This decentralization of health care, termed "health transfer," was considered as a major step, but apprehensions rose when there had been a major resurgence of TB in that part of the country. The major obstacle to TB control was the lack of central coordination between the peripheral units. The experiences revealed that TB control in high-prevalence communities brings with it unique challenges, which were further magnified by the movement of people from the reserve to local communities and inner city locations (and vice versa). This mobility of patients has been identified as a major risk factor for defaulting from treatment (relative risk 5.5, 95% confidence interval 4.1 to 7.4) (Blenkush MF, 1996) Similar trend of increasing cases were noticed among the Afghan refugees in

Pakistan (Khan, 2002). TB control in this decentralized environment necessitates education for health care providers such as public health nurses, community health representatives and lay drug dispensers. These people will be required to work within a coordinated program to manage active TB cases, investigate outbreaks and carry out surveillance (Cummings KC, 1998).

THE CASE OF MOROCCO

Morocco has made considerable progress in the TB control due to some key reforms in the health sector. Starting from the decentralization process of health system since 1976, when its more than fifteen thousands communes (1297 rural and 244 urban) were given the main responsibility for local services; water, sanitation, primary education and health centres. Alongside the reform, flow of resources to the local authorities increased from 5% of total public revenues in 1977 to 11% in 1991. The reforms have resulted in a sharper focus on development and effective TB control. Between 1977 and 1987, the proportion of capital expenditure, in the total budget of the communes increased from 26% to 53%. Besides, administrative procedures have improved. It takes considerably less time to obtain a government license or certificate. The people have more opportunities to voice their complaints. The availability of health facilities has increased by a big margin. In 1969-80, 51% households had a facility within one hour reach. In 1990-91 this number increased to 78%.

Listed by WHO Morocco is one of the 48 countries, which is close to achieve, WHO targets in the TB control. DOTS detection and treatment success rates have already exceeded 82% and 86%, respectively. Morocco's success in eliminating TB can be solidified by reviewing the performance from different aspects. Firstly decentralization was initiated by active integration which has played a vital role in expanding TB control program through the public health care clinics. High cure rates have been achieved in part because a more decentralized management approach has devolved responsibility and decision-making to local management, enabling workers to fight TB at the grassroots level. Secondly, integration lead to rapid and effective expansion. Capacity building and advocacy in TB control was given its due attention. General practitioners in these clinics are offered five days of specialized training on how to follow the national TB control guidelines and standardized treatment. Facilities related to the TB control were covered, from ordering drugs and keeping accurate patient records, to the more patient-oriented aspects such as explaining DOTS.

WHO (EMRO) reports on the DOTS success showed that progress has been slow as some people still resist going to the general health clinics for TB diagnosis and treatment. However the numbers show that 25 percent of all smear positive cases are detected and managed by general practitioners in primary health care clinics without any referral to a TB specialist. While remaining 75 percent are handled by chest physicians. Thirdly, the case of Moroccan decentralization showed that integration is cost-effective. A well-integrated TB control program saves money in many ways not only on the part of care provider but also on the care taker (WHO, 1999). Prescribing standardized and supervised home-based treatment avoids unnecessary hospitalisation costs. Hence the number of hospital beds reserved for TB patients has been reduced by half since 1989. Defaulter rates have dropped as patients were provided treatment closer to home. Adopting decentralized management approach in the Moroccan TB control was of profound significance. Rural communities are on the front lines and converging TB control activities into the primary care are therefore very crucial.

Dr. Ottmani who was the manager of National TB control program for (1999) Morocco said,

> *"That only decentralization accomplished this. All Program Managers were trained using national guidelines to ensure that consistent standards are maintained. Dr Najat Ammour, the TB Program Manager for Rabat, confirms that decentralization has helped cut costs, saved time, and cured people. "Recently we realized we needed to open new laboratories to handle more patients in Rabat," she said.*

> *"In the past I would have had to consult with the central office. They would have had to investigate the situation and make a decision. But we already knew, based on the numbers, that we needed more space. So we went ahead and built three new laboratories." It took less time and less money because the decisions could be made at the local level. "You don't waste time with administrative procedures and paperwork and consulting with people who are removed from the everyday reality of TB control. If my nurses or health workers have problems, they don't have to follow a long chain of command. They simply pick up the phone and call me. I know them all by face. We sit down together and figure out a solution," she said.*

> *"I used to feel that I was always on the periphery of TB control," Dr Ammour said. "I didn't know the names of the clinic workers or the patients. I couldn't make any decisions without spending a lot of time consulting with people who were as far removed from the process as me." All that has changed. "Now I feel like I am right in the centre of it." And that, Ammour adds, is right where she wants to be.*

Adapting DOTS to local conditions is an essential measure and it is a basic template that is adapted depending on a range of variables, including the level and distribution of TB, HIV/AIDS, multi-drug resistant disease, health system organization (including the degree of decentralization, nature of financing, administrative capacity at each level, and logistical systems, etc.). Distribution of health infrastructure, and unused capacity, e.g., laboratories, health centers, community health workers, referral services and specialists, NGOs, private providers or other interested parties. How can decentralization in TB care achieve its promised benefits? Assuring a soundly designed decentralization policy framework, and ensuring that local governments have the human and institutional capacity to carry out their new responsibilities in the intergovernmental system are critical steps. The varied degrees and stages of decentralization across East Asia provide rich experience on what works and what does not. Sharing this experience and drawing upon global best practice can enhance the design and implementation of decentralization reforms in Pakistan.

THE INFERENCES OF HEALTH SYSTEMS REFORMS IN ZAMBIA
The example of Zambian health system reforms (HSRs) in TB control provided some valuable experiences about its pros and cons that carry valid lessons for the TB control in Pakistan as well as other high burden countries. With regard to TB control, HSR has created a number of risk factors that need to be addressed to ensure the quality of diagnosis and treatment of TB in the future. The capacity for providing technical assistance for control of diseases of major public health importance was insufficient. The capacity of the NTP central committees for proper management of tuberculosis control was not yet developed in the majority of the districts. Responsibilities for specific interventions were to be well defined. Furthermore, it was not clear who would be held responsible in case of performance. The assumption of the reformers that districts are able to provide good

quality tuberculosis care and control without considerable technical support should be considered premature in the current situation.

Training modules for the polyvalent public health practitioner were still under development in 1997, and existing staff as clinical officers and nurses still needed to be retrained as practitioners. Capacity building at district level was mainly directed at planning and management. The development of technical capacity to provide the minimum package had by the end of 1997 largely still to start. A final risk factor is the newly developed quarterly 'health management and information' form. The only information regarding TB control, which districts are required to report using this form, is the total number of cases of tuberculosis, all forms, registered during a quarter, and the number of patients who default during that quarter. With this limited information it is not possible to assess the quality of diagnosis or to monitor trends of registration rates and outcome of treatment of quarterly cohorts of smear-positive cases. The new form cannot serve as a tool for routine evaluation and surveillance in tuberculosis control, as it lacks information on these three essential indicators. It therefore poses a serious risk for the quality of TB control in the future (Bosman, 2000).

As the relative share of interventions of the package is unquantified, both in volume and with respect to lower limits or ceilings of budget per intervention, the risk exists that tuberculosis might receive insufficient attention and funding. Even though the current rate of tuberculosis is as high as 400/ 100 000, this number might be perceived by the district or provincial health authorities (DHA) as relatively small in view of the total morbidity and mortality due to all diseases in the district. With regard to planning and budgeting, the 1997 district health plans usually mention tracing of defaulters as the only specific TB control activity. The plans in general lacked a clear tuberculosis control strategy with well-defined case finding and treatment objectives aiming at defaulter prevention by providing quality assured tuberculosis care. As districts are funded from a common budget, the inherent risk exists that in case of budgetary constraints the deficit will affect all components of the package. No special instructions have been formulated to safeguard activities of high public health priority under such circumstances. Finally, cost-sharing policies may have a negative effect on early reporting of suspects and diagnosis of tuberculosis patients as well as on treatment adherence (Bosman, 2000).

The most serious and acute threat of HSR in TB control concerns the provision of anti-tuberculosis drugs. If the responsibility and budget for drug procurement is fully decentralised to the district level, a serious risk exists that repeated shortages of one or more of the drugs used in tuberculosis treatment will occur. One or more of the following factors would contribute to this risk: inadequate planning and budgeting for anti-tuberculosis drugs; low priority given by the DHA to TB control; the comparatively high costs of chemotherapeutic drugs, so that they might, in the view of the DHA, take a disproportionate share of the district drug budget-districts receive insufficient funds from the basket, and cannot purchase all the drugs that are required; finally, at national level financing of anti-tuberculosis drugs and laboratory materials is a heavy burden on the main budget. The recurrent shortages of drugs in 1998 and 1999 can be partly attributed to the tight national budget and partly to the capacity of the Ministry of Health in bidding and procurement procedures. Although these factors are not directly related to HSR as formulated in the National Strategic Health Plan, it is nevertheless questionable whether the decision to finance all activities (including the purchase of anti-tuberculosis drugs) from the common basket has been realistic in view of the means available (Bosman, 2000).

In summary, the HSR concept developed in Zambia offered theoretical opportunities for TB control, although with a number of inherent risks. In December 1997, the Strategic Plan of Quality Assured Tuberculosis Care and Zambian Control for District and Hospital Health Boards for 1998 to 2000, was developed by the NTP as an alternative approach for TB control which could be incorporated in the HSR. The plan offered opportunities for integrated tuberculosis control by introducing a planning and management cycle for tuberculosis control at district level incorporated in the overall District Health Plan, by defining and delegating responsibilities for quality care and control of tuberculosis to one or more members of the boards and committees, while the overall responsibility would remain with these bodies, and by introducing, the concept of integrated communicable disease ",control capacities for malaria, AID /HIV and tuberculosis at national, regional and district level. The plan also included a system for guaranteed supplies of anti-tuberculosis drugs through a combination of central purchase, delegated responsibility for ordering to district level and a central monitoring system to prevent stocks running out at district level. However, no local and/or external resources to finance the plan were mobilised during 1997. In line with the principle of 'basket funding', no special finances were made available for TB activities in 1998, and as a consequence organised TB control ceased to exist, while the country ran out of anti-tuberculosis drugs due to the delays in procurement by the Government (Bosman, 2000) .

The experience in Zambia proves that HSR should be redesigned to include a component for disease control, including TB control, at district, regional and national levels. The main responsibility for the initial collapse of TB control in Zambia lies with the Zambian Ministry of Health. However, the organisations that funded the reforms and the experts who advised the Ministry of Health on HSR are equally or even more responsible for the catastrophe in tuberculosis control that resulted from their participation in the HSR process. All stakeholders in HSR in Zambia were undoubtedly aiming at improving the health situation for the Zambian population. However, in choosing the, paradigm of "radical reforms" they obscured moral obligations obligation to consult with the direct recipients, i.e., the people of Zambia, in this with regard to adequate services for diagnosis and treatment of tuberculosis. As a consequence of this combination of insufficient capacity for tuberculosis control at district level, lack of technical assistance from regional and national level and recurrent partial or total anti-tuberculosis drug shortages, failure and default rates will now inevitably increase. HSR has thus created a situation that is promoting the development and transmission of multi drug-resistant strains of M. tuberculosis. The experience of Zambia demonstrates the urgent need for constructive dialogue between 'health reformers' and 'disease controllers'. The aim of this dialogue should be to develop a model that ensures that tuberculosis patients are properly diagnosed and cured in countries that are embarking on reforming their health services (Bosman, 2000).

PROGRESS IN THE INTERNATIONAL TB CONTROL
Communicable and infectious diseases like TB has remained no more a local threat but TB has extended its borders wide across the continents and has become an international threat. Looking at the TB control in the international perspectives provides broader view how high burden countries are striving to eradicate TB. Their progress achieved so far can be easily gauged by applying the extent of DOTS coverage available to the infected population. Gauging the progress ranges from the DOTS introduction or pilot phase, implementation, universal coverage (case detection and cure rates among the smear positive TB cases), period monitoring to the surveillance of infection. Dr Karel Styblo was the mastermind behind the evolution of DOTS strategy (see appendix). He developed this,

the original concepts was later modified and adopted by the International Union Against Tuberculosis and Lung Diseases (IUATLD) and WHO as a recommended strategy for TB control in the world (Styblo K, 19984;WHO, 1994). The strategy has two primary goals: to cure the patient and to prevent transmission. DOTS has proved to be cost effective in developing countries and has been created from a biomedical perspective and therefore concentrates on treating disease rather than on 'providing the conditions in which people can be healthy' with minimum cost. Both perspectives are important and valid, and can be incorporated into a more ethical approach to TB control. In addition to addressing technical requirements, tuberculosis control strategies for the future will look at community health needs and as to how and where TB fits into local health priorities. If also involved in the creation of 'healthy communities', TB control programs will increasingly encompass issues, which are wider than the biomedical perspective and will include interdisciplinary involvement in decision making as well as inter-sectoral collaboration.

WHO surveillance on the Global TB control revealed that the progress in TB control and especially in DOTS implementation has remained steady, but slow in all high burden countries (HBC). Despite large numbers of patients recruited during 1999, DOTS implementation overall was no faster than in previous years. Following the impact of short-course chemotherapy in Peru (reduced incidence) and China (reduced prevalence), the need of detailed epidemiological analyses increased to find out whether other control program with high rates of case detection and cure have also succeeded in reducing TB burden. The targets for global TB control ratified by the World Health Assembly are: (1) to treat successfully 85% of detected smear-positive TB cases, and (2) to detect 70% of all such cases. Since these targets were not reached by the end of year 2000 as originally planned, the target year has been re-set to 2005. Monitoring and evaluation carried out through WHO's Global TB Monitoring and Surveillance Project, established in 1995 reported that 45% of all estimated tuberculosis cases, and 40% of smear-positive cases, were notified to WHO for 1998. By the end of 1998, 119 countries had adopted, and reported on, the WHO DOTS strategy for TB control; they included all high-burden countries (numbering 22 last year). 43% of the global population had access to DOTS. 22% of estimated smear-positive cases were reported under DOTS in 1998.

Figur 9 Progress in DOTS Implementation in high burden countries, 1995-1999 (WHO,2001)
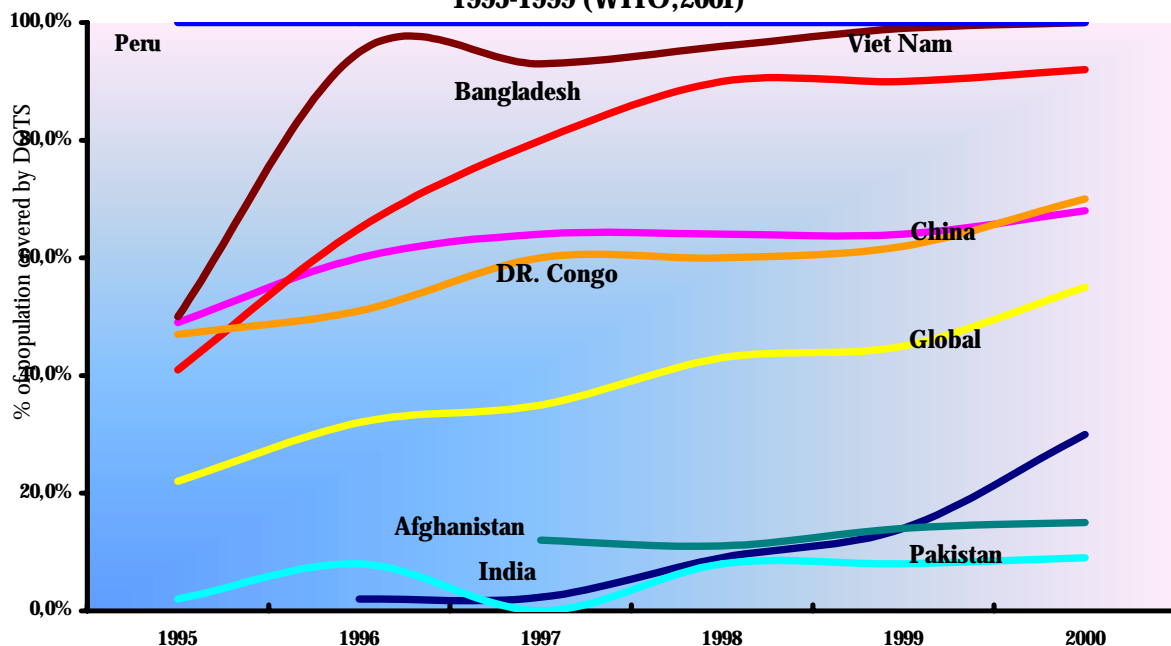
Compared to 1997, an additional 220,000 smear-positive cases were reported by DOTS program in 1998. Case detection in China, South Africa, India, Bangladesh and Philippines made significant progress. Countries failing to make significant improvements included Indonesia, Pakistan, Uganda and Afghanistan. Peru and Viet Nam were the only two high-burden countries to have met the WHO targets for case detection and cure so far. Main findings proved that the progress in global tuberculosis control accelerated slightly between 1997 and 1998; DOTS program recruited more cases than in any previous year, whilst maintaining high treatment success rates. However, progress was slow with respect to global targets: the data suggested that DOTS program would have to enrol an additional 250 000 patients each year in order to meet targets by 2005.

World's 82% population living in countries, had adopted DOTS by the end of 1999. Table 10 illustrate DOTS coverage for 8 out of 22 high-burden countries, and globally, from 1995 to 1999. Seventeen countries implemented DOTS for the first time in 1999. Peru, Viet Nam, Bangladesh and China achieved moderate to high coverage (60–100%). No definite conclusions could be made as sixteen countries that implemented DOTS by 1998 failed to provide comprehensive data to WHO for 1999, including Afghanistan and to some extent Pakistan. Table 10 contains the estimated numbers of new cases (all forms and smear-positive) in 1999, globally and for the highest-burden countries including that of Pakistan. Twenty-three countries accounted for 80% of all new cases, henceforth referred to as TB80 (The league of high-burden countries accounting for 80% of all new cases each year). Afghanistan, Pakistan, Bangladesh, India and DR Congo are now ranked higher in occupying position in the high burden countries than in 1997. In Afghanistan specially TB control have been seriously impeded by the post-Taliban regimen and breakdown of the government's administrative, technical and financial capacity, and by the security risk (WHO,2001;Khan,2002).

Table 10. Case notifications in high-burden countries, 1999 (WHO, 2001)

Countries Ranked by burden of TB	Number notified			
	All cases		Smear Positive	
	DOTS	Non-DOTS	DOTS	Non-DOTS
India	120 279	1 102 848	53 034	296 736
China	346 200	113 969	188 525	23 901
Bangladesh	71 343	7 996	34 047	3 774
Pakistan	4 671	16 265	2 269	3 979
DR Congo	59 531	-	34 923	-
Viet Nam	88 426	453	53 561	244
Afghanistan	3 314	1 669	-	-
Peru	40 345		24 511	.
Total HBCs	1 292 534	1 599 230	683 355	464 993
Total Global	**1 679 086**	**2 010 736**	**868 374**	**617 409**

* Expected percentage of new pulmonary cases which is smear positive is 55–70%

The DOTS strategy was adopted in 1997 as national TB control policy in Afghanistan and, according to local sources, 30% of the population had access to DOTS services in 1999. (See Figure 10 and 11)

Figure 10 Summary of Notified & Registered Smear positive
cases under DOTS Strategy in all High burden Countries Vs
Globally (1998)
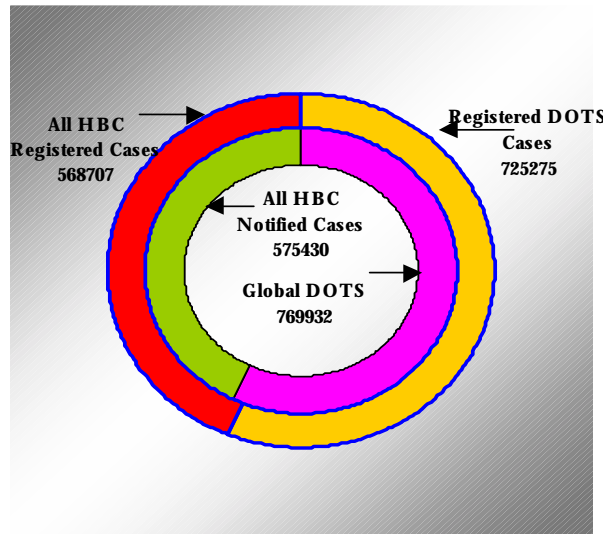
WHO assisted the Ministry of public health in providing DOTS to 14% of the population through 27 facilities in 6 regions before the war on terrorism started in Afghanistan. With the help of NGOs, the National TB Institute provided services to some population in Kabul only. In the absence of a coherent national TB program, WHO supports the country by providing anti-TB drugs, training and guidelines, and assists with surveillance. During 1999, 5% of estimated smear-positive cases were reported to WHO-supported DOTS areas. The treatment success rate was only 33%, because 57% of registered cases were not evaluated. No mechanism or forum for coordinating program activities, or for planning at the national level is currently available (WHO, 2000)

Figure 11 Summary of Notified & Registered Smear Positive cases
under Non-DOTS in (1998) all HBC Vs Global (WHO, 2001)
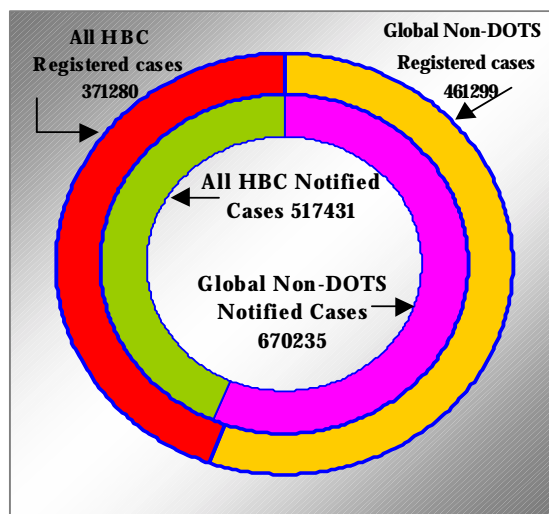
Pakistan, India and Afghanistan have joined the league of high-burden countries in the last few five years due to the poor TB control measures taken for implementing DOTS. The incidence of TB cases appeared to have risen dramatically in countries where DOTS was

not implemented or implementation delayed. On the other side countries where DOTS was implemented shown to have vigorously increased their detection and cure rates in the last few years. On the contrary non-DOTS NTP in high burden countries have provided an abundant evidence of stagnant case detection and failure, defaulted and resistance cases. An alarming increase in the treatment outcome analysis for Pakistan for the cohort of 1998 (WHO, 2001).

Peru has dropped to 23rd and final place in 1999, and was relegated from TB 80 *(countries contributing 80% to the burden of TB)* during 2000. The total numbers of cases are predicted to increase in all regions up to 2005, except in the established market economies. If present trends continue, it is expected that 10.2 million new cases in 2005, and more cases in the South East Asia (3.2 million) (WHO,2001). A total of 3689822 tuberculosis cases (all forms) were notified in 1999 represent; 44% of the 8.42 million estimated cases; the total of 1485783 new smear-positives is 40% of 3.72 million estimated cases (Tables 10). Twenty percent of all estimated cases, and 23% of estimated smear-positive cases, were detected under DOTS. The detection rate of smear-positive cases within DOTS program has been rising faster than the overall smear-positive detection rate (Figure 10&11). Case detection rates in 1999 were lowest in the Eastern Mediterranean Region (WHO,2001).

According to the WHO's 1999 reports the discrepancy was mostly due to the inconsistencies in reports from Pakistan, Uganda and Afghanistan (registered many fewer than notified). Of the registered cases, 95% were evaluated for treatment outcome. Seventy-three percent of the registered cases were cured and a further 8% completed treatment (no laboratory confirmation of cure) giving, for the first time, an overall treatment success rate over 80% in DOTS areas. Eighty-five percent of evaluated cases, and 16% of all estimated smear-positive cases, were treated successfully under DOTS. Treatment interruption (default) was most frequent in the Eastern Mediterranean Regions (10%) after the African (11%). As in the case of Pakistan, the discrepancy between cases notified and registered is bigger in non-DOTS areas. This poor performance is explained primarily by the low evaluation rate and secondarily by treatment interruption. According to 2002 data, Pakistan had only 15% DOTS coverage with apparently negligible expansion in the previous year. Case reports have fluctuated over the past three years, and so consequently has the case detection rate. Of the cases notified in 1998, only half were registered for treatment. Treatment success among cases registered has been more stable, and the 66% reported for the 1998 cohort is consistent with earlier years. The main reasons for this poor and erratic performance up to 1999 were weak leadership of the NTP, and a budget that was far less than the estimated. The figure 12 shows the share in the total cost estimation allocated to TB control in the high burden countries (Smith,1999).

Fig 12 Estimated Cost Vs Governmental Contribution to the TB Control
(based on WHO, 1998 Case detection rate)
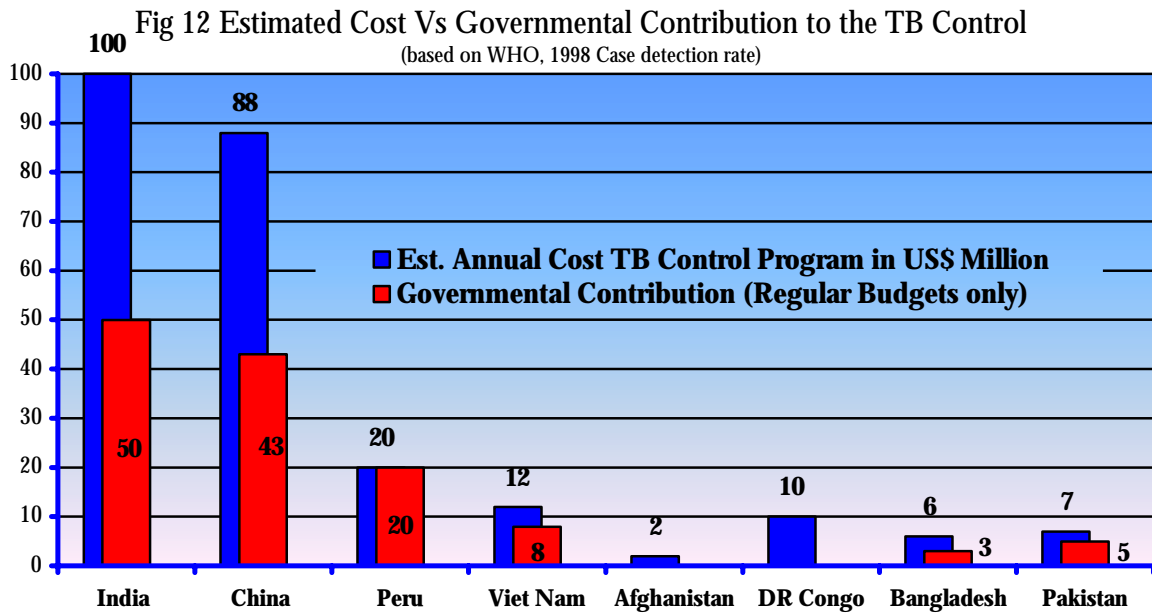
Figure 13 The Burden of Debt and GNP per
Capita in high burden Countries (WHO,1999)
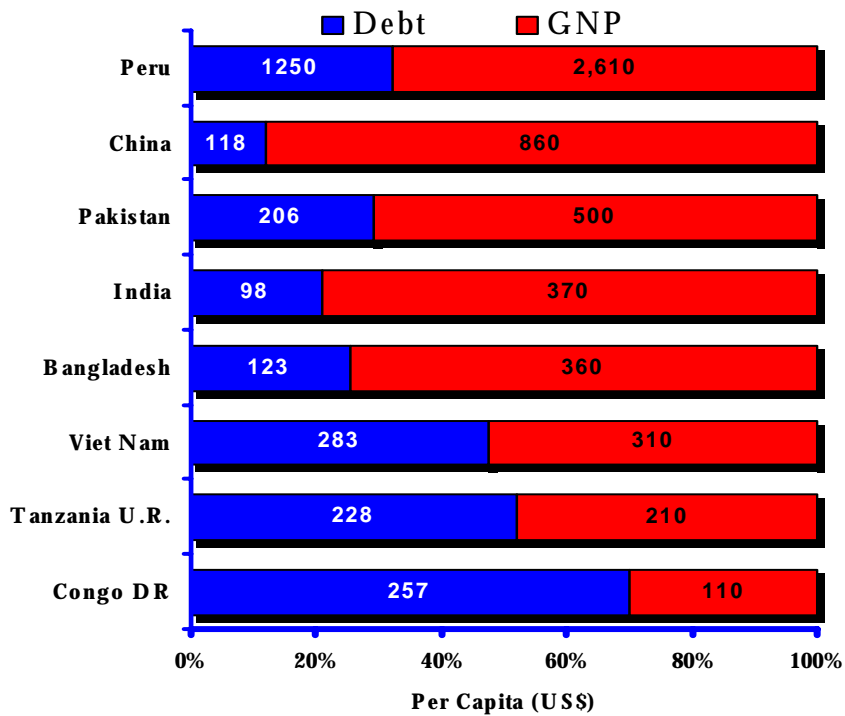
An interesting and important finding has been discovered that an overwhelming amount of debt has triggered reduction in the financial assets allocated to TB control in all high burden countries. Countries are left with no other choice rather than cutting their budgets on the health development and disease prevention (Visschedijk, 1997; Bosman, 2000; WHO, 1997) (see figure 13). Countries apparently are unable to fund and launch competent TB control efforts. External debt, in most of highly TB endemic poor countries exceeds their gross national product. Similarly performance in TB control is worsened as the level of debts increased in the past (Smith I, 1999). Not only in these countries a negligible proportion of the financial resources is allocated but also TB control has suffered due to lack of motivation and poor political impetus. National health development in high burden countries has attained little attention due to such fiscal inequalities.

DISCUSSION

The dialogical analysis provided ample evidence about the core issues confronted to TB control at the national and international level. Barriers related to the health system infrastructure, TB control policies and financial and technical insufficiencies were meticulously figured out. country based facts have made it abundantly clear that in spite of improved willingness among the key echelons of health system, NTP could not respond robustly to the major public health i.e., of TB control so far. Though the current level of NTP's responsiveness did bring significant improvement in the case detection and managing the increasing TB caseload but hopes for attaining the proposed targets in cure, and decreasing defaulters, relapse cases are still far beyond the expectations. In other words case registration (passive case detection) in the past five years has been linearly increased which indicate that NTP succeeded to attract fairly large number of patients but on the contrary, it could not effectively achieve the desired level of treatment outcomes i.e., cure or treatment completion. The intended NTP review called for a significant overhaul of the TB control interventions and fine tuning of the system to the adoption of a new approach of DOTS to TB control as advocated by WHO.

The appraisal in the review study identified some fatal shortcomings at various nodes of NTP, which contribute to the weak performance. Needless to mention here are the internal factors like (a) torpid functioning and organizing of the central TB control unit at the ministerial level; (b) centralized mechanism of decision making, funds releasing and service delivery to the periphery; (c) no research based efforts to adopt new and more rigorous methods for diagnosis, treatment and supervising patients and that emphasizes on treatment completion yet; (d) less orientation towards training and advocacy building and strengthening research capacity; (e) inability to provide DOTS to all smear-positive cases in the country. Among the external factors low resource allocations with respect to the intended plans and poor political back up; (g) failure to realize the intended reforms in the health system and introduce a vigilant system of surveillance, record keeping and monitoring mechanism.

This study confirms the notion that DOTS cannot fully work without effective integration, adequate reforms and achieving progress in others areas of strengthening the district health system. Instead, it requires real political, economic, legal and administrative changes within and outside the health system. However, these changes vary from one country to the other according to the political system, the economic performance, the socio-cultural background and the organization of the health system. Therefore, no single receipt can be recommended for all countries. Directions for solution in two crucial areas are discussed below. Firstly, countries have to move towards reorganizing their health system around the district health system to better infuse DOTS to their all-primary health care cadre. The reorganization has to provide the district health systems with legal and organizational frames that enable them from carrying out district specific actions and programs. This direction entails more authority for districts and less dependency on the central levels. Secondly, a progress should be made in the area of financing of district health system. lf districts do not have the economic resources required to carry out their planned activities, very little can be expected. Making economic resources available encompasses reconsidering the financial systems between the district and the central level, searching for alternative financing approaches and enhancing the efficiency of the district health system.

NODES OF CONCERNS IN THE TB CONTROL

GOVERNMENTAL COMMITMENT
Chronology of NTP and current TB control parameters have made it fairly evident that TB control interventions greatly suffered due to poor political back up both in terms of spending and prioritizing TB as major public health problem in Pakistan. Indeed this has been the fate of NTP where health system has to compete with higher priority vertical programs. Programs receiving full government support and sanction have met with impressive successes and promising outcomes. Yet the fact remains that tuberculosis is one of the biggest contributor to ill health in Pakistan. The national figures are daunting, and thousands of people become the victim each year, it is strongly believed that before TB can be tackled there needs to be a stronger commitment to health itself both within national governments and international donors. Although there has been increasing attention to the links between poverty and health, and despite information on health inequalities worldwide, preservation of health is slipping down the priority lists of government expenditure. As TB is poverty induced disease and prevails mainly among poor many of facets demand a strong determination and motivation from the local, national and international health authorities. Considering effective TB control a new public health imperatives of 'the production of health' and the 'creation of healthy communities' governmental commitment to the NTP (thus being independent from the consequently under-resourced health service), effective leadership and partnership that can make some in-roads in tackling the prevalence of tuberculosis, are lacking.

The resource gaps and financial shortages of the NTP and especially for future DOTS expansion has become one of the main areas of concern in the last few years. The financial support from the international donors to TB control like ICD and others has already ended up in 2000. Other donor agencies are being approached for bilateral assistance, but it is not yet clear how the NTP will be financed in future. It is probable that some anti-tuberculosis drugs will continue to be procured with World Bank funds directed to SAPP. However, at present the MOH is only able to finance approximately one-half of the overall budgeted requirements. Provisions for appropriate case management and supplies of anti-tuberculosis drugs today in many health facilities have been beyond the capacities of NTP. The previous reduction in Pakistan's government expenditures for health have brought not only severe blows to the preventive interventions and program addressing major killer diseases in the country but also have increased reliance on funds mobilised through community/patient cost-sharing schemes for the operational costs of running the TB units or health care clinics. Since then deteriorating quality of care and decline in the public utilization has become evident. As TB services are mandated to be free, however in de facto it has been very difficult. This reinforces that NTP needs to launch an operational research to assess the impact of user fees on provider willingness to treat TB patients, and consequently on TB patient access to treatment and on cure rates. Where financial realities constrain national policy for free TB treatment, the NTP hopes to respond with a nationally accepted financing scheme that matches patient ability and willingness to pay with provider needs.

PROGRESS AND CONSTRAINTS IN DOTS
More vital to the issue of TB control in Pakistan the prospects of DOTS expansion has been widely overshadowed, as NTP could not extend its DOTS coverage beyond 15% for all detected smear positive cases till the year 2001. DOTS implementation is recently stared and outcome reports are still under way from the sites. Lack of trained human resources for the supervised component of DOTS, poor integration of primary health care and

system anomalies have made it more challenging. Ignorance to the fatal anomalies have widened the underlying gaps and have made target achievement even more harder. In the international assessment Pakistan's progress in TB control and DOTS implementation has been remained very slow. The country is left far behind in the provision of supervised TB care i.e., DOTS and a large proportion of TB cases are under non-DOTS program where the percentages of treatment outcome and cure are profoundly low. Currently gained successful international experiences in the TB control among the high burden countries have made it clear that countries like Brazil, Peru, China, and Morocco are the obvious examples which country like Pakistan needs to follow. But unfortunately health system in general and NTP in specific have weakly focused on the geographic, socioeconomic, epidemiological and demographic parameters of the population while planning and organizing key interventions. TB control interventions are one of the severely affected from such turbulences.

The development of DOTS has been an important breakthrough in tuberculosis treatment however extensive knowledge on community dynamics is required for NTP before its nationwide implementation. As Pakistan share diverse cultural, religious and ethnic communities with extremely low care seeking and health awareness hence knowledge about the trends, pattern and preferences of care become crucial. Without significant awareness and willingness DOTS will not achieve high degree of compliance and success in cure rates. Despite the seemingly sound reasoning on which DOTS is based, the supervisory element of the DOTS strategy has caused the most controversy specially in closed societies where access of poor and vulnerable to health care is denied or restricted. Within and outside Pakistan those who express reservations about or oppose the requirement of direct observation argue that there is insufficient evidence to support it. Detractors insist that the assumptions behind the imperative that patients are essentially untrustworthy and that they cannot be relied upon to complete their course of treatment have not been validated in populations where the majority of patients are poor, but none-the-less 'ordinary' members of their communities.

Case detection through sputum smear microscopy examination of TB suspects attending health facilities (culture and isolation can be used if resources permit); Directly observed, standardized, short-course chemotherapy to, at least, all smear positive TB cases under proper case management conditions; Regular, uninterrupted, high quality supplies of all essential anti-TB drugs; A monitoring system involving individual patient registration, follow-up and outcome evaluation enabling proper program supervision. But worldwide, DOTS is reaching only a fraction of those who need it. Nearly 100 of the WHO's 212 member states have implemented DOTS, and within individual countries, implementation is often uneven. For example, of the total global estimate of TB cases for 1997, only 15 per cent were notified by DOTS programs. These low coverage rates can be explained largely by the low political priority accorded to TB, and the consequent under funding of efforts to control it. In addition, certain technical limitations of DOTS, such as the length of the treatment period, may weaken patients' adherence to therapy.

The overwhelming lesson to be drawn from this study is that though DOTS has brought about some improvements in the performance and the organization of the district health system in the TB control, one point remains incontrovertible: strengthening the district health system is an extremely difficult topic and it would be illusionary to expect DOTS alone to solve the countless problems of the district health systems in developing countries. Still there are several critical issues to be addressed and more measures to be taken. The basic advantage of DOTS in that regard is that it has brought the district health system to

the priority agenda of the public health planners in developing countries. Furthermore, it has dismantled gaps and defects where immediate action is required and initiated actions in some areas related to child health. While all these developments are promising, DOTS is, however, an attempt to change from within, while more changes are required from without. Furthermore, the approach of strengthening the health system through DOTS assumes right action will naturally follow from rational analysis. This approach tends to under specify the political conditions under which such strengthening is likely to succeed.

The DOTS strategy adopts a technical approach in which issues like availability of drugs and supplies, referral system, work organization, and supervision at the district level are emphasized. However, experience revealed that such technical approaches although very necessary are not sufficient to make the strengthening process succeed. While some analysts might recommend that international organizations such as the World Health Organization should stick to technical analysis, some others have argued that these agencies could improve the quality of their technical advice and the feasibility of their policy proposals by more systematic analysis of the political and organizational factors involved in the change process. Another daunting challenge to the DOTS approach is that it assumes district health activities can be selectively strengthened irrespective of other district health activities. This assumption reflects a conceptual standpoint that the problem of the district health system as a whole is the sum of field problems. The truth is actually the reverse.

Another reason for the persistence of TB is the simple lack of more effective tools, including more efficient delivery methods, better diagnostic tests, better drugs and vaccines. DOTS alone cannot prevent the development of TB in those already infected with Mycobacterium tuberculosis. Even if the WHO global targets for case detection and cure rates are met by the year 2000, it will take two to three decades for incidence to fall to a rate of 2 million people per year. Finally, some of the burden of TB persists because of a lack of knowledge. For example, the impact of drug resistance on treatment is not fully understood; nor is it clear exactly what constitutes immunity to TB in humans, a factor that may delay the development of a TB vaccine. More knowledge may be needed, therefore, before new or better interventions can be developed.

ENHANCING VIGILANCE, CASE DETECTION AND FOLLOW UP
Content analysis provided valuable clues about the trends and gaps in tuberculosis research in Pakistan. Evidences supported the fact that tuberculosis is a serious health problem and needs prompt eradication. Orientation of key issues in the health system and especially in the TB control has been less focused in the research. Lack of scientific vision on community dynamics, care seeking among the vulnerable groups, case management and modes of resistant TB are direly lacking in the research so far. Interventions targeting disease prevention are devoid of this essential component of research. Particularly TB interventions and health care need drastic overhauling for which scientific research based vision is mandatory. This is considered crucial for fine-tuning and fortifying TB control care in all high burden countries. Regarding NTP implementation of DOTS there are diverse ethical and public health issues related to each element of DOTS strategy which needs research based elucidation in order to instigate a mutual way of dialogue between the planners and targeted community.

Case detection through 'passive' case finding (sputum smear microscopy for pulmonary tuberculosis suspects presenting at a health facility). The term 'case finding' takes cognizance of the fact that there are unknown cases in a community who may not present to the health sector, or who may not be identified when they do present. Differences

between active and passive case finding approaches, and problems with the effectiveness of passive case finding, have been evident throughout the history of the NTP. In 1960s the strongly held belief was that "...the extension in the work and aim of a clinic must not take place until and unless the clinic or the service is able to deal adequately with patients that report to it with symptoms..." (Raj Narain,1966). This notion is reflected in WHO's DOTS strategy. From this perspective more damage than good can be done by actively bringing patients into a program, which cannot adequately meet their needs either for correct diagnosis or for drugs.

There is also the belief that active case finding leads to over-diagnosis, over-treatment, and therefore wastage and unnecessary burdens being placed on an already over-burdened system. In essence passive case detection relies on people presenting to health facilities for TB treatment. The dilemma of the system once TB patient report and manage somehow to seek care, primary health units/TB Units and health centers escape, mismanage and ignore the proper follow up among such cases. While following passive case finding in Pakistani setting it should never be assumed that a community/ cases with TB are enough educated and sufficiently understand the symptoms of TB and are able to present for treatment. Over the past decade research on infectious disease has made important contributions to the understanding of the relationship between illness, infectious disease and social structures and have strongly emphasized the need of an active periodic surveillance system. This research has demonstrated that not all people have equal access to health care structures, and that the social meanings ascribed to certain diseases also affect people unequally. In terms of ethics, this means looking at the relative autonomy of people with TB within their community, the balance between beneficence and non-maleficence, the net gain for being enrolled in the DOTS strategy, and finally whether they are treated justly. In short, the opposition to passive case-finding revolves around 1) the belief that all people have the right to appropriate treatment and 2) the fear that many of society's most vulnerable members will not receive treatment unless actively supported by the system.

Stigma is another aspect that NTP needs to take into account when considering the ethics of the case-finding approach in DOTS. As a universally known fact TB carries a social stigma and specially for women in developing countries. It is also a disease which often affects the most marginalized, most poor and most vulnerable groups in communities, the very groups who tend to have the least autonomy. Although it is clear that the effects of stigma on case-finding need to be better understood, there is evidence which indicates that it will have an effect on delaying care seeking and that it may substantially constrain the ability of young people and women in particular to seek and obtain care (Uplekar M, 1996). NTP planners, programrs and managers in Pakistan have not yet considered this aspect holistically. Passive case-finding may well be sound in public health terms, and even in macro-economic terms, but the ethical implications need to be taken into consideration as well. Considered and well-informed debate should enable the development of solutions which meet the needs of the system as well as the needs of the patients and the communities in which they reside.

THE MOMENTUM OF REFORM PROCESS
As mentioned earlier TB control program till recently was functioning in a highly centralized way which offered countless barriers and delayed operations. Linkages of communications, coordination, collaboration and supervision among various NTP cadre were lacking and managerial and technical positions in the central NTP has long remained vacant. This not only has delayed important decisions but paralyzed monitoring and supervisory feedbacks and initiatives to improve. Key nodes at central, district and

peripheral levels were less skilled in implementation and utilization of limited resources. Lack of assurance of sufficient financial assistance and commitment from the Governmental authorities severely hampered the expansion of the activities and made for example, drug provisions and DOTS implementation and extension a challenge. Poor political impetus and thrusts in the efforts of MOH to fill the deficient resource gaps still threatens the panned reforms of decentralized TB activities. Although national health policy and NTP plan to use the back bone of primary health care infrastructure but there is no concrete and valid plan to accreditate the service provision at the peripheral level.

Islamabad declaration in March, 2000 that declared TB a priority disease has increased state and local commitment to controlling the disease. The decentralization of health services to the peripheries and the creation of health councils provide a possibility for the public to demand health services that are conducive to the implementation of supervised treatment. Integrating TB control activities into the general health services promotes better access to TB diagnosis and treatment. Along with benefits there are risks connected to the health reform process. In the decentralized system, peripheries may give insufficient priority to TB control and may not follow the required national guidelines. In addition, MOH should concentrate on the laboratory network and the human resources needed to implement supervised TB treatment. In general, the prospects for the National Plan for Tuberculosis Control are good. The Government of Pakistan needs to have a clear understanding of the association between TB and socio-economic development. Awareness of the large social inequalities in the country and that the less-privileged populations which are vulnerable to TB and other diseases is also required.

The intended decentralization of the structure of Pakistan's health system further offers an enormous opportunity to implement the National Plan for Tuberculosis Control. Similarly, to increase treatment completion MOH needs to think of introducing a system for cured cases for example bonus as an incentive for peripheral TB units to implement supervised treatment. In implementing the National Plan for Tuberculosis Control as part of the health reform process, the MOH have not maintained an equilibrium between TB efforts at the peripheral level and those at the district and central or federal levels. Which means that general TB activities at the peripheral level are not yet balanced with the specialized TB functions at the district and federal levels such as national TB surveillance, TB drug procurement and supply, technical support and supervision, monitoring and evaluation of peripheral level TB efforts. Two channels of 'reform' are to be considered when looking at the TB control program in Pakistan. The first is the reforms addressing ministerial approach and the role of NTP in that. The second is the internal reform of the NTP and the response of the NTP to the changing epidemiological and financial realities, supported by the national context of a changing and flexible health system. To date, the weakness of the NTP that it has not been able to reform internally to respond to the changing needs as well as strengthening its partnership for the purpose of long time sustainability with the overall health system.

Since the inception NTP has not become actively involved in any of the Ministerial reform process. Previously, the NTP procured, accounted for and distributed all of its own drugs. Improved accountability of the national system for drug procurement would allow the NTP to draw on the resources of the federal medical stores for this time-intensive activity. NTP contribution to join the move to develop a national health plan that responds to the priority health needs in a comprehensive, cohesive manner is lacking. In spite of the strong urge NTP has not yet changed its internal planning process such that needs identification, priority setting of tuberculosis and strategic planning that are initiated by the districts.

Hopes arise that by drawing in the general district and provincial decision-makers, ownership of TB control will be expanded beyond the NTP. At present NTP efforts in becoming a key player in the Ministerial reform process is not very decisive as more concrete discussions lie ahead which is success in responding to the changing epidemiological and financial constraints of controlling TB in Pakistan.

The review of the NTP, highlighted the lack of ownership for TB control by non-TB-specific health providers and decision makers at district and provincial levels. TB control is considered merely the domain of the NTP. The weak networking between the central, provincial and district TB co-ordinators and a dependent source of funding has hampered the NTP to plan, implement and monitor TB control relatively independently. If the intended reforms are realized, decentralisation will strengthens district-level responsibility and power for priority setting and budget allocation and it will open a window of opportunities for improving TB control in the country. The NTP future planning process for activities need to consider TB control a part of a district's overall activities, with TB being prioritised amidst other local health concerns. If donor funds for TB control are reduced, districts will have sufficient ownership of the TB epidemic and understanding of the technical/operational needs for TB control that it will be adequately included in district plans and budgets. The NTP needs to utilise decentralisation as a means of increasing its human resource base for the provision of DOTS. Scheduling long term annual training of district TB co-ordinators who will further train local health workers.

THE ISSUE OF INTEGRATION
Another vital issue, which is still to be resolved by the MOH, is to find ways and means to incorporate private sector effectively into the NTP. Like many other policy indicators though stated in the national policy but practical steps to realize this are lacking. Disintegrated and unaligned private physicians are the biggest challenge in the TB control. Their policy, approach and case management greatly differ than that of NTP stated guidelines. TB cases are registered lost once they don not turn back to their respective units for a month. Private physicians, have usually no regular and proper channel of patient's data exchange and to make it available to the NTP or any other official private TB network. This dichotomy of the health system or NTP damages the spirit of NTP and greatly undermines the implementation of DOTS and achieving control targets in a diversified system. TB control is a long-term task and needs tremendous devotion and committed leadership at all fronts. Monitoring, evaluation and practical solutions to enhance community participation is considerably weak. Orientation and tendency of MOH and NTP towards operational research is non-existing which has lead to biased decisions and planning in the past. There is strong need of broader vision for informed decisions on community attitudes, cultural epidemiology and development of control interventions in the country.

ENVIRONMENTAL RECEPTIVITY
Overcrowding, deteriorating health indicators, exodus of refugees, poor prophylactic measures for the extremely susceptible communities exert additional risk for contracting and dissemination of infection. Reported multi-drug resistance is on the speedy march that challenge control efforts. The epidemiological interaction between HIV/AIDS and TB is well documented which requires meticulous screening at the service delivery level. Growing evidences show that environmental receptivity of infection has been remarkably increased that needs extra vigilance and protection. In 1998, HIV prevalence was 64 per 100,000 (0.064%) and within patients with sexually transmitted diseases the sero-prevalence was as high as 6100 per 100,000 (6.1%) (Baqi S, 1999). WHO estimations for the 1999 showed

that almost 1% of the new smear positive cases were dually infected with HIV (WHO, 2000); in Sindh as well as in Northern Pakistan the percentage was even higher. At the national level, the response to this 'dual epidemic' is not more than another weak vertical program yet and the need for an integrated country wide program under a unified division within the MOH is still there. To operationalise an effective partnership, the MOH, needs a strong web of collaboration with the World Health Organization (WHO) and other service providers from all echelons of the health system. This will provide their inputs by bringing public, private and nongovernmental service providers and donors to review the existing activities, human and financial resources, and identified priorities in order to map out a plan for future collaboration and the more effective allocation of all available resources and responsibilities. The emerging recommendations proposed new levels of collaboration for 1) training; 2) prevention, care and control; 3) monitoring and surveillance; and 4) advocacy, resource mobilisation and sustainability (Hanson, 1997). With putting more national funding and donor agreements for an integrated TB and HIV/AIDS activities, it will be easier to launch new initiatives targeting this integrated approach. Operational research is a unique measure which is highly desired to bring TB treatment (DOT) to patients via integrated community HIV/AIDS screening and care networks which will emphasize supervised treatment completion.

ALINGNMENT OF PRIVATE SECTOR
Realizing the fact that the challenges of decentralisation and integration of TB control services with the private still lie ahead and there is an immense need to broaden the human resource base available for TB control, initiatives are desired to lessen the overburdened public health network in the country. This considered essential to fully absorb the increasing TB as well as HIV caseload. In public hospitals, occupancy is above 100% on a regular basis and the quality of care has been dramatically declined. Among other factors, this is encouraging for many TB patients to turn to the private sector for services. It is a firm belief that the majority of private sector providers do not comply with the technical guidelines of the NTP and adopt diversifying approaches in case management thereby increasing the risk of drug resistance due to inadequate drug regimens and inhibiting the ability of the NTP to accurately monitor the national trends in tuberculosis. With the aim of improving the quality of care for all TB patients, the NTP is reaching out to the private sector. The benefits of involving the private sector in the activities of the NTP are clear, assuming that the private sector will adopt the national guidelines for tuberculosis control: 1) additional service providers; 2) more cost-efficient diagnostic practices; 3) increased case identification/notification; 4) improved treatment outcomes; 5) reduced risk of promoting drug resistance; and 6) strengthened surveillance. The benefits to the private sector provider are less clear, and the NTP has had to identify mechanisms for providing incentives to private sector providers to comply with the DOTS strategy.

The case of Kenyan reforms to serve the needs of TB patients (cost-effective diagnosis and quality treatment) can be used as a reference here where the private sector provider and itself, the NTP initiated testing a revolving fund strategy (Hanson, 2000). This involved giving low-cost, quality drugs to private sector providers through the Kenya Association for Prevention of Tuberculosis and Lung Diseases (KAPTLD) channels in exchange for patient data. Private providers sell the drugs to patients for a minimal profit only and agree to treat patients utilising the nationally recommended approach, including DOTS, follow-up smear examinations, and reporting of treatment outcomes. In return patients pay regular consultation fees to the hospitals and physicians taking part in the trial. In this way, the NTP will be able to regulate the drug regimens and quality of drugs given/sold to patients, and monitor the treatment progress of patients. At the same time, the public

health network is relieved of some burden as more cases are managed, and managed appropriately, by the private sector.

The KAPTLD was supposed to report to the NTP and only make a small profit as is needed for growth. In addition, patients being treated in the private sector will be required to pay for all drugs required for the full course of all treatment, diagnostic and follow-up smears at the time of registration for treatment. This will prevent patient default in the middle of treatment on the basis of financial constraints and may, in fact, provide an additional incentive for patients to complete treatment as this completion will be seen as the most 'value for money'. NGO involvement in TB control has also been fostered by the NTP. All church hospitals and clinics in Kenya are supplied with free anti-tuberculosis drugs and laboratory reagents through the NTP, in exchange for treatment completion reports and adherence to NTP guidelines (Hanson, 1997; Hanson, 2000). The same applies to NGOs providing health services in various areas of the country, particularly in refugee camps housing people from Afghanistan. All patients reported in the refugee camps are not, however, included in the national data, but are recorded separately. The environment of reforms has made it possible for the NTP to look outside the narrow vision of government as the only public health provider. Through the reform process, the health sector needs to be considered as a whole, and this multi-faceted sector can best serve the needs of the population has become the priority.

Health sector reform, in Kenya's case, has not been an isolated event but rather a response, over time, to the changing needs of the population and the changes in resource availability. The successful interventions have been largely opportunistic, using human and financial resources that already exist and improving their efficiency. If any lesson is to be learnt by the TB community from the Kenya experience, it would be that reforms must be seen as an opportunity to expand ownership of TB control beyond the NTR TB control is an integral part of a well-functioning health system and the burden of tuberculosis must, therefore, be carried out by all the stakeholders of public health. Reforms that do not fully involve technical partners such as the TB program will not respond to community needs in a sustainable manner. The message for NTPs is therefore that involvement in the reform process is not an alternative. It is a prerequisite to the operation of a successful NTP.

RECOMMENDATIONS

STEPS REQUIRED TO RESUSCITATE NTP,S PARTNERSHIP
WHO and IUATLD lead in the efforts of overall technical collaboration and partnership for Pakistan. For country wide DOTS expansion more efforts are on the way to assure the assistance of Government of Japan, Italy, Germany, Canada, World Bank, Asian Development Bank, Department for International Development (UK), European Commission, Multi Donors Support Unit (MSU), Marie Adelaide Leprosy Centre (MALC), Anti-TB Association and Pakistan Chest Society. The Global Drug Facility also provides TB drugs to the NTP. DOTS expansion began in earnest after 2000 when the government rehabilitated provincial TB programs through the World Bank's Social Action Program Project II (SAPP II), a social sector-wide project that includes health. The need of a establishing aplatform has become more critical to mobilize resources
national/international
to strengthen

NTP,solidify partner agencies support, communication and coordination, concerted efforts against TB, mutual trust and confidence, optimum utilization of resources-avoid duplication and infuse transparency in the operations.

1) Managers of priority public health programs, including tuberculosis control, need to engage positively in the planning, budgeting and implementation of reform and sector programs. to demonstrate that the frame tuberculosis control can advance basic reform objectives, including efficiency, equity and quality. Local arguments need to be articulated for the protection and financing of well-defined core TB control functions and for rapid expansion of DOTS within different reform settings. The negative externalities of non-action or insufficient interventions are growing, given rising drug resistance and HIV-associated tuberculosis disease. Financing needs to be sought for effective redesign and implementation of capacity-building in technical, managerial and leadership functions. This is especially important for authorities within decentralized health systems, and for those overseeing contracts with providers outside the public sector.

2) Further analysis needs to be conducted at national and local level of the relationship of reform measures and priority public health interventions and outcomes, as well as better routine monitoring of health systems changes alongside supervision of TB services. Best practices need to be shared. TB control experts and proponents need to collaborate on the above points with those in other public health fields facing similar challenges, such as maternal and child health, malaria control, HIV/AIDS/STI control, reproductive health and family planning, and immunization. Within large technical cooperation and financing agencies, those working on public health need to collaborate with those working on health reform.

3) A decentralized health system which delegates decision powers and capacitates provinces and district TB units in financing, planning, fine tuning of all TB centers to comply with NTP and sufficient attention to programmatic shortcomings is an urgent need. The need of conducting an extensive operational research to identify key areas of priority intervention (DOTS) at all front levels has become more crucial. NTP need to give sufficient efforts to understand patient's perspectives for which therapeutic and community based research has to be emphasized. In order to strengthen the program management at the state level, the central Governments (MOH) need to establish their own managerial organizations which include state TB control societies (formerly, State TB cells), technical advisory committees and empowered committees.

Progress in the development of management teams need to be monitored by an empowered committee, which ought to be constituted by the states or either under the chairmanship of chief secretary. This committee should take the policy decisions for implementation of the TB control program in the respective states and approve administrative and financial actions which otherwise would have been approved by the state department of finance. Decentralization brings decision-making closer to the communities and facilitates their involvement in the process of health development. The following steps will be taken to implement the concept of decentralization:

- *Roles and responsibilities at each level will be clearly defined.*
- *Appropriate resources will be allocated at each level so that it can perform well. Necessary structural reforms will be brought about.*
- *Codes and regulations will be modified to bring them in line with revised roles and responsibilities.*
- *Peripheral levels will be given control over budgets and program implementation.*

- *Peripheral levels will be allowed to hire and fire staff, determine staffing patterns, and establish incentives for good performance.*
- *Prospective target setting at the central level will be relinquished and substituted with retrospective monitoring of results.*

4) The reforms in the health sector and the change in strategy for the health and population program hold promise for the future of Pakistan. It is envisaged that the sector-wide approach will unify the service delivery of the two sectors, address the inefficient fragmented and duplicated services provided by the action-oriented approach, and further involve the private and other sectors in TB control care to provide equitable quality based services. Many challenges are foreseen in the implementation of the NTP reforms, particularly in the transition period. The Government of Pakistan should ensure that the quality services provided by the successful disease control program needs to be maintained. While maintaining and improving their quality, these program should be further integrated into the essential services package to establish their sustainability. Existing partnerships with NGOs should be strengthened, new partnerships with the private sector and others developed, and communities should be empowered and involved in the control of tuberculosis.

5) A successful TB control program require such vital steps. In Pakistan there is a strong need to cover up the existing financial gaps and increase indigenous contribution to the plans for DOTS scaling up plans till 2005. There is a need to create opportunities for effective leadership to ensure the sustainability of TB control activities. WHO leads overall technical collaboration in TB control for Pakistan. The GLRA, and ICD support DOTS expansion. Major international funding partners are SAPP II (WB, WHO etc) GLRA, and ICD. Pakistan increased its alliance with the World Bank in strengthening the health sector to include TB services with TB drugs and other support costs however efforts are required to find corporate source of financing and other potential donors and continues to increase political commitment to ensure adequate resources for TB control and DOTS expansion.

6) Develop a comprehensive mid-term plan for DOTS expansion and nationwide TB control since Amsterdam declaration (Islamabad declaration) will provide an overview of the forecasting planned activities and accordingly assurance and reassurance of finances. Engage in social mobilization and strengthen community education in areas where TB services have been established. Train a core group of TB coordinators and technicians at district and provincial level. Continue to strengthen the recording and reporting system at all levels of the program. Technical support is needed to accompany DOTS expansion. Some drastic actions need to be taken to fulfil the posts recommended already for federal and provincial TB managers. Establishment of a TB coordination committee in order to carry out activities previously missed and efficiency improving tasks and to ensure anti-TB drugs store in advance. Special attention is desired to keep DOTS activities sustained, monitored and accelerated in the Province of Balochistan and NWFP and other areas where DOTS is newly started in Punjab and Singh.

As with the other elements of the DOTS strategy, can promote equity, efficiency monitoring and evaluation. It is important, for example, that health care workers are able to perform the tasks they are being evaluated on: the criteria for evaluation need to be realistic and appropriate for particular contexts and given the real constraints faced on the ground. Recent operations research in India, for example, indicate that targets set at the national and international level may be placing stresses on health workers that do not promote the care of patients (Lala Ram, 1998). Questions that need to be asked in relation to

monitoring and evaluation include: Is the system just and equitable? Does the system respect both the TB patients and the health care workers that care for them? Does the system encourage health care workers to identify problems or does it penalize them for 'not doing it right?' Problems need to be identified and dealt with positively. This is the art of making difficult problems solvable. After all it is through tackling problems that we find a process of engagement and integration between people with TB, their communities, districts, states, government as well as the international community.

DOTS makes sense scientifically, but if the emphasis is on targets rather than the process developed to achieve these targets, then health care workers and patients may be used as a 'means' to achieving a particular 'end': they may be abused. A system needs to be established in which both patients and providers are respected. The health service is, after all, there to provide a service for patients. A danger of having inappropriate targets for the health care worker is that they will focus on attaining these targets rather than on caring for the patient. This may lead to coercion by the health worker of the patient, or to the exclusion of the patient from the system. Targets need to be adapted to the local community situation and made appropriate to them. As noted above, ethics requires people to treat each other as ends and not merely as means (Gillon R, 1994). 7) Concentrating on the moral and social aspects of a monitoring system will help to ensure that this is achieved, that people are respected and TB patients are given enough care and follow up to complete their treatment. 'The provision of social services has a strong personal element: the quality of service depends heavily on the attitudes of the people undertaking it, and it is hard to monitor. Service provision, furthermore, often involves a position of power over users. However, a shift is required away from defining goals and targets in terms of populations, towards goals based on changes in organizations and systems (Harris E, 1997). This attempt helped to expand perspectives and lead to the interaction with people working in the disciplines. It encourages public health professionals to ask whether TB control and strategies like DOTS should encourage rights and empowerment of communities rather than control or exclusion.

DOTS combines five public health policy elements: detection at least of infectious cases, using smear microscopy; standardized treatment including direct observation of drug intake by health workers or volunteers; a secure system of regular drug supply; a recording and reporting system for case management and program monitoring; and political commitment to make the above possible. The objectives of the NTP reforms are predominantly to improve efficiency, equity and quality, which are synergistic with the principles of effective tuberculosis control, as formulated, in the DOTS strategy. Therefore, there are opportunities for mutual reinforcement in the NTP. To foster technical efficiency, for TB control DOTS consists of technical strategies that have been documented as cost-effective, (World Bank, 1997) and replaces antiquated, costly and sometimes dangerous practices. It also makes health providers accountable for their choice of interventions. To improve allocative efficiency, DOTS has been widely recommended as an element of essential services for public financing (World Bank, 1997;WHO, 1998). There are strong economic reasons to argue that the public sector must play an essential role in tuberculosis control, given significant externalities (Musgrove,1999). Surveillance, knowledge generation and cross-border control of transmission can all be considered global public goods worthy of public finance within reform programs (Chen LC, 1999;Gwatkin DR, 1999). Furthermore, the DOTS approach offers a means to report transparently on efficient use of input and associated impact. One-equity grounds, reformer should be seeking to focus public resources on public health threats and those that differentially affect the poor. TB control meets these criteria. Equitable access and "use of health services across gender lines should

be also on the reform and development agenda. TB annually kills over half a million women in the developing countries and thereby represents a significant risk to the advancement of women and their family's social welfare. Effective tuberculosis control offers solid "indicators of quality of service delivery and outreach through regular case reporting and cohort analysis of treatment results. A cured case is tangible measure of service responsiveness. The information system helps detect quality deficiencies, whether in the drug store, the laboratory, the clinic or the hospital.