CHAPTER V

RESULTS

5.1 Introduction

This chapter is comprised of a) study process, b) prevalence of TB, c) results from focus group discussion, d) univariate analysis of questionnaire e) multivariate analysis of questionnaire and f) refinement of the plans by combining qualitative and quantitative data.

There study methods were used to achieve the objectives of the study. First, the prevalence study was conducted by reviewing the 5 years records of District Health Facilities (DHF) from both study areas. Second, focus group discussions (FGD) were carried out at 3 different levels: a) District level, b) health worker level and c) patients (one male and one female group). The reliability of the FGD was maintained by using inter rater reliability testing Holsti Test (Coefficient of Reliability >0.80). Third, questionnaire surveys were conducted (180 samples in each study area) in both study areas. Univariate analysis by using Chi-Square test (P-value <. 01) and multivariate analysis by using Binary Logistic Regression (P-value <.05) have been done to achieve the objective of the study. Using the data from both qualitative and quantitative methods, plans have been developed plans for both study areas.

5.2 Study Process

5.2.1 Coordination and Approvals

In order to carryout the study smoothly several formal as well as informal approvals, coordination's and discussions were carried out in this study. In comparison to Lalitpur (an area without Civil Conflict) the complex situation of Dang (an area with Civil Conflict) demanded more efforts to implement the study. Following are the major approvals and co-ordinations' managed during the field study period.

5.2.1.1 Coordination with National Tuberculosis Center

A formal letter, dated 8th January 2003, sought support and nomination of the local supervisor, from the Dean of the College of Public Health, Chulalongkorn University. Dr. Dirgh Singh Bam (Director), of National Tuberculosis Center (NTC) Nepal was appointed. Likewise a letter from Dissertation Supervisor has been submitted to Director of NTC. A brief meeting with NTC director decided to carry out the field activities in both study areas, and a copy of Dissertation proposal has been submitted to the same meeting. Discussions were held with the Planning Officer (Mr. Tara Singh Bam) to collect the necessary documents of both Districts.

5.2.1.2 Approval from Nepal Health Research Council

In order to ensure the ethical issues of the study, a separate formal proposal prepared by Nepal Health Research Council (NHRC) was compiled and submitted. A total of 100 USD was also paid as the approval charge. Apart from that, a dissertation proposal was also provided to the NHRC. After one and half months approval was given by HNRC (Appendix G approval letter). There is a provision to make a

presentation of the findings of the study to NHRC. During the study period the staffs of NHRC made a brief supervision.

5.2.1.3 Coordination with SAC-Nepal

A meeting was conducted with Social Awareness Center (SAC) executive board and acquires the situation of conflict areas. SAC Nepal has been working in the conflict affected areas, thus it was useful meeting in terms of getting knowledge how to work in conflict areas. SAC advised 6 major things that need to be considered while working in the conflict areas: a) collect the local information from local level Government administration and civil societies; b) inform the nature of work to security forces through District Administration Office; c) publish the interest and ideas through audiovisual and print medias; d) hire the local people (preference should be given to the Tharu ethnic minorities and women); e) never lie, be polite, respect the local culture, and perform simple behavior; f) never become involved in political debate in whatever condition. The pre-testing was done with the help of two SAC's staff Mr. Khagendra Bhandari and Mr. Chandra Bahadur B.K. After pre-testing, the sensitivity of the words in terms of local culture and Language were reviewed by Mr. Tikaram Acharya and Ms. Asha Singh.

5.2.1.4 Approval from District Administration Office Lalitpur and Dang

Formal letters from CPH to both District Administration Offices were submitted. A meeting was organized with the Chief District Officer (CDO), Mr. Dhurba Prasad Sharma in Lalitpur. A brief presentation was made; very good comments were made by the CDO. He encouraged to conduct the study as soon as possible and he provided very

supportive letters; one for the District Health Office and other for the concerned agencies. Despite of his busy schedule, the newly transferred CDO Mr. Rishi Prasad Lamichane was involved in the FGD. The prior working relation with Mr. Sharma and the supportive behavior of Mr. Lamichane was highly beneficial in Lalitpur District (Appendix H Approval from District Administrative Office Lalitpur). The letter was a very useful tool to get access to records and information from DOTS Treatment Center and Sub-Centers. A same nature of Letter was collected from the CDO, Dang. It took 3 days to set an appointment with him (Appendix I Approval from District Administrative Office Dang). The approval letter from CDO was very useful while dealing with Security Forces within and outside the Dang District.

5.2.1.5 Approval from District Health Office Lalitpur and Dang

Formal letter to the DOTS Treatment Centers and Sub-Centers were issued by District Health Office in Lalitpur (Appendix J). It was useful while collecting information from DOTS Treatment Centers and Sub-Centers. The District TB and Leprosy Assistant (DTLA) was supportive in Lalitpur, who then communicated details about the study to all DOTS workers. The very friendly support was gained from the staffs of District Health Office (DHO) Dang. The head of DHO, Dr. Bikash Devkota had been very supportive in terms of recognizing the need of the study in Dang. Mr. Giri Raj Subedi, a senior public health officer was also highly supportive to the study. The incredible support in terms of giving data, information of rural areas, and introducing with DOTS workers were gained from Mr. Bhuvan Mitra Rana, DTLA of Dang.

5.2.1.6 Management of the Issues, which Evolved during the Study

No problems were found in Lalitpur District. However, several issues were raised while conducting the study in Dang District. One of the issues is getting into the field. Security search operation from Government forces sometimes hindered getting into the study areas. That issue dealt with having everyday updated information from CDO Office. However, check posts in different places caused delays in reaching to the DOTS centers timely.

> *Verbatim (A Security Worker from Arjun Khola Chek Post): "Why you write about the curfew in your questionnaire, don't you want to survive any more".*
>
> *Verbatim (A Security Worker from Tulsipur Check Post): "Why you carry camera, where are you from, to whom you work with, we do not allow taking camera with film, take it out".*
>
> *Verbatim (Local Maoist worker): "Who allow you to come in and conduct the study, Dang is our Capital City, we do not care the approval from Old Regime, and you need to get approval from our Local Government".*

The regular check up from government forces caused less willingness to work among local staff. The situation has been dealt by visiting remote DOTS Center jointly. The Identity Card, letters from the College, knowledge of the local culture and language assisted in carrying the study smoothly. The information asked by both armed forced had been showed politely and accept the suggestions from the arm forces were very crucial points to deal with the situation.

During the study, a group of Maoist asked about the study and kept the PI for one day to verify the work. After the several hours' discussion, the Maoist politely requested the PI to carry on with the study. Though a huge mental stress was there, very good lessons were learned from that event. The important things are to give personal

details, objective, use of the work, and make sure that our work is not for spying on the activities of both armed forces.

5.2.1.7 Advocacy and Publication

During the field study several activities were carried out to create the awareness on TB services. A brief report of TB in Dang has been published in local papers, which deals with the causes and consequences of TB at the beginning and provide the suggestion to the reader to get access to services from the nearest DOTS Treatment Centers or Sub-Centers. Apart from that, an extensive interview was given to the Local FM Radio, which included causes and consequences of TB, most affected population in Dang, possible ways to control TB, TB and gender, TB and conflict and support from the armed forces to the TB patients. A research article "TB and Conflict: An Emerging Window for Global TB Control" has been published in the Journal of Nepal Health Research Council (peer reviewed). An abstract "TB and Conflict: A Perspective for Global TB Control" has been published at the International Conference on TB and Lung Diseases. A poster presentation has also been made for the same workshop.

5.2.2 Selection of Samples

5.2.2.1 Focus Groups Discussion

Three levels of FGDs were conducted in each study area: a) patients' level, males and females separately, b) health workers' level, and c) District level policy makers' level. The participants for a) and b) were selected randomly and for d) participants were selected by using the list provided by District Public Health Officers.

a. Patients level

In order to choose the participants for patients' level FGD, the existing TB patients' records of the District Health Offices (DHO) were reviewed in both Districts. With the help of District TB Leprosy Assistant (DTLA), the following criteria were employed in both study areas.

1. DOTS treatment center, which has more than 15 male and 15 female patients.
2. Smear positive cases.
3. TB subjects who are taking drugs during the last 3 or more months.
4. All participants of one FGD should be from one DOTS center.
5. Participants within 15 or more minutes walking distance of the center.

Based upon the above-mentioned criteria, four (2 from each study areas) DOTS treatment centers were randomly selected. For each, the names of the possible participants were mixed thoroughly in a bowl and seven names were selected. All participants completed the entire process of the FGD.

b. Health Workers Level

With the help of DTLA, a list of the DOTS Treatment Center and Sub-Centers was prepared in both Districts. Two criteria were used: must be a microscopy center and have at least 30 patients. Two DOTS treatment Centers were randomly selected and the health workers of these DOTS treatment Centers were called to identify, any differences in the nature of problems and issues. Following criteria were employed to select the participants.

1. Female health workers.
2. More than one-year experience in DOTS Treatment Center.

Using above mentioned criteria seven participants from Lalitpur and seven participants from Dang were randomly selected and sent the request letters to participate. All selected health workers agreed to participate in the study and completed the entire FGD process.

c. District Level

A meeting with District Public Health Officer (DPHO) was organized to identify the possible participants for the FGD in each District. As per the regular practices of DPHOs, eight participants from the different Public Health related offices were selected. The request letters with abstract of proposal and guiding questions were sent to all the selected persons. All participants participated in the entire process of FGD.

Table -5.1: Participants (at all three levels) in FGD

Gender	Dang	Lalitpur	Total
Male	18	16	34
Female	11	13	24
Total	29	29	58

5.2.2.2 TB Subjects

With the help of DTLA from each study areas, records of the TB patients who were taking drugs from the DOTS Treatment Centers and Sub-Centers were reviewed. In order to get the proper sample size following criteria were employed:

1. Out of total DOTS Treatment Centers and Sub-Centers, which were selected for this study, 80 percent should be from VDCs, in which the walking distance was more than 30 minutes from District hospital or a referral unit of the District.
2. Cases that were smear positive.
3. Cases who were taking drugs during the last 3 or more months.

Based on the above-mentioned criteria, DOTS Sub-Centers, including Treatment Centers (14 from Dang and 16 from Lalitpur) were selected randomly. After completing that process, all names of patients from the selected DOTS Treatment Centers and Sub-Centers were written on separate pieces of papers and put into the 14 bowls in Dang and 16 bowls in Lalitpur. Then, the local researchers mixed the names thoroughly and pulled out the names from all bowls. A total of 200 samples in each District were selected and each was sent the consent from with the letter via DOTS Centers. Out of 200 patients 180 cases were agreed to participate in the study in Dang and 182 agreed to participate in Lalitpur. It was decided to use the same number in both Districts (180), which is 10% higher than original sample size (163).

5.3 Prevalence of TB

In order to achieve the objective number one; to identify the prevalence of TB, in areas with and without civil conflict a prevalence study of TB has been done in both study areas. The prevalence rate of TB has been calculated by reviewing the official records kept by the District Health Offices, District Level NGOs and National Tuberculosis Center. For the purpose of this study 5-year records were reviewed since 1998/1999 to 2002/2003 (Gregorian Calendar). Due to the poor record keeping system at District level, male and female positive cases could not be reviewed. Table 5.2 shows the population and TB cases by Districts and by different years. The general impression is the total cases have been increasing in Dang and in Lalitpur the cases are decreasing.

Table- 5.2: Five Years Record Review of the Smear Positive Cases and Total All Cases (all categories) in Dang and Lalitpur

Districts	Year	Population			TB Cases			
					Positive			All cases
Lalitpur		Male	Female	Total	Male	Female	Total	
	1998/1999	130220	133877	310332	-	-	-	299
	1999/2000	133775	137531	318804	-	-	-	319
	2000/2001	172455	165330	337785	135	92	227	743
	2001/2002	172540	169312	341852	215	124	339	717
	2002/2003	176696	173389	350085	248	115	363	710
Dang	1998/1999	179759	184116	426197				385
	1999/2000	184558	189031	437576				383
	2000/2001	228958	233422	462380	264	132	396	899
	2001/2002	228903	239212	468115	382	147	529	998
	2002/2003	234581	245146	479727	425	143	568	999

Sources: NTC 20001, 2002, 2003, Official Record Review in Lalitpur and Dang Districts, Annual Report of International Nepal Fellowship 2002, and CBS 2001

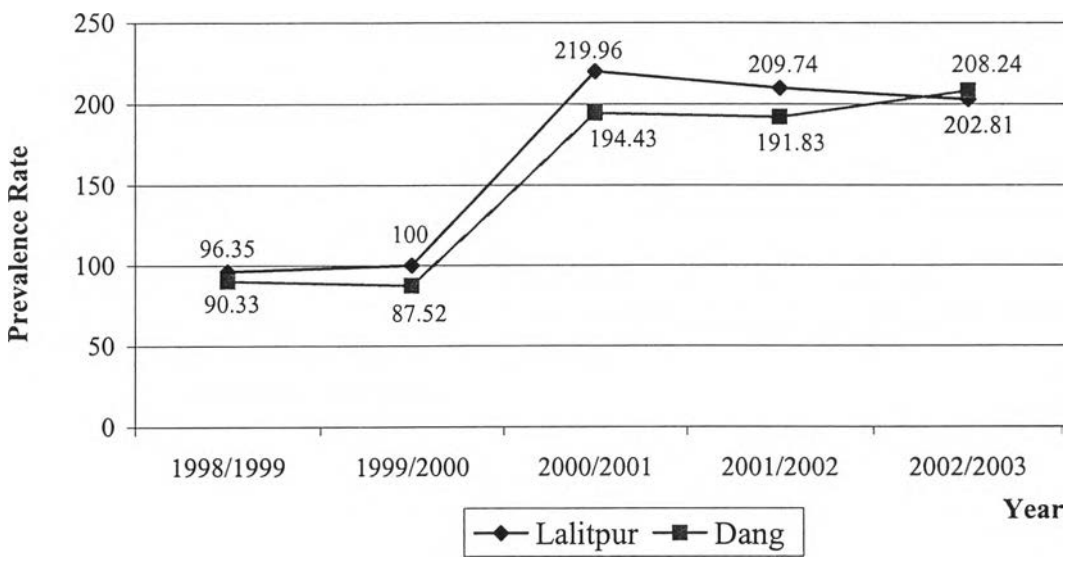
The prevalence rate has been calculated by dividing total number of all cases (positive, negative and extra pulmonary) of each specified year and of each specified areas by the total population of the areas in different specified years as denominator. The formula follows:

Numerator: $\frac{\text{All TB cases of each study area in specified year}}{\text{Population of each study areas in specified year}} \times 100{,}000$

Denominator:

The prevalence rates in Lalitpur are shown in figure 5.1. It is impossible to know whether the lower prevalence rates during 1998-2000 are real or because of either poor case-finding or poor records. The figure shows he minimum prevalence because it only covers the patients who came to the health facilities in both CA and NCA.

Figure- 5.1: Prevalence Rates of All Cases from 1998 to 2003 in Dang and Lalitpur Districts



In the year 2002/2003, the prevalence rates in Dang and Lalitpur are 208.24 and 202.8 per 100, 000 population. Figure 5.1 shows that from 2000/2001 to 2002/2003, the prevalence rates in Dang have been increasing while decreasing in Lalitpur. The significant different between NCA and CA found in the year 2000/2001 (95% CI, 0.000052, 0.00045). No significant difference found rest of the years.

5.4 Results from Focus Group Discussions (FGD)

Focus group discussions have been conducted in three different levels. One male and one female FGD were conducted among the TB patients, where seven participants participated in each FGD. One Health workers level FGDs conducted in each District, where seven participants were participated. Finally, a District level FGD was conducted in each District where eight participants were participated. Total fifty-eight participants participated in all FGD.

Two independent raters were hired and eight major categories which deal with the response of participants were coded. The indicators were developed to guide the raters to put the response in right categories. Fifty eight participant's response were put into different eight categories, which means 464 (58 x 8) responses to all coded categories. In order to get common number of coding decisions all the similar responses were put in the comparative chart. Out of total 464, both raters 405 similar responses were found. Holsti's Reliability Coefficient test was used in the study. The formula is CR = 2m/n1+n 2, where the m= number of coding decisions upon which 2 raters agree, n1= number of coding decisions made by rater -1 and n2 = number of coding decisions made by rater-2. The Holsti's reliability Coefficient was (2x 405/455 +405) = .94.

5.4.1 District Level

District level FGDs were conducted with the participation of the Head of Public Health related Offices in both Dang and Lalitpur Districts. Eight participants from Dang and seven from the Lalitpur participated in each FGD. Prior to the FGD, abstracts of the dissertation proposal and the guiding questions were sent to each participant. A

total 140 and 120 minutes were taken in Dang and Lalitpur respectively. The venues were in peaceful locations where there were no disturbances from noises and official work of the participants. One female and 7 male in Dang, 3 females and 4 males were participated in Lalitpur District. In order to ensure the reliability of the data, the findings were presented to the same participants.

5.4.1.1 Burden

a. What are the Major Problems Facing by TB Patients?

Most of the participants in both study areas agreed upon the intention of the question. All participants also agreed that TB patients are facing problems in getting access to and utilization of TB services. The main categories of the problems obtained from the FGD were; a) Gender discrimination, b) Practicality of DOTS, c) Financial burden, d) Behavior of health workers and e) Civil conflict.

a) Gender Discrimination

Several participants mentioned that female patients are experiencing more problems than male patients. The major problems reported by participants were as follows: getting access to information on TB drugs; lack of separate examination room in health facilities; dogmatic behavior of the health workers; lack of participation in DOTS Committee; threats to getting marriage and neglect in the household. All of

> *Verbatim (Dlwd): "TB patients especially women are facing the problem of social exclusion. First, they hesitate to go to the health facilities. Second, once they get reach in they do not get encouraging response from health workers. If society knows about, the TB disease no one is willing to get marry with young girls."*

the participants who were concerned with the gender related issue emphasized the need of female's participation in DOTS Committee and good behavior of health workers.

b) Practicality of DOTS

Majority of the participants agreed that DOTS is not a practical approach in all situations. The major concern was the office hours of DOTS Treatment Centers and Sub-Centers, almost of all the DOTS Treatment Centers and Sub-Centers opens at 10 am. and close by 2 pm. The other factor was long treatment course. Almost all participants agreed that patients were facing a hard time to comply with such a long treatment time. There was consensus in Dang that a DOT program should be practical in conflict situation.

> *Verbatim (Dllie): "The very crucial point is treatment time in health centers. All health facilities open at 10 am but people have to go early for work."*

b. Do All Patients Access 3 Visits for Microscopy?

Almost of all participants in Dang were pointed that the condition of microscopy needs to be improved. The major problem raised was the less consistency of smear examination results among the microscopy centers.

In Lalitpur no major concerns were expressed. All the posts of Lab Technician were filled and patients can easily go to the DOTS Centers. Majority of the participants mentioned that all patients couldn't get access to microscopy in Dang. However, all of the participants mentioned that all patients could access to microscopy in Lalitpur.

> *Verbatim (Dldp): "Many patients are not willing to come for examination on 8th month. The significant situation is consistency of microscopy among different treatment centers i.e. one result in Tulsipur and other in INF Ghorai."*
>
> *Verbatim (Muni): "No problem reported yet, if small problems occur we manage promptly. First 3 examinations managed by all patients, after treatment almost >95 percent completes in Lalitpur."*

c. Are the Patients Taking TB Drugs Daily?

All participants from both study areas were agreed that patients want to take the drugs every day. However, most of the participants expressed concerns about what's going in health facilities every day, it is not always practical to comply a country like Nepal.

Several of the participants in Dang mentioned that patients are not taking TB drugs every day from DOTS center. Most of them reported that DOTS is not practical as it does in other non-conflict areas. Most of the participants were concerned about the long treatment course but no major problems have been reported in Lalitpur District.

> *Verbatim (Dleo): "Putting all rules and force patients to visit health facilities daily may violate the patients' rights to get treatment."*

5.4.1.2 Physical Availability

How the People are Getting Information on TB Services?

All the participants were reported that the patients in both study areas are getting information on TB services through different communication channels. In Lalitpur most patients know from print and audio-visual materials. However interpersonal communication has been taken as an effective tool for providing information on TB services in Dang District. Almost of all participants in Lalitpur mentioned that the radio and television are the effective communication channels. Almost all patients have access to either radio or TV in Lalitpur District. However, majority of the participants were agreed that the information provided on TB drugs has not been sufficient.

> *Verbatim (Ram): "In Lalitpur; Radio, FM, TV, and print media are giving information on TB service but I am not sure about medicine."*

Majority of the participants agreed that audiovisual is not always practical in Dang. However, information on local language would be beneficial for the Tharu ethnic group. The training to the traditional healers could be beneficial to create awareness on TB service and drugs. Due to the high level of conflict, people were facing problems carrying batteries in the remote areas. Thus audiovisual has not been practical for the patients in Dang District.

> *Verbatim (Dldp): "District health office provided training to traditional healers who are first visitors of the patients and they are giving information on the TB services."*

5.4.1.3. Financial Affordability

What are the Major Costs Involved in Getting TB Services?

All the participants in both Districts mentioned that the treatment cost is highly affordable. In Lalitpur the major cost involved was during diagnosis in the private sector. In Dang the major costs were food and accommodation during the microscopy and follow-up examinations.

Majority of the participants in Lalitpur mentioned that there was no major cost involved in treatment. They have also mentioned that patients were not facing problem in continuing the treatment due to the poor affordability. The nominal cost for registration fees and lab tests were involved. Private sectors were charging more fees for diagnosis.

> *Verbatim (Santi): "If patients visit to private they need to pay consultation fees, lab test, and travel. If patients visit Government HF all costs are free except travel."*

Most of the participants from Dang mentioned that the economic level of patients was very poor. Patients or family member have to work every day from the morning till the evening and that may effect in the treatment compliance. Several participants mentioned that the patients who go for private sector might have faced more problem of affordability and often get indebted in Dang.

> *Verbatim (Dlwd): "The very important aspect is disconnected from daily work or reduction in labor wages."*

5.4.1.4. Acceptability

How the Gender, Caste System and Poverty Perpetuate TB?

All of the participants from both Districts agreed upon the relation between TB and poverty. Most of the participants from both Districts mentioned that there is no relationship between caste system and TB. Almost of all participants were reported that there is no caste discrimination existing in all health facilities. All participants from both study areas were more concerned about gender issues.

a. TB and Gender

All of the participants in Lalitpur were concerned about the gender issue while getting TB treatment. Several mentioned that there is no separate room for injecting Streptomycin to female patients. Some participants pointed that many girls do not feel safe if they disclose their disease to male friends. Almost of all participants from Dang mentioned that the gender discrimination existed in the health facility as well as in the community. Most of the participants pointed out that the male and female ratio in case detection was more than 3:1 in Dang.

> *Verbatim (Ram): "Due to fear of getting marriage, girls are less likely to visit health facility for test, no caste discrimination."*

Verbatim (Dlwd): "I have not seen any separate examination or treatment room. Health workers put out the cloths and inject in Hips. This is very unsocial. Participation of female in DOTS committees is very poor. Fear of social exclusion, not getting marriage and miss behave from the family are other forms of discriminations."

Most of the participants from Dang mentioned that there were almost no participations of females in DOTS Committees. Most of the females were not getting good family support and some were compelled to divorce.

b. TB and Poverty

All participants from Lalitpur mentioned that poverty is causing the conducive environment for spreading TB disease. Most of the patients were reported to be under the absolute poverty line (Less than one US Dollar a day). There was consensus about the relation between TB and poverty among all the participants in Dang. It has been mentioned that TB has two-fold relationship with poverty. Most of the participants mentioned that poverty is causing the high default rate or noncompliance in Dang. Some participants mentioned that the relationship between poverty and conflict causes high level of threats to the patients for accessing and utilizing the TB services in Dang District.

Verbatim (Santi): "Poverty causing the poor life style that promotes the environment for spreading TB."

Verbatim (Dldh): "There is high relation between poverty and TB, poverty causing low access, low utilization of services and high defaulter as well as non-compliance rate."

5.4.1.5 Geographical Accessibility

How Many People are Getting TB Services in Less than 30 Minutes Walk?

Almost of all the participants from Lalitpur pointed out that there was no problem of geographical accessibility. However, most of the participants from Dang mentioned that distance was a problem for TB patients.

The DOTS Centers in Lalitpur are located within 30 minutes walking distance. Almost of all patients can get public transport to go to the health center. However, in Dang almost all patients have to walk, except in the few areas, which are urban settings. Most of the people go to traditional healers and come to the health facilities quite late in Dang. Due to the civil conflict, some time patients need to wait a long time while crossing jungle or river (because of the chance of ambush and cross fire).

> *Verbatim (Dlwdo): "Even in urban areas health facilities are located far form the residential areas. Within the municipality areas it can take one-hour walking distance to INF clinic."*

5.4.1.6 Civil Conflict

How Conflict Affects the TB Service Delivery?

No conflict related problems were reported in Lalitpur. However, all participants in Lalitpur were agreed that conflict might have hindered in providing and getting TB drugs in conflict prone areas. In Dang there was a common understanding that conflict has been causing problem in providing and getting TB services.

In Lalitpur all participants reported that there was no conflict related problem while delivering TB services. However, some participants mentioned that frequently organized closures could cause problems for patients in accessing the services. In Dang several problems have been caused by conflict. Participants identified that almost all health workers did not wish to stay in rural health facilities.

> *Verbatim (Dldp): "Due to the conflict some health posts are seriously affected one way or other way conflict is threatening health service delivery. Health workers, especially paramedics come with several cases of miss behavior of security forces and Maoist. Patients are facing problems of frequent security checking, curfews, killings, adductions and forceful donation."*

Several participants highlighted that a common ground for the benefits of TB patients needs to be explored. Most of the participants mentioned that due to the higher level of conflict in hilly Districts a) Salyan, b) Rolpa, and c) Rukum people are displaced to the slum areas of Dang, which caused a higher burden of disease. The treatment card could be taken as an identity card of the patients. Orientation on TB disease needs to be organized for the security personnel as well.

5.4.2 Health Workers Level

Introduction

Health workers level FGDs were conducted among the health workers who were working in the DOTS Centers and Sub-Centers from both Districts. Same sets of guiding questions were used in both areas. Total 150 minutes in Dang and 120 minutes in Lalitpur were taken during FGDs. The PI facilitated both FGDs. Local researchers were hired for note making and recording. A total 8 participants (2 females and 6 males)

and 7 participants (3 females and 4 males) were participated in Dang and Lalitpur respectively.

5.4.2.1 Burden

a. What are the Major Problems Facing by TB Patients?

In both Districts health workers were agreed upon the essence of question. They agreed that TB patients are facing different kinds of problems in both Districts.

a) Gender Discrimination

Several participants in Lalitpur mentioned that females were facing problem in getting access to and utilization of TB services. The participants mentioned that unmarried girls were threatened of remaining unmarried. Likewise, married women are threatened by physical and mental abuse from husband and the family. In Dang all health workers agreed that there were gender related problems causing a different male/ female ratio (about 3:1) in case detection. Females excluded from most of the developmental processes were causing reduced case diagnosis in Dang.

> *Verbatim (Gita): "Female are highly affected from the treatment process, they hesitate to call themselves as TB patients. Unmarried girls remain unmarried whole the life."*

B. Practicality of DOTS

Several of the participants from both Districts mentioned that patients reported improvement from drugs after or within 15 days of treatment. In Lalitpur no major problems

> *Verbatim (Shyam): "The major problem is complexity of service delivery. An illiterate person who have no know how about paper work has to go through as court. If patient wants to get transfer they need to face unnecessary process".*

were reported. Most of the participants were concerned about the complexity of service delivery system. In Dang all the health workers were concerned about the practicality of DOTS. Majority of the participants mentioned that the nature of conflict is highly unpredictable thus there are higher chances of noncompliance.

The widely reported problem in Dang was disconnection from the work. About half of the HW mentioned that TB patients become indebted after being TB patients. They have to win the bread for the family and send kids to the school. That forced patients to borrow the loan from a landlord. Some participants were mentioned that due to the conflict local landlords ran away from the village and people were facing serious problems in getting loans from local landlords and all local Government Offices closed their Offices from villages.

> *Verbatim (Madhav): "Unfulfilled post of Lab technician is causing patients to travel far. Like wise two third of the smear positive cases stop working during intensive phase or more importantly that resulted hand to mouth problem to patients and their family."*

b. Do All Patients Access 3 Visits for Microscopy?

In Lalitpur the participants reported no problems. They mentioned that the condition of lab was perfect and all patients could access microscopy. Most of the participants mentioned that the regular service, educated patients and accessible geography were causing good results in Lalitpur. All of the participants mentioned that the conditions of microscopes were not good and all patients did not access 3 visits for microscopy in Dang District. All the participants were concerned about the following:

unfulfilled posts for Lab Technicians; microscopy supervision; consistency of lab results between the DOTS treatment Centers.

Several HW pointed out that most of the patients visit for all tests but at the end of treatment about 50 percent patients do not come for test in rural areas. They reported that late patients tracing in rural areas was very difficult. Due to lower number of health workers in Health Facility, late patients tracing has been reported to be weaker in Dang.

> *Verbatim (Hari): "Ram Bhagat tested 2 month's sputum in Tulsipur and came to INF for 5 months test, however the reverse result was came out and he refused to get drug from Nepal. He was taking drugs from India; he could not continue treatment, now he develops the MDR TB."*

c. Are the Patients Taking TB Drugs Daily?

In Lalitpur all participants were mentioned that all patients are taking TB drugs every day with out having any external pressures. However in Dang, most of the participants pointed out that about half of the patients are taking drugs daily. All participants mentioned that in compare to males, females are more compliant to treatment. Females were concerned about their marriage, children and family, all of which caused them to be more compliant than males.

Several participants were mentioned that the treatment time was causing a higher default rate. People have to go for work and face many social and political pressures in the community, which result them not being compliant to the treatment.

> *Verbatim (Shiva): "Due to the poor health education, social support, family support and some time unfair behavior of health workers, patients become less willing to get medicine every day."*

5.4.2.2 Physical Availability

How the People are Getting Information on TB Services?

It has been explored that in both Districts the majority of the people were getting information through audio visual, print media and health workers. In Dang an interpersonal approach was reported to be an effective channel of communication.

In Lalitpur participants mentioned that almost of all patients are well informed about the disease. They do not need basic health education on TB disease. several participants said that patients ask to test the sputum. Participants mentioned that patients even do not rely on the X-ray test done by physician.

> *Verbatim (Ramhari): "Mostly from FM Radio,, wall paintings, print materials, TV and health camps. In Lalitpur most people know about TB through print materials and ask us to check their sputum."*

In Dang several participants mentioned that people are getting information on TB through interpersonal communication. They mentioned that the awareness campaigns on local language would be instrumental to create sustained awareness. All participants agreed that Government security forces were banning in taking batteries in rural areas that affects the people in listening radios because there is no electrification in rural areas. They mentioned that audiovisuals aid is not a useful channel for Dang District.

> *Verbatim (Krishna): "Due to the conflict batteries are not allowed to take to rural areas, thus radio is not effective as before. People know about free availability of TB drug but they are not informed why 5 drugs at once."*

5.4.2.3 Financial Affordability

What are the Major Costs Involved in Getting TB Services?

Most of the participants in Lalitpur reported that the major costs involved were travel cost and consultation fees for private care. They agreed that during the treatment no major cost involved. In Dang the major costs were reported to be travel, accommodation and private consultation fees. The common aspect in both Districts was high financial charges in private sector.

Most of the participants mentioned that the affordability is not a major concern in Lalitpur. Patients have to pay more to the private sector while getting a diagnosis. Most of the participants from Dang mentioned that TB patients rely on the daily wages work and those who are farmers lacks the cash on a daily basis.

> *Verbatim (Shyam): "In Lalitpur; travel, registration, lab test are the cost needed in public sector. Consultation, lab test, and travel cost in private. The most expensive in private is lab test."*

Travel costs and accommodation cost while going for microscopy examination caused the problems for patients. Conflict is causing several problems. Local self-help groups also collapsed.

> *Verbatim (Ramesh): "In my PHC around 5-10 Rs. per day needs to be paid for transport. Still private sector charge high amount in diagnosis. One Dalit lady paid Rs. 10,500.00 for diagnosis, she is smear positive case. Now still facing to pay back the loan to Bank."*

The poor patients are getting problems in paying back the loans and they have no fixed property to deposits in the Bank. Participants also mentioned that loss of daily waged work is causing a hand to mouth situation for patients in Dang.

> *Verbatim (Rita): "If private sector charge high cost, women have to listen many abusing words from the family. Women credit groups are collapsed in the villages."*

5.4.2.4. Acceptability

How the Gender, Caste System and Poverty Perpetuate the TB?

In both Districts the common understanding was found on TB and poverty. Participants mentioned that there is a two fold relationship between TB and poverty. In both Districts no problems were pointed out on caste and TB.

a. TB and Gender

Most of the participants from Lalitpur were reported that gender discrimination is causing lower case detection. Many females were reported to be stayed behind the services. The dominant social and cultural values forced female patients not to go to the health facility. In Dang all the participants were reported that the females have less access than males. Due to the illiteracy and social cultural values females lack access to the TB services. Most of the participants mentioned that females are more complaint than males. The problem was getting access to services.

> *Verbatim (Shyam): " A woman born with problem, during their youth life they got sexual love, it's like a water bubbles, once husband knows her TB disease he or his family discards woman from the family. Lastly a woman become hopeless and dies with out cure."*
>
> *Verbatim (Rita): "Almost no participation of women in DOTS committees, no separate examination room for women and not getting marriage just because they are TB patients."*

b. TB and Poverty

Several participants in Lalitpur mentioned that the poor gets TB and TB perpetuates the poverty. Some participants mentioned that poor people have less access to basic health services compared to the well off. The poor work in carpet factories without using masks. Several participants were reported that lack of proper implementation of Labor Act is contributing to expose the labor in high risk work and environment that easily causing and spreading TB in Lalitpur District.

In Dang most of the patients do not have cash with them that caused patients problem for getting daily treatment. Most participants agreed that poverty is a problem interrelated with many other social and political problems. They mentioned that about almost of all the patients are poor.

> *Verbatim (Ramesh): "Poverty is one of the main factors cause higher rate of noncompliance in the district."*
>
> *Verbatim (Rita): "Poverty force patients to work and working time and office hours are not compatible, thus noncompliance exit."*
>
> *Verbatim (Shiva): "Hungry stomach can not go for TB medication..."*

5.4.2.5 Geographical Accessibility

How Many People are Getting TB Services in Less than 30 Minutes Walk?

All the participants from Lalitpur documented that all patients can get TB services within 30 minutes. However, all participants from Dang reported that most of the patients needed to walk more than 30 minutes while visiting the health facilities.

During the confrontation patients may face the problems in getting access to the services within the office hours of the health facilities. Due to the lack of public transportation and geographical condition, patients in Dang were facing more problems than patients in Lalitpur.

> *Verbatim (Ramesh): "In my area two third of the patients walk more than 30 minutes (one way)."*

5.4.2.6. Civil Conflict

How Conflict Affects the TB Service Delivery?

No problems were reported by the participants in Lalitpur. However, some of them agreed that civil conflict as a national problem. But all of the participants mentioned that conflict is causing problem to both patients as well as health workers in Dang.

> *Verbatim (Mhadev): "Many of the patients have been physically abused from both armed forces. Some patients had been abducted by Maoist and got back after 15 days. Due to the threats of Maoist and government force many young patients went to India. For us, there is no cooperation form Army we are facing two fold problems. Even some people say that all government offices centralized in headquarters why health workers working here, they must have relation with Maoist. Paramedics are getting abduction, who gives drugs during that time."*

Most of the participants reported that health workers are threatened by both security forces and Maoist. That was causing their irregular presence in health facilities. Almost of all participants agreed that there is no field supervision made by District level managers during the last 3 years in remote areas.

All the participants mentioned that there is no actual DOTS implemented in most of DOTS Centers. The crucial point is there were no DOTS Committees members existing in the villages. The participants suggested that appositive relationship between security forces and health workers need to be promoted. All participants mentioned that all the posts of the health workers in hilly areas should be improved. Displaced people with history of TB from hilly areas caused high burden of disease. Importantly, a common understanding between armed forces needs to be developed for the benefits of TB patients and their rights to be cured.

Verbatim (Ramesh): "The medical ethics is to cure who are dying. But With a suspect of giving medication to Maoist paramedics was abused and kept in Jail for 3 months by security. Can you imagine how the situation of that HP was."

Verbatim (Mahadev): "More than 75% DOTS committees in SHPs and HPs are not functioning. Maoist forced to give drugs for 3 months, health workers can not reject thus in some areas they have made fault report in order to maintain drug quantity."

Verbatim (Hari): " In one Sub-center, A girl aged 17 or 18 went for TB drugs, Army asked many questions for one and half hour, she was highly traumatized, after a week she came and asked drug for 15 days and told "what you would have done if Army asked same nature of questions to your younger sister." Health worker had no answer he gave TB drugs for 15 days even she was in intensive phase."

5.4.3 TB Patients Level

Introduction

The patients level focus group discussions were conducted with TB patients who were currently taking drugs from DOTS center in both study areas. One male and one female level FGDs were conducted in each District. Seven female and 7 male participants participated in both study areas. Local male and female researchers

facilitated the FGDs in each study areas. The reports for the FGDs have been compiled by facilitators and verified by local researchers in each District.

5.4.3.1 Burden

a. What are the Major Problems Faced by TB Patients?

All (28) participants from both study areas agreed that TB patients are facing different kinds of problem while getting treatment. The most common problems raised by the participants were as follows: gender discriminations; practicality of DOTS; financial problems; problems caused by civil conflict.

a) Gender Discrimination

Mixed responses were found in both Districts. All most all females in both Districts mentioned that gender discrimination exists in the communities. However, most of the females from Lalitpur mentioned that there were no major problems caused by gender discrimination in accessing TB services. All females from Dang totally disagreed; they reported that gender discrimination is causing the problem in lower case detection in Dang. Male participants from both areas did not mention major problems caused by gender.

In Lalitpur the participants reported no problems related to gender. They mentioned that gender discrimination depends upon the educational level of the family members and females themselves. Several participants mentioned that mothers-in laws caused the problems for daughter in law. All males agreed that there were no major problems caused by gender related issue.

> *Verbatim (Mati): "I have getting problem from mother in law. I used to get food after all people in the house finish; I slept in separate room and took food in different dishes for 3 months."*

In Dang, all female participants were mentioned that gender discrimination is causing a lower case detection in Dang. They mentioned that gender discrimination in the household gives fewer chances to visit health center and other developmental agencies. All most all male patients in Dang did mention that gender discrimination is not causing problems in getting access to and utilization services in Dang.

> *Verbatim (Radha): "Neglected by husband, multiple marriages by husband, no confidentiality, lack of knowledge eon TB drug and service are the problems facing by us women."*

b). Practicality of DOTS

Most of the participants from both Districts mentioned that the DOTS is not practical in all situations. Most of them were reported that it should be practical as well as locally planned.

In Lalitpur District most of the female participants mentioned that health facilities based DOTS is not practical for the working as well as for lactating women. However, all of them mentioned that they have been taking drugs every day. Most of the males mentioned that DOTS is not a practical approach. Some of them suggested that NTC should introduce a family based DOTS.

> *Verbatim (Om): "I am school teacher, I know the nature of TB disease, still sometime I do fade-up with all the imposed things, and can you imagine how the normal people will cope with the difficulties made by system".*

In Dang District most of the female participants were mentioned that the DOTS should be more flexible and nearer to their community. Majority of them mentioned that they failed to get medicine due to several problems. Several participants mentioned that they have experienced side effects of the drugs, most commonly itching. Most of the participants mentioned that DOTS is not a practical approach in a District like Dang where people have no voice and no choice. During the working season most of the people could not manage spare time to go health facilities and miss the drugs.

> *Verbatim (Lalu): "It's very hard to visit health facility every day. We Tharu people can not think of any other aspects during raining season, only this season feed us fro whole the year. How can you suggest me to come every day, health facility opens at 10 AM."*

b. Do All Patients Access 3 Visits for Microscopy?

Most of female participants and all male participants in Lalitpur mentioned that the condition of microscopy is good and all patients can get access 3 visits for microscopy. Howéver, all females and most of the males from Dang explained that there is need for improvement in microscopy. They also highlighted that access is not possible for all the times and people.

Most of the participants were concerned about the consistency of the microscopy results among the microscopy centers in Dang. All female participants were concerned about the space of DOTS center where HW asks them to make sputum. Due to the lack of separate room for sputum collection females were having a problem. All male and female participants mentioned that all patients could not get access to 3 microscopy examinations. The main reason was the local situation i.e. planting season, harvesting season and conflict. Some mentioned that if patients feel cured they do not come for the last microscopy.

> Verbatim (Gita): "I did visit all the times. The Tulsipur PHC showed no problem and INF has shown the problem. I hope all do not complete 3 sputum examinations."
>
> Verbatim (Sarada): "No place to make cough, I used my hand towel to make cough."

c. Are the Patients Taking TB Drugs Daily?

All female and almost all male participants mentioned that all patients are taking TB drugs everyday in Lalitpur. However, most of male and female participants in Dang mentioned that patients are not taking TB drugs every day. Both male and female participants mentioned that every day is not a practical, but patients are following. The reason why patients are following is they want to be cured and health Centers are not far from patients' doorstep in Lalitpur. In Dang all most of the females' patients were not taking TB drugs every day. Most of them are willing to take but it was not practical in most situations. Most of male participants were willing to take drugs every day but in their house. Both males and females

> Verbatim (Radha): "I am willing to take drug every day but not from health facility, It unpractical thus I have missed for 10 days."

mentioned that if DOTS center provide drugs for seven days during the intensive phase that it would be more practical.

5.4.3.2 Physical Availability

How the People are Getting Information on TB Services?

Most of the participants from Lalitpur mentioned that they have received information through audio visual and print media. However, almost all participants from Dang mentioned that the interpersonal communication is practical in Dang.

Most of the participants in Lalitpur were educated and learnt about TB during their schooling. They have also got information from health workers in DOTS Center. Several mentioned that they got information from friends. They have also received information from their work places.

> *Verbatim (Kabi): "Normally Radio, TV, print materials, campaigns, teachers and health workers. I got information from book as well as health workers."*

Most of the participants in Dang received information from interpersonal communications. About half of them were educated by health workers. Some were informed by traditional healers. Most of the participants from Tharu ethnic minority mentioned that they do not understand the TB information from the radio. They added that the message goes very fast and so it is hard to understand the meaning. Almost all participants from Dang mentioned that they do not know about TB drugs.

> *Verbatim (Birbal): "Health workers explained me about TB. My religious leader also informed me about TB. I am taking 7 pills, I do not know about TB drugs."*

5.4.3.3 Financial Affordability

What are the Major Costs Involved in Getting TB Services?

Participants from both Districts mentioned that the expenses while getting diagnosis from private sector were a big financial burden for them. In comparison to Dang more patients from Lalitpur visit the private sector.

In Lalitpur almost all patients were mentioned that the travel cost is an everyday expense. Some mentioned that they take food while visiting DOTS Centers. They also mentioned that the sputum examination costs also involved during treatment course. In comparison to male participants female participants were more concerned about the costs. Most of the female participants in Lalitpur mentioned that during the diagnosis patients are compelled to spend more money. Several male participants agreed with the female participants. Majority of the male participants did not face any problems from private sector.

> *Verbatim (Rina): "Diagnosis in private (I paid 20,000 during first 3 months of diagnosis), travel and sputum examinations where I need to pay."*

In Dang most of both male and female participants were concerned with travel and accommodation costs. Several participants were worried about the costs involved in private sector, with more females being concerned.

> *Verbatim (Gita): "Transportation, consultation with private doctor I made 30,000 expenses, lastly INF's Paramedics diagnosed and now I am getting free TB drugs."*
>
> *Verbatim (Jagu): "I lost my work for 6 months that force me to borrow Rs. 4,000 loan. Minor costs are travel, registration fees and check up for family members."*

They mentioned that the source of income is very low and they took a loan for these expenses. Most of the male participants mentioned that loss of the job is big problem for them. The loss of daily wages job caused the lack of cash, which they need, everyday. The male participants mentioned that the loan was also causing problem; they have no money to pay back.

5.4.3.4 Acceptability

How the Gender, Caste System and Poverty Perpetuate the TB?

Several females and males participants in Lalitpur mentioned that gender discrimination is causing problems in effective TB control. Majority them argued that there is no relation between TB treatment and gender. In Dang, all of the females and about half of the males agreed that the gender discrimination is causing less access and utilization of TB services. The balance felt that poverty is the main cause. All of the participants from both Districts mentioned that there is no relationship between caste discrimination and TB control.

a. TB and Gender

In Lalitpur more females were concerned about the gender discrimination than males. Most of the females from Lalitpur mentioned that there are gender differences but not practiced in DOTS center. They have no major problem in continuing TB treatment due to the gender. Most of males mentioned that there is not gender related problem in treatment process. In Dang most of female

> *Verbatim (Mati): "I have highly neglected from mother in law and husband, if health facilities make it more open, I may have only option for suicide."*

participants mentioned that gender discrimination is causing less case detection than in males. They mentioned that female gets less chance to visit health centers than male and do not know about the disease.

Majority of males agreed with females but half they say that there were no restrictions for females to go health facilities. The most common concern was the perception of the society towards a female with TB.

> *Verbatim (Gita): "I am not going to get marriage just because people know I am TB patients. TB is much more suppressing than caste discriminations for female. I know TB is making us more worst than any thing exist in this materialistic world."*
>
> *Verbatim (Kedar): "If I know one girl with TB, I will not allow my son to get marry with that girl. That caused girl not to go health facility."*

b. TB and Poverty

Most of the participants from both Districts mentioned that there is relationship between TB and poverty. Most of them mentioned that poverty promotes the poor life style where TB can be perpetuated easily. In Lalitpur aboutmost of the patients mentioned that the high level of poverty can force the patient no to come for treatment everyday. Both male and female participants mentioned that they are not facing any problem related to the poverty.

> *Verbatim (Kasi): "Poor are host/ breeding ground for all problems and disease of the world."*

All male and female participants from Dang mentioned that poverty is causing poor access to TB services. They mentioned that

> *Verbatim (Radha): "I do not know the poverty but on thing I experience is poor people are the breeding ground for politics, war and disease."*
>
> *Verbatim (Ratne): "Poverty is our identification no needs to go my house you can see me from head to tell, there are enough indicators to prove my level of poverty."*

poor become TB patients because of poor housing and education and that once they become TB patients they compelled to take loan and become poorer. Most of the females and males' participants mentioned that they were facing the problems in continuing treatment due to the poverty.

5.4.3.5. Geographical Accessibility

How Many People are Getting TB Services in Less than 30 Minutes Walk?

All participants from Lalitpur mentioned that all patients are getting access within 30 minutes. Both male and female participants from Dang noted that most of the patients need to walk more than 45 minutes to go DOTS Sub-Centers.

In Dang patients have been faced the problem during the raining season they have to cross the many streams and rivers to go to the health facilities. Most of male participants mentioned that during the rainy season they have to go for paddy planting and some times the floods stops them from going to health facilities. Several female participants mentioned that they have faced problem in going to DOTS Sub-Centers during security check-ups and confrontations between Security Forces and Maoist.

> Verbatim (Gita): "It takes 1 hour by foot. For microscopy I have to spend 1 day."
>
> Verbatim (Lalu): "For me it takes 1.15 hour. I think most patients need to walk for at least 45 minutes."

5.4.3.6 Civil Conflict

How conflict affects the TB service delivery?

All participants from Lalitpur mentioned that they have not faced any problem caused by conflict. However, all of the participants from Dang mentioned that they are facing problems from conflict. Some of the participants from Lalitpur mentioned that conflict is a national problem, affecting the different sectors of the country. A few females mentioned that during the national closure they had to walk to the DOTS center, which caused more time. In Dang all male and female mentioned the conflict is causing several situations that can hinder the TB patients to get access the TB services.

> *Verbatim (Kabi): "It's a national problem. In nationwide closures I have to walk 30 minutes because there were no means of transportation functional. No major problem as other places of the country, as I heard."*

All of the participants were mentioned that due to the closure some times health workers could not go to the DOTS Centers. In this case patients cannot take the drugs. Most of the male participants mentioned that males have more problems while traveling than females at the security check posts. All of the participants reported that most of the members of DOTS Committees have run away to

> *Verbatim (Sarada): "There are no DOTS committees members in the village because Maoist threatened them. Some time Maoist takes health workers that time how we can get medicine. Fighting and killing in nearer to my village caused me not to go health facility for 7 days."*
>
> *Verbatim (Basu): "In Bargaddhi government security forces killed 11 person we were so horrified that we even afraid to come out for deification, feeding animals for 3 days. One delivering women died because no one dared to take her to hospital during the nighttime. I have been to DOTS center after 4 days."*

the District headquarters. Majority of the participants mentioned that Tharu people are more threatened by security forces. When killings took place in the community patients became afraid to go to DOTS Centers. The internal displacement has been reported to be a main cause of the burden of disease. All the patients were reported that the tight security check-ups are causing a problems for them to go to the DOTS Center. Most of the participants were suggested that government could help the TB patients by informing security forces about the nature of TB disease. They also mentioned that if the Government would introduce a treatment card as an identity card that would be great help to reduce noncompliance and increase the access and utilization of TB services in Dang District.

5.4.4 Conclusion of Focus Group Discussion

It has been identified that the overall understanding on the problem is similar in both study areas. Even though participants from Lalitpur were not facing any problem from geographical and on Civil Conflict factors, they perceived that the patients in Dang might have been facing problems from both. The similarities and differences in terms of daily practices were reveled by the study. Following aspects presents the common understanding in both study areas.

1. DOTS is not practical for all the time. It should me more flexible and expanded to the community level. DOTS Treatment Center and Sub-Centers in community level can increase the utilization of TB services.
2. For both Districts there is a close relationship between TB and poverty. Poverty perpetuates the TB and TB makes the people poorer.

3. The major costs involved are daily transportation, diagnosis by private sectors and accommodation costs.
4. Gender discrimination at home and community is causing lower case detection in both Districts.
5. For both Districts the caste discrimination is not causing problem for TB patients to continue treatment.
6. Most patients are willing to visit 3 times for microscopy.
7. Patients are getting partial information on TB from health workers.
8. The dogmatic behavior of health workers could cause less access and utilization of TB services.
9. The availability and good quality microscopy can improve the access.
10. Participants do not know about TB drugs but they were willing to know, knowledge on Drugs could improve the access.
11. Satisfaction to the services is really needed, if patients do not satisfy with service he or she can stop taking drugs and go for the private sectors.
12. Conflict is causing problem in getting access to and utilization of TB services.

Apart from these similarities; participants mentioned that there are differences between 2 Districts in terms of access to and utilization of TB services.

1. The condition of microscopy in Lalitpur has been identified to be better in terms of number of Microscopy Centers (10) and quality (consistent results among Microscopy Centers) than

Dang, where there were (4) Microscopy Centers and not consistent result among the Centers.

2. Most of the patients of Lalitpur were found be taking Drugs every day, but relatively less patients were taking Drugs every day in Dang.
3. Posting of the health workers in highly affected areas should be fulfilled.
4. In Dang internally displaced population is causing higher level of TB burden.
5. Most patients from Lalitpur know about TB from print media and audio visuals where as most of the patients know little about TB services in Dang and interpersonal communication was found to be effective.
6. Affordability in Lalitpur is not an issue, but many of the participants face the problems of affordability in Dang.
7. Lalitpur has not been faced more problems from Gender discriminations in compare to Dang.
8. No problems from geography was reported in Lalitpur, where as Dang geography is causing problem for the TB patients.
9. No problems from the conflict in Lalitpur but all of the patients facing problem from the conflict in Dang. The mass campaigns, curfew, closure, casualties and killing, are causing low access and low utilization of TB services.

The study revealed that the due to the long treatment time patients are facing problems from the factors related to access to and utilization of TB services in both study areas.

5.4.5 Implication of FGD in terms of Planning

Following are the major concerns raised from the focus group discussions. The issues for the Dang and Lalitpur are different, following are the issues need to be addressed while planning in both study areas.

a. Issues for Planning in Lalitpur

Following are the major issues need to be addressed while developing planning to be used by District health facility, Lalitpur. The issues can be explored to the participants of the planning in both study areas.

1. Proper case holding.
2. Expansion of DOTS Treatment Centers and Sub-Centers.
3. Information dissemination to the larger audiences.
4. Expansion of DOTS to private sector.
5. Maintain health education from the HW.
6. Maintain proper reporting.
7. Improve the patients participation by forming TB patients Association
8. Encourage I/NGO's participation.
9. Ensure the availability of DOTS workers in Treatment Centers and Sub-Centers.

10. Promote the good counseling on TB drugs.

Inclusion of the above mentioned issues would improve the access to and utilization of TB services in Lalitpur District.

b. Issues for Planning in Dang

Following are the major issues need to be addressed while developing planning to be used by District health facility, Dang.

1. Ensure the conflict is not affecting patients to visit DOTS Treatment Centers or Sub-Centers every day.
2. Expand the DOTS Sub-Centers to Community Level
3. Create the awareness through interpersonal communication and Drama.
4. Train the DOTS workers on TB and gender.
5. Promote the supportive behavior by HW.
6. Improve the quality of Microscopy Centers.
7. Promote the patients association to make DOTS effective.
8. Aware the patients on the conflict and Do and Don'ts during high level of conflict.

Inclusion of the above-mentioned issues in planning can improve the access to and utilization of TB services in Dang District.

5.5 Univariate Analysis

Questionnaire was administered to volunteer TB patients of both genders in Lalitpur, the District without Civil Conflict Area (NCA) and in Dang, District with Civil Conflict Area (CA). The questionnaire was designed to provide answers to each of Objectives number 2-6. The results of the questionnaire will be provided by the objective, comparing NCA and CA for each gender, with test of Statistical Significance showing differences between the NCA and CA by gender and differences by gender in the NCA and CA. Before presenting the results by objectives, the response rates and socio-demographic characteristics of the respondents are presented.

5.5.1 Response Rate

Total 200 consent forms were sent in each District. In Lalitpur 182 TB patients agreed to participate in the study while 18 subjects were declined to participate. Most (80%) of the total subjects who declined were male. In contrast, in Dang most (85%) of subjects who declined were female.

Table- 5.3: Response Rate to Questionnaire by Study Areas

Non-Conflict Area (Lalitpur)				Conflict Area (Dang)				95% CI
Respondents		Non-Respondents		Respondents		Non-Respondents		
n	%	n	%	n	%	n	%	
182	91.0	18	9.0	180	90.0	20	10.0	0.05, 0.07

Note: N = 200, in each study area.

Proportion difference

$$\pi_1 - \pi_2 = (p_1 - p_2) \pm Z_{\alpha/2}\sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}$$

Table 5.3 shows that 182 (91.0%) TB subjects agreed to participate in the study in Lalitpur District and 180 (90%) agreed to participate in Dang District. The proportion difference was calculated using above-mentioned formula. It has been found that there is significant difference (95% CI of proportion 0.05, 0.07) in response rate between Lalitpur and Dang District. Thus, for the purpose of the study 180 subjects were included in each District and, all subjects were completed the study process.

5.5.2 Socio-Demographic Characteristics

1. Gender

More females (41.1%) respondents were found in NCA, where as (30.6%) females were found in CA. As shown in Table 5.2 the male female radio in CA is lower (out of total case 25% are female in CA and 31.68% in NCA) than NCA that contributed to the lower percentage of female in CA in this study.

Table- 5.4: Socio Demographic Characteristics of Respondents (Gender) by Comparing Study Areas

NCA					CA					P-value
Male		Female		Total	Male		Female		Total	
n	%	n	%	n	n	%	n	%	n	.048
106	58.9	74	41.1	180	125	69.4	55	30.6	180	

As shown in a Table 5.4 gender difference was not statistically significant (P-value .048) between the two Districts.

2. Age

Table 5.5 shows that (35.2% male and 42.6% female) respondents were aged 45 and above in CA. In contrast to CA, in NCA fewer respondents (27.4% male and 18.9%

female) were aged 45 and above. It indicates that compared to CA, NCA has a higher number of patients with the productive age group.

Table- 5.5: Socio Demographic Characteristics of Respondents by Comparing Study Areas - Gender and Age

Age (Years)	Male					Female					P-value**
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
14-24	40	37.7	29	23.2	231	34	45.9	19	35.2	128	NCA: MvsF P= .250 CA: MvsF P= .087
25-34	22	20.8	28	22.4		20	27.0	7	13.0		
35-44	15	14.2	24	19.2		6	8.1	5	9.3		
45 plus	29	27.4	44	35.2		14	18.9	23	42.6		
Unknown	-	-	-	-		-	-	1	-		
Total	106	100	125	100		74	100	54	100		
P-value*			.106					.019			

NCA = Non Conflict Area

CA = Conflict Area

* P-value by Chi-square test, Comparing NCA Vs CA, for each gender

** P-value by Chi-square test, comparing gender differences in NCA and in CA.

Table 5.5 shows that there is no statistical difference between age groups in males while there is statistical difference (P-value .019) in female comparing the Non-conflict area (NCA) and Conflict area (CA). When we look at each District, the study found that there are no statistical significant differences between the age groups by gender.

3. Education

Table 5.6 shows that illiteracy among male and female in CA is higher than in NCA (36.0% male and 63.6% female in CA; 17.9% male and 32.4% female in NCA).

Table- 5.6: Socio Demographic Characteristics of Respondents by Comparing Study Areas -Gender and Education

Education	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	N	n	%	n	%	n	
Illiterate	19	17.9	45	36.0	231	24	32.4	35	63.6	129	NCA: MvsF P= .039 CA: MvsF P= .001
Literate	87	82.1	80	64.0		50	67.6	20	36.4		
Total	106	100	125	100		74	100	55	100		
P-value			.004					.001			

Table 5.6 shows that there are strong statistical significant differences among Illiterate and Literate between NCA and CA in each gender (P-value .004 and .001) and by gender in CA (P-value .001). The study found that there are differences among Illiterate and Literate within gender in both Districts and that there is also difference found among illiterate and literate between genders in Dang.

4. Family Size

The larger composition of the family size (≥7 members) was found in Dang (59.2% male, 52.7% female) than (32.1% male and 28.4% male) Lalitpur, respondents had 7 or more family members in their house.

Table- 5.7: Socio Demographic Characteristics of Respondents by Comparing Study Areas - Gender and Number of Family Members

Family Size	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
1-6	72	67.9	51	40.8	231	53	71.6	26	47.3	129	NCA: MvsF P= .715 CA: MvsF P= .519
≥7	34	32.1	74	59.2		21	28.4	29	52.7		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					.009			

Table 5.7 shows that there are strong statistical significant differences in family sizes amongst males and females in both NCA and CA (P-value < .001 and .009) respectively. There are no statistical significant differences found among family sizes by gender within each District.

5. Religion

In both areas more patients were Hindus. However, there are difference in NCA and CA (95.2% male and 94.5 % female in CA; 66.0% male and 63.0% female in NCA).

Table -5.8: Socio Demographic Characteristics of Respondents by Comparing Study Areas by Gender and Religion

Religion	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	N	%		
Hindu	70	66.0	119	95.2	231	46	63.0	52	94.5	128	NCA: MvsF P= .066 CA: MvsF P= 1.000
Other	36	34.0	6	4.8		27	37.0	3	5.5		
Unknown	-	-	-	-		1	-	-	-		
Total	106	100	125	100		73	100	55	100		
P-value			<.001					<.001			

Table 5.8 shows that there are strong statistical significant difference found amongst religions in each gender between NCA and CA (P-value <.001 in both groups). There are no statistical significant found amongst religions by gender in NCA and CA. It shows in each gender, there are differences in religions between NCA and CA.

6. Occupation

The higher proportion of males and females were involved in Agriculture in CA (59.2% male, and 45.5% female). In contrast to CA, (16.2% male and 9.5% female) patients were involved in Agriculture occupation. Both Male (52.4%) and female (47.3%) were involved in business in NCA, however there were fewer (12.8% male and 23.6% female) were involved in CA. Monthly paid job refers to the workers who work in government and private and earned the monthly salary.

Table- 5.9: Socio Demographic Characteristics of Respondents by Comparing Study Areas by Gender and by Occupation

Occupation	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	N	n	%	n	%	n	
Agriculture	17	16.2	74	59.2	230	7	9.5	25	45.5	129	NCA: MvsF P= 1.000 CA: MvsF P= .240
Monthly paid	5	4.8	12	9.6		7	9.5	4	7.3		
Labor	28	26.7	23	18.4		25	33.8	13	23.6		
Business	55	52.4	16	12.8		35	47.3	13	23.6		
Unknown	1	-	-	-		-	-	-	-		
Total	105	100	125	100		74	100	55	100		
P-value	<.001					<.001					

Table 5.9 shows that there are strong statistical significant difference among occupations in male and female between NCA and CA (P-value < .001 and < .001) respectively. There are no statistical significant differences found amongst occupations

by gender within each District. It shows that occupations between two Districts are different.

7. Monthly Income

The Table 5.10 shows that more patients' (53.6% male, and 65.5% female) earn 1 USD or less (Rs. ≤ 2300) per day in CA. In contrast to CA (26.7% male and 28.4% female) patients' reported to be earned 1 USD or less per day in NCA.

Table -5.10: Socio Demographic Characteristics of Respondents by Comparing Study Areas by Gender and Monthly Income

Monthly income (Rupees)	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
≤ 2300	28	26.7	67	53.6	230	21	28.4	36	65.5	129	NCA: MvsF P= .840 CA: MvsF P= .411
2301-3,000	26	24.8	22	17.6		20	27.0	6	10.9		
3001-4,000	16	15.2	9	7.2		13	17.6	2	3.9		
> 4,000	35	33.3	27	21.6		20	27.0	11	20.0		
Unknown	1	-	-	-		-	-	-	-		
Total	105	100	125	100		74	100	55	100		
P-value			<.001					<.001			

Table 5.10 shows that there are strong statistical significant differences amongst income by gender between NCA and CA (P-value < .001 and <. 001) respectively. There are no statistical significant differences identified among monthly income by gender within each District. It shows that monthly incomes between two Districts are different.

5.5.3 Burden of Disease

Although the burden of disease has been done in the prevalence study in 5.2, following factors have been decided to include in the analysis.

1. Daily Use of the Drugs by the Patients

Table 5.11 shows that (29.6% male and 25.5% female) were not taking the drugs every day in CA. However, (10.4% male and 5.4% female) were not able to take the drugs every day. It shows that there are differences between NCA and CA.

Table- 5.11: Burden of disease by Comparing Study Areas by Gender and Daily Drug Use

Daily drug use	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
Yes	95	89.6	88	70.4	231	70	94.6	41	74.5	129	NCA: MvsF P= .361 CA: MvsF P=.697
No	11	10.4	37	29.6		4	5.4	14	25.5		
Total	106	100	125	100		74	100	55	100		
P-value	.001					.003					

Table 5.11 shows that there are statistical significant differences on daily drug in male and female between NCA and CA (P-value .001 and .003) respectively. There are no statistical significant differences found on daily drug uses by gender within each District. It shows that daily drug uses between two Districts are different, with those in Lalitpur being more compliant with drug taking.

2. Completion of 3 Microscopy Examinations

Table 5.12 shows that majority of the patients (54.4% male and 54.5% female) were not completed the 3-microscopy examinations in CA. In the NCA (34.9% male and 32.4% female) were not completed the 3-microscopy examinations in NCA.

Table- 5.12: Burden of disease by Comparing Study Areas, by Gender and 3 Microscopy Examinations by patients

Microscopy examination	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
Yes	69	65.1	57	45.6	231	50	67.6	25	45.5	129	NCA: MvsF P= .853 CA: MvsF P= 1.000
No	37	34.9	68	54.4		24	32.4	30	54.5		
Total	106	100	125	100		74	100	55	100		
P-value			.005					.019			

Table 5.12 shows that there are statistical significant difference on microscopy examination in male and female between NCA and CA (P-value .005 and .019) respectively. There are no statistical significant differences found on microscopy examinations by gender within each District. It shows that microscopy examinations during diagnosis between NCA and CA are different.

3. Stop Cough after Taking Drugs

The table shows that (29.0% males and 30.9% females) in CA have not been got stop cough after taking Drugs. In contrast to that (58.5% males and 64.9% females) in NCA were not got stop cough after taking TB drugs. There are differences between NCA and CA in stop cough.

Table-5.13: Burden of Disease by Comparing Study Areas by Gender and Stop Cough after taking TB Drug

Stop Cough	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	N	n	%	n	%	n	
Yes	44	41.5	88	71.0	230	26	35.1	38	69.1	129	NCA: MvsF P=. 479 CA: MvsF P= .939
No	62	58.5	36	29.0		48	64.9	17	30.9		
Unknown	-	-	1	-		-	-	-	-		
Total	106	100	124	100		74	100	55	100		
P-value	<.001					<.001					

Table 5.13 shows that there are strong statistical significant differences on stop cough in male and female between NCA and CA (P-value <. 001 and <. 001) respectively. There are no statistical significant differences found on stop coughs by gender within each District. It shows that stop cough between two Districts are different.

5.5.4 Physical Availability

In order to achieve the Specific objective number 2; to explore the differences in physical availability determining access to and utilization of TB services in area with and without civil conflict, the following analysis was done. The Chi-square test has been used to determine the statistical significance, after the exclusion of unknown.

1. Knowledge on TB Service Delivery System

Most of the patients from both study areas do not have knowledge on TB service delivery system (72.4% males and 66.2% females from NCA; 57.3% males and 87.3% females from NCA do not know about TB service delivery system). In

comparison to females from NCA (33.8%), the females from CA (12.7%) have lower knowledge on TB service delivery system.

Table- 5.14: Physical Availability by Comparing Study Areas, by Gender and Knowledge on TB Service Delivery System

Knowledge on TB service Delivery System	Male					Female					P-value
	NCA		CA		Total n	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
Yes	29	27.6	53	42.7	229	25	33.8	7	12.7	129	NCA: MvsF P= .472 CA: MvsF P <.001
No	76	72.4	71	57.3		49	66.2	48	87.3		
Unknown	1	-	1	-		-	-	-	-		
Total	105	100	124	100		74	100	55	100		
P-value			.025					.011			

Table 5.14 shows that there is statistical significant difference in knowledge on TB service delivery system in female between NCA and CA (P-value .011). There is strong statistical significant difference found (P-value <. 001) on knowledge on TB service delivery system by gender within CA. It shows that knowledge on TB service delivery system between among female in two Districts are different. It also shows that knowledge on TB service delivery system between male and female in CA is different.

2. Do All Diagnosed Cases Access to Treatment?

The Table 5.15 shows that in NCA (11.3% males and 8.1% females) mentioned that diagnosed do not access to access to treatment. However, (33.6% males and 43.6% females) mentioned that all diagnosed cases do not access to treatment.

Table- 5.15: Physical Availability by Comparing Study Areas by Gender and Diagnosed Cases Access to Treatment

Diagnosed Cases Access to Treatment	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	61	57.5	71	56.8	231	42	56.8	28	50.9	129	NCA: MvsF P=.716 CA: MvsF P= .354
No	12	11.3	42	33.6		6	8.1	24	43.6		
I don't know	33	31.1	12	9.6		26	35.1	3	5.5		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

Table 5.15, shows that there are strong statistical significant difference on diagnosed cases access to treatment in male and female between NCA and CA (P-value <. 001 and <. 001) respectively. There are no statistical significant differences found on stop coughs by gender within each District. It shows that all diagnosed cases access to treatments between two Districts are different.

3. Completion of the Treatment Course

The respondents from NCA (62.3% males, and 67.4 %females) mentioned that the patients complete the treatment course where as respondents from CA (17.1% males and 10.7% females) mentioned that the all patients complete the treatment course. The Table 5.16 shows that 45 males and 43 from NCA and 55 males and 26 females from CA were not respond to the question because they were under the treatment.

Table- 5.16: Physical Availability by Comparing Study Areas, by Gender and Completion of Treatment Course

Completion of Treatment Course	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
All	38	62.3	12	17.1	131	29	67.4	3	10.7	71	NCA: MvsF P=.740
Two third or less	23	37.7	58	82.9		14	32.6	25	89.3		
Unknown	45	-	55	-		31	-	27	-		CA: MvsF P=.544
Total	45	100	70	100		43	100	28	100		
P-value	<.001					<.001					

From Table 5.16, there are strong statistical significant differences among completion of treatment course in male and female between NCA and CA (P-value <. 001 and <. 001) respectively. There are no statistical significant differences found among completion of treatment course by gender within each District. It shows that completions of treatment course between two Districts are different.

4. Knowledge about TB Drugs

Table 5.17 shows that knowledge about TB drugs among patients in CA is better than NCA (52.8% males and 40% females from CA; 30.2% males and 29.7% females) knows about TB drugs.

Table- 5.17: Physical Availability by Study Comparing Areas by Gender and Knowledge about TB Drug

Knowledge about TB Drug	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	32	30.2	66	52.8	231	22	29.7	22	40.0	129	NCA: MvsF P= 1.000 CA: MvsF P=.155
No	74	69.8	59	47.2		52	70.3	33	60.0		
Total	106	100	125	100		74	100	55	100		
P-value			.001					.303			

From Table 5.17 there is statistical significant difference found on knowledge about TB drug in male between NCA and CA (P-value .001). There is no statistical significant difference found on knowledge about TB drug by gender within each District. It shows that knowledge about TB drug among male between two Districts are different.

4. Separate Examination Room for Males and Females

The Table 5.18 shows that CA has less separate examination room for males and females than NCA. The respondents from CA (88.0% males and 85.5%) mentioned that there is no separate examination rooms for males and female. However the respondents from NCA (69.8% males and 67.6% females) mentioned that there are no separate examination rooms for males and females.

Table- 5.18: Physical Availability by Comparing Study Areas, by Gender and Separate Examination Room for Male and Female

Separate Examination Room	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	32	30.2	15	12.0	231	24	32.4	8	14.5	129	NCA: MvsF P= .876 CA: MvsF P= .819
No	74	69.8	110	88.0		50	67.6	47	85.5		
Total	106	100	125	100		74	100	55	100		
P-value			.001					.034			

Table 5.18 shows that there is statistical significant difference found among separate examination room in males between NCA and CA (P-value .001). There are no statistical significant differences found in separate examination rooms by gender within each District. It shows that separate examination room among male between two Districts are different.

5. Satisfaction with All Aspects

Table 5.19 shows that almost of all respondents were not satisfied with TB services (86.4% males and 90.7% females). In contrast to CA, (56.6% males and 55.4% females) respondents from NCA.

Table- 5.19: Physical Availability by Comparing Study Areas, by Gender and Satisfaction with All Aspects of Health Facilities

Satisfaction with All Aspects	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	N	n	%	n	%	n	
Yes	46	43.4	17	13.6	231	33	44.6	5	9.3	128	NCA: MvsF P=.995 CA: MvsF P= .573
No	60	56.6	108	86.4		41	55.4	49	90.7		
Unknown	-	-	-	-		-	-	1	-		
Total	106	100	125	100		74	100	54	100		
P-value			<.001					<.001			

From Table 5.19 there are strong statistical significant differences found on satisfaction with all aspects in male and female between NCA and CA (P-value <. 001 and <. 001) respectively. There are no statistical significant differences found on satisfactions with all aspects by gender within NCA and CA. It shows that satisfactions with all aspects between NCA and CA are different.

5.5.5 Financial Affordability

As stated in the objective number three; to explore the differences in financial affordability determining access to and utilization of TB services in areas with and without civil conflict, following analysis was made in the study.

1. Problem in Continuing Treatment due to Affordability

Though the statistical significant differences were not found, The Table 5.20 shows that the problem in continuing treatment due to the affordability in CA is higher than NCA (25.6% males and 23.6 % females in CA; 17.0% males and 20.3% females).

Table- 5.20: Financial Affordability by Comparing Study Areas, by Gender and Problem in Continuing Treatment Due to the Affordability

Problem in Continuing Treatment	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
Yes	18	17.0	32	25.6	231	15	20.3	13	23.6	129	NCA: MvsF P= .715 CA: MvsF P=.512
No	88	83.0	93	74.4		59	79.7	42	76.4		
Total	106	100	125	100		74	100	55	100		
P-value			.154					.808			

Table 5.20 shows that there are no statistical significant difference in problem in continuing treatment due to the affordability by comparing study areas and gender.

2. Expenses of Each Visit

The expense of the each visit has been calculated by using the income of 1 day salary of lowest paid government worker (Rs. 100 per day). All of all respondents mentioned that they need the one day or less income of lowest paid government worker.

Table- 5.21: Financial Affordability by Comparing Study Areas, by Gender and Expense of Each Visit to Health Facility (Daily Salary of lowest paid government worker)

Expense of Each Visit	Male					Female					P-value
	NCA		CA		Total N	NCA		CA			
	n	%	n	%		n	%	n	%		
1 day or less	106	100	124	99.2	231	73	98.6	55	100	129	NCA: MvsF P= .411 CA: MvsF P= 1.000
2 day or more	0	0	1	0.8		1	1.4	0	0		
Total	106	100	125	100		74	100	55	100		
P-value	1.000					1.000					

Table 5.21 shows that there are no statistical significant differences on expense of each visit to health facility (salary of lowest paid government worker) by comparing study areas and gender.

3. Reduction of Daily Income

Table 5.22 shows that reduction of daily income after being TB patients is higher in CA than NCA. Respondents from CA and NCA (0.8% males, and 7.3% females; 29.2% males and 35.1% females) mentioned that they have no difference in their daily income.

Table- 5.22: Financial Affordability by Comparing Study Areas, by Gender and Reduction of Daily Income after Being TB Patient

Reduction in Daily income	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
25%	39	36.8	28	22.4	231	19	25.7	16	29.1	129	NCA: MvsF P= .532 CA: MvsF P= .010
50%	15	14.2	23	18.4		10	13.5	13	23.6		
75%	6	5.7	16	12.8		7	9.5	10	18.2		
100%	15	14.2	57	45.6		12	16.2	12	21.8		
Not reduced	31	29.2	1	0.8		26	35.1	4	7.3		
Total	106	100	125	100		74	100	55	100		
P-value	<.001					.005					

From Table 5.22, there are strong statistical significant difference on reduction in daily income in male and female between NCA and CA (P-value <. 001 and .005) respectively. There is statistical significant difference (P-value .010) found on reduction in daily income by gender in CA. It shows that reductions in daily income between NCA and CA are different. Reduction in daily income between male and female in CA is also different.

4. Community Saving

Table 5.23 shows that males in CA recommended community saving to make TB services affordable than males in NCA (35.2% males in CA and 8.5% CA). The existence of ethnic minority and social practices in CA is causing male to respond the need to community saving, where as in NCA the people are more individual centered.

Table- 5.23: Financial Affordability by Comparing Study Areas, by Gender and Use of Community Saving in Making TB Service Affordable

Community Saving	Male					Female					P-value
	NCA		CA		Total N	NCA		CA		Total n	
	n	%	n	%		n	%	n	%		
Yes	9	8.5	44	35.2	231	8	10.8	13	23.6	129	NCA: MvsF P= .791 CA: MvsF P= .173
No	97	91.5	81	64.8		66	89.2	42	76.4		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					.086			

From Table 5.23, there is strong statistical significant difference on community saving in male between NCA and CA (P-value <.001). There are no statistical significant differences found on community saving by gender in NCA and CA. It shows that community saving among males between NCA and CA are different.

5. Local Tax

Table 5.24 shows that more respondents from NCA were recommended the use local tax in making TB services than CA (76.4% males and 73.0% females; 36.8% males and 45.5% females). More patients in NCA are involved in business thus they might have respond to introduce local taxes.

Table- 5.24: Financial Affordability by Comparing Study Areas, by Gender and Use of Local Tax in Making TB Service Affordable

Local Tax	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	N	n	%	n	%	n	
Yes	81	76.4	46	36.8	231	54	73.0	25	45.5	129	NCA: MvsF P= .726 CA: MvsF P= .353
No	25	23.6	79	63.2		20	27.0	30	54.5		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					.003			

From Table 5.24, there is strong statistical significant difference on local tax in male (P-value <.001) and statistical significant difference found on local tax in female (P-value .003) between NCA and CA. There is no statistical significant difference found on local tax by gender in NCA and CA. It shows that local tax between NCA and CA are different.

5.5.6 Acceptability

As stated in objective number 4; to explore the differences in acceptability determining access to and utilization of TB services in areas with and without civil conflict, following analysis was done to identify the statistical significant differences in acceptability to TB services between NCA and CA.

1. First Visit while Diagnosis

Table 5.25 shows that more respondents from CA visited traditional healers than NCA (40.0%males and 58.2% Females CA; 18.9% males and 17.8% females in NCA). The socially and culturally attached communities in CA caused to visit traditional healers first.

Table- 5.25: Acceptability by Comparing Study Areas, by Gender and First Visit when While Diagnosis

First Visit	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Traditional healers	20	18.9	50	40.0	231	13	17.8	32	58.2	128	NCA: MvsF
Health Facilities	86	81.1	75	60.0		60	82.2	23	41.8		P= 1.000
Unknown	-	-	-	-		1	-	-	-		CA:
Total	106	100	125	100		73	100	55	100		MvsF P= .036
P-value	.001					<.001					

Table 5.25 shows that there is statistical significant difference on first visit of patients in male (P-value .001) and strong statistical significant difference found on first visit of patients in female (P-value <.001) between NCA and CA. There is no statistical significant difference found on first visit of patients by gender in NCA and CA. It shows that first visit of patients between NCA and CA are different.

2. Female health Workers Posting in Health Facility

Table 5.26 shows that in compare to CA, NCA has more female staffs working in health facilities. Respondents from NCA and CA (95.3% males and 93.2% females from NCA; 83.2% males, 81.8% females from CA) mentioned that there are female health workers in health facilities.

Table- 5.26: Acceptability by Comparing Study Areas, by Gender and Female Health Workers Postings in Health Facility

Female Health Workers	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	101	95.3	104	83.2	231	69	93.2	45	81.8	129	NCA: MvsF P= .743 CA: MvsF P= .991
No	5	4.7	21	16.8		5	6.8	10	18.2		
Total	106	100	125	100		74	100	55	100		
P-value			.007					.085			

From Table 5.26, there is statistical significant difference (P-value .007) on existence of female health workers in male between NCA and CA. There are no statistical significant difference found on existence of female health workers by gender in NCA and CA. It shows that existences of female health workers between NCA and CA among males are different.

3. Behavior of Health Workers

Table 5.27 shows that dogmatic behavior of health workers in NCA is higher than CA. Respondents from NCA and CA (45.3% males and 35.1% females from NCA; 24.8% males and 27.3% females in CA) mentioned that they are facing dogmatic (unsupportive) behavior of health workers.

Table -5.27: Acceptability by Comparing Study Areas, by Gender and Behavior of Health Workers in Health Facilities

Behavior of Health Workers	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Dogmatic	48	45.3	31	24.8	231	26	35.1	15	27.3	129	NCA: MvsF P= .055 CA: MvsF P= .232
Supportive	51	48.1	68	54.4		35	47.3	23	41.8		
Not good not bad	7	6.6	26	20.8		13	17.6	17	30.9		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					.198			

Table 5.27 shows that there is strong statistical significant (P-value <.001) found on behavior of health workers in male between NCA and CA. There are no statistical significant found on behavior of health workers by gender in NCA and CA. It shows that behavior of health workers among males between NCA and CA are different.

4. Knowledge about DOTS

Table 5.28 shows the respondents from NCA knows more about DOTS than CA (43.4% males and 47.9% females from NCA; 24.0% males and 9.3% females).

Table -5.28: Acceptability by Comparing Study Areas, by Gender and Knowledge about DOTS

Knowledge about DOTS	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	46	43.4	30	24.0	231	35	47.9	5	9.3	127	NCA: MvsF P= .654 CA: MvsF P= .038
No	60	56.6	95	76.0		38	52.1	49	90.7		
Unknown	-	-	-	-		1	-	1	-		
Total	106	100	125	100		73	100	54	100		
P-value			.003					<.001			

From Table 5.28, there is statistical significant difference found on knowledge about DOTS in male (P-value .003) and strong statistical significant difference found

on knowledge about DOTS in female (P-value <.001) between NCA and CA. There is no statistical significant difference found on knowledge about DOTS by gender in NCA and CA. It shows that knowledge about DOTS between NCA and CA is different.

5.5.7 Geographical Accessibility

As stated in objective number five; to explore the differences in geographical accessibility affecting access to and utilization of TB services in areas with and without civil conflict, following factors were analyzed in the study.

1. How to go to the Health Facilities?

Table 5.29 shows that almost all patients (98.0% males and 94.6% females) from NCA do not need to cross jungle or river while going to health facilities. However (62.4% males and 57.4% females) from CA respond that they need to cross while going to health facilities for treatment.

Table- 5.29: Geographical Accessibility by Comparing Study Areas, by Gender and How to go to Health Facilities

Go to Health Facilities	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Crossing jungle / river	2	2.0	78	62.4	227	4	5.4	31	57.4	128	NCA: MvsF P= .241 CA: MvsF P= .645
walk	100	98.0	47	37.6		70	94.6	23	42.6		
Unknown	4	-	-	-		-	-	1	-		
Total	102	100	125	100		74	100	54	100		
P-value	<.001					<.001					

From Table 5.29, there are strong statistical significant differences found on how to go to the health facilities in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on how to go to the health facilities by gender within each District. It shows that how to go to the health facilities between NCA and CA are different.

2. Time to go Health Facility

Almost of all respondents from NCA (95.3% males and 94.6% females) mentioned that they need 1 hour or less to go health facility. In contrast to that (44.8% males and 60.0% females) in CA mentioned they need to walk more than one hours to go health facilities.

Table- 5.30: Geographical Accessibility by Comparing Study Areas, by Gender and Time to Go Health Facilities

Time to Go Health Facility	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
1 hour or less	101	95.3	69	55.2	231	70	94.6	22	40.0	129	NCA: MvsF P= 1.000 CA: MvsF P= .086
More than 1 hour	5	4.7	56	44.8		4	5.4	33	60.0		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

From Table 5.30, there are strong statistical significant differences found on time to go health facility in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on times to go health facility by gender within each District. It shows that times to go health facility between NCA and CA are different.

5.5.8 Civil Conflict

In order to achieve the objective number six; to explore the difference between perceptions of TB subjects about civil conflict (mass campaigns, curfew, closure, casualties and killings) which might influence their decision to use or not to use of TB services in areas with and without civil conflict, following statistical analysis were done in this study.

1. Does Civil Conflict Threaten Access and Utilization?

All most all (96.2% males and 98.6% females) from NCA mentioned that there is no threat of civil conflict to access and utilization. However, (66.4% males and 72.7% females) from CA mentioned that they are being threaten by the civil conflict.

Table -5.31: Civil Conflict by Comparing Study Areas, by Gender and does Civil Conflict Threaten Your Visit to Health Facilities

Does Civil Conflict Threaten	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	4	3.8	83	66.4	231	1	1.4	40	72.7	129	NCA: MvsF P= .650 CA: MvsF P= .505
No	102	96.2	42	33.6		73	98.6	15	27.3		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

From Table 5.31, there are strong statistical significant differences found on threaten by civil conflict in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on threaten by

civil conflict by gender within each District. It shows that threatens by civil conflict between NCA and CA are different.

2. Mass Campaigns

Table 5.32 shows that all the respondents mentioned that mass campaigns by Maoist were not organized in NCA. However, (45.5% males and 40.0% females) mentioned that Mass campaigns were organized in CA. The statistical analysis could be done in problems from mass campaigns because of the constant value in NCA. In CA 90 respondents responded to the questions, out of that (84.2% males and 77.3% females) mentioned that they can not go to the health facilities during the mass campaigns organized by Maoist.

Table-5.32: Civil Conflict by Study Areas, by Gender and Mass Campaigns Organized by Maoist in Last 3 Months

Mass Campaigns	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	0	0	57	45.6	231	0	0	22	40.0	129	NCA:
No	106	100	68	54.4		74	100	33	60.0		No.
Total	106	100	125	100		74	100	55	100		statistic
											CA:
											MvsF
											P= .401
P-value			<.001					<.001			

Table 5.32, shows that there are strong statistical significant differences found on mass campaigns in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on mass

campaigns by gender within NCA and CA. It shows that mass campaigns between NCA and CA are different.

3. Curfew declared by Government

Table 5.33 shows, all of the participants from NCA mentioned that curfews were not declared. In contrast, (76.8% males and 81.8% females) respondents from CA mentioned that the curfews were declared every day for the last 1 year. No statistical significance has been calculated on the problems from curfew. Out of total 180 respondents in CA, 141 respondents responded to the question, majority (51.0% males and 55.6% females) respondents responded that they can not go to the health facility during the curfew.

Table-5.33: Civil Conflict by Comparing Study Areas, by Gender and Curfews Declared by Government in Last 3 months

Curfews Declared	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Yes	0	0	96	76.8	231	1	1.4	45	81.8	129	NCA: No. statistic CA: MvsF P= .744
No	106	100	29	23.2		73	98.6	10	18.2		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

Table 5.33, shows that there are strong statistical significant differences found on curfew declared in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on curfew declared by gender within NCA and CA. It shows that curfew declared between NCA and CA is different.

4. Closures Declared by Maoist

Table 5.34 shows that (69.8% males and 74.3% females; 90.4% males and 96.4% females) from NCA and CA mentioned that closures were declared by Maoist during last 3 months.

Table- 5.34: Civil Conflict by Comparing Study Areas, by Gender and Closures Declared by Maoist in Last 3 months

Are Closures Declared	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Declared	74	69.8	113	90.4	231	55	74.3	53	96.4	129	NCA: MvsF P= .622 CA: MvsF P= .233
Not declared	32	30.2	12	9.6		19	25.7	2	3.6		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					.002			

Table 5.34 shows that there are strong statistical significant differences on closure declared in male and female between NCA and CA (P-value <.001 and .002) respectively. There are no statistical significant differences found on closure declared by gender within NCA and CA. It shows that closure declared between NCA and CA are different.

5. Problems during Closure

Out of total 180 respondents from each study areas (123 from NCA, and 166 from CA) were responded to the questions. Table 5.35 shows that in NCA (21.7% males and 27.8% females) mentioned that during the closures they can not go to the health facility. In contrast to that (73.5% males and 75.5% females) from CA

mentioned that they can not go to the health facilities during the mass closures declared by Maoist. Only known values were used to calculate the P-value.

Table- 5.35: Civil Conflict by Comparing Study Areas, by Gender and Problems during Closures

Problems During the Closures	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Can not go to HF.	15	21.7	83	73.5	182	15	27.8	40	75.5	107	NCA: MvsF P= .574 CA: MvsF P= .931
No problem	54	78.3	30	26.5		39	72.2	13	24.5		
Unknown	37	-	12	-		20	-	2	-		
Total	69	100	113	100		54	100	53	100		
P-value			<.001					<.001			

Table 5.35 shows that there are strong statistical significant differences on problems during closure in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on problems during closure by gender within NCA and CA. It shows that problems during closure between NCA and CA are different.

6. Were Casualties Happened?

Table 5.36 shows that casualties were not happened in NCA. However, respondents from CA (78.4% males and 76.4% females) mentioned that the casualties happened. Due to the no data from NCA, P-value on the problem from casualties was not calculated. Total 139 respondents from NCA were responded to this question. Out of that (51.5% males and 33.3% females) mentioned that they can not go to the health facilities during the casualties. The calculation made from the known value.

Table- 5.36: Civil Conflict by Comparing Study Areas, by Gender and Casualties Happened During Last 6 Months

Were Casualties Happened	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Happened	0	0	98	78.4	231	1	1.4	42	76.4	129	NCA: MvsF P= .856 CA: MvsF P= .914
Not happened	106	100	27	21.6		73	98.6	13	23.6		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

Table 5.36, shows that there are strong statistical significant differences on casualties happened in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on casualties happened by gender within NCA and CA. It shows that casualties happened between NCA and CA are different.

7. Killings by both Armed Forces

The questions were asked to the respondents that whether killings happened in their house or in their communities during last 3 moths or not. Table 5.37 shows that no killings happened in NCA. In contrast to that (76.0% males and 90.9% females) respondents from CA mentioned that the killings were took place in their house or communities. The problems during the killings were also asked to the respondents; due to unavailability data from NCA, P-value was not calculated. Out of 180 respondents, 145 respondents responded to the questions. Respondents (10.5% males and 22.0% females) mentioned no problems during the killings. The known values were added for the calculation.

Table -5.37: Civil Conflict by Comparing Study Areas, by Gender and Killings Happened During Last 3 Months

Were Killing Happened	Male					Female					P-value
	NCA		CA		Total	NCA		CA		Total	
	n	%	n	%	n	n	%	n	%	n	
Happened	0	0	95	76.0	231	0	0	50	90.9	129	NCA: No statistic CA: MvsF P= .064
Not happened	106	100	30	24.0		74	100	5	9.1		
Total	106	100	125	100		74	100	55	100		
P-value			<.001					<.001			

Table 5.37, shows that there are strong statistical significant differences on killing happened in male and female between NCA and CA (P-value <.001 and <.001) respectively. There are no statistical significant differences found on killing happened by gender within NCA and CA. It shows that killings happened between NCA and CA is different.

5.5.9 Differences in the factors determining access to and utilization

a. Differences in the factors determining access

In order to answer the objective number 2 to 6 a univariate analysis was done by calculating the 95% confidence interval for odds ratio and P-value by using the Chi-square test. The differences in independent variables (Burden, physical availability, Financial affordability, acceptability, geographical accessibility and civil conflict) determining access (can patients takes drugs every day)? between NCA and CA were measured by using the factors related to each independent variables.

Table- 5.38: Association between factors and access in NCA and CA to show the differences

Factors	NCA		CA	
	95% CI for OR	P-Value	95% CI for OR	P-Value
Stop Cough	.543,1.823	.986	.421,1.542	.514
Knowledge about TB service	1.282,5.107	.007	.602,2.099	.714
Microscopy in HF	1.784,7.630	<.001	.830,2.791	.174
Knowledge about TB drugs	2.312,10.795	<.001	.839,2.734	.168
Separate examination room	1.228,4.770	.010	.365,2.109	.771
Affordability	.410,1.870	.731	.413,1.596	.545
Expenses for each visit	.000,2.3E+09	.386	.000,2.1E+09	.364
First visit for diagnosis	.452,2.084	.939	.734,2.390	.351
Satisfaction	.227,1.075	.072	1.480,12.332	.004
Female staffs in HF*	.241,3.254	.855	1.173,5.866	.016
Dogmatic behavior of HW**	.248,.836	.011	.142,.585	<.001
HF in walking distance	.237,.842	.012	.678,2.371	.416
Time to go health facilities	.151,2.243	.427	.730,2.371	.361
Mass campaigns	.632,1.730	.386	.637,2.084	.640
Curfews	.633,1.483	.544	.521,2.162	.870
Closures	.372,1.134	.386	.083,1.143	.046
Casualties	.681,1.598	-	.640,2.619	.471
Killings	.643,1.503		.571,2.504	.023

* Health facility, ** Health worker

As defined in Chapter IV, 18 factors were used in statistical model they are; "Stop cough", "knowledge about TB service", "Microscopy in health facility (HF)", "knowledge about TB drugs", "separate examination room", "affordability", "expenses for each visit", "first visit for diagnosis", "satisfaction", "female staffs in HF", "dogmatic behavior of health workers (HW)", "HF in walking distance", "time to go health facilities", "mass campaigns", "curfews", "closures", "casualties", and "killings".

Table 5.38 demonstrated that knowledge about TB service, availability microscopy in HF, knowledge about TB drugs and separate examination room are statistically associated (P-value.007,<.001,<.001 and .010) respectively, in NCA. However, no association found in CA, thus there are difference in knowledge about TB service, availability microscopy in HF, knowledge about TB drugs and separate examination room between NCA and CA. The dogmatic behavior and access in statistically associated in both NCA and CA (P-value.011, and <.001). In NCA the HF in walking distance is statically associate (P-value .012), but not significant in CA. In CA the satisfaction of patients, female staffs in HF, closures and killings are statically associated (P-value .004,.016,.046 and .023), but not significant in NCA.

a. Differences in the factors determining utilization

As mentioned in first paragraph of page 174, all the factors were used to measures association between factors and the utilization (Are the patients taking TB drugs every day?) in NCA and CA.

Table- 5.39: Association between factors and utilization in NCA and CA to show the differences

Factors	NCA		CA	
	95% CI for OR	P-Value	95% CI for OR	P-Value
Stop Cough	.425,3.976	.510	.375,1.628	.645
Knowledge about TB service	.085,.749	.009	.385,1.502	.429
Microscopy in HF	.447,6.124	.631	.439,1.692	.666
Knowledge about TB drugs	.208,1.824	.377	.372,1.370	.310
Separate examination room	.090,.787	.012	.655,6.288	.212
Affordability	.000,67E+27	.055	.600,2.821	.504
Expenses for each visit	.000,1.9E+17	.762	.000,1.4E+14	.111
First visit for diagnosis	.142,3.077	.594	.283,1.083	.082
Satisfaction	.123,2.653	.470	.056,1.127	.043
Female staffs in HF*	1.292,24.644	.011	.156,1.192	.097
Dogmatic behavior of HW**	.619,6.620	.235	.323,1.360	.036
HF in walking distance	1.204,11.309	.016	.890,3.642	.100
Time to go health facilities	.000,4.9E+19	.353	.384,1.413	.357
Mass campaigns	.291,.952	-	.444,1.653	.645
Curfews	.274,.806	.762	.863, 3.851	.113
Closures	.580,2.245	.100	.663,6.134	.209
Casualties	.213,.635	.762	.514,2.399	.791
Killings	.162,.498	-	.296,1.670.	.047

* Health facility, ** Health worker

Table 3.39 demonstrate that the knowledge about TB service, separate examination room, and female staffs in HF are statically associated (.012,.011, and.016) with utilization of TB services in NCA. The model clearly shows that these factors are not statistically associated with utilization in NCA, thus there are difference in these factors determining utilization in NCA and CA. The table also shows that, satisfaction of patients, dogmatic behavior of health workers and killings are statistically associated (.043,.036 and .047) with utilization in CA. The model demonstrates that these factors are not statistically associated with utilization in NCA. The table 3.39 shows that there are differences in statistically significant factors and utilization between NCA and CA.

5.5.10 Conclusion

As guided by specific objectives 1-6 the differences by areas and gender were analyzed in this study first part. In part the differences in factors related to access and utilization were calculated by using P-value and 95% CI. The first part shows that the most factors related to access and utilization in both NCA and CA have been found to be statistically significant different. The univariate analysis concludes that burden and financial affordability are not statistically associated with access to and utilization of TB services. Following are the major conclusion from the univariate analysis.

1. The prevalence rates have been increasing in CA while it has been decreasing in NCA.
2. In NCA knowledge about TB service, availability microscopy in HF, knowledge about TB drugs, separate examination room and HF in walking distance were statically associated with access (P-value.007,<.001,<.001, .010

and .012) respectively,. No association has been found between these factors and access in CA.

3. The dogmatic behavior and access found to be statistically associated in both NCA and CA (P-value.011, and <.001). That represents the similarity between NCA and CA.
4. In CA the satisfaction of patients, female staffs in HF, closures and curfews identified to be statically associated with access (P-value .004,.016,.046 and .023), but not significant in NCA.
5. In NCA, the Knowledge about TB service, separate examination room, and female staffs in HF were statically associated with utilization (.012,.011, and.016).No association found in CA, that indicates the differences between NCA and CA.
6. In CA satisfaction of patients, dogmatic behavior of health workers and killings are statistically associated (.043,.036 and .047) with utilization. No association was found in NCA.
7. Statistical significant difference found in age of respondents by comparing study areas and gender. The interesting factors are the number of patients aged 45 plus in CA are more than NCA (35.2% males and 42.6% females in CA, 27.4% males and 18.9% females in NCA).
8. Female patients in CA are more illiterate than female patients in NCA (63.6% CA, 32.4% NCA).

9. The bigger family size, (>7 members in one family) has been found in CA than NCA, (59.2% males, and 52.7% females in CA; 32.1% males and 28.4% females in NCA) have >7 members in their house.
10. More Hindus in CA than NCA (95.2% males in CA and 66.0% males in NCA).
11. More respondents' occupation in CA is agriculture (59.2% males and 45.5% females) but more respondents involved in business in NCA (52.4% males and 47.3% females).
12. More patients in CA (65.5% females) earn 2,300.00 NRS. or less than NCA (28.4% females).
13. Female are more compliant than male in both NCA and CA. In CA (70.4% males and 74.4% females) takes drugs every day. In NCA (89.6% males and 94.6% females takes drugs every day.
14. An interesting finding found in NCA that after a month of taking TB drugs (58.5% males and 64.9% females) were not stop coughing. However, in CA (71.0% males and 69.1% females) stop coughing after a month of drug.
15. More male in CA knows about TB service delivery system than NCA (42.7% CA and 27.6% NCA). However, more female from NCA knows about system than CA (33.8% NCA and 12.7% CA).
16. The knowledge about TB drugs in CA is better (52.8% males in CA and 30.2% males in NCA knows) than NCA.
17. The provision of separate examination room is better in NCA than CA (30.2% males from NCA and 12.0% CA said yes for availability of rooms).

18. More respondents (86.4% males and 90.7% females) in CA are not satisfied in compare to (56.6% males and 55.4% females) in NCA.
19. In compare to NCA, respondents from CA are facing problem of affordability (25.6% males and 23.6% females from CA; 17.0% males and 20.3% females).
20. Reduction in daily income in CA has been identified to be higher than NCA (45.6% males and 21.8% females from CA; 14.2% males and 16.2% females from NCA, got 100% reduction in their daily income).
21. Respondents suggested to use community saving in CA and NCA (35.2% males from CA and 8.5% from NCA). It shows the social attachments in CA.
22. More respondents from NCA suggested local tax to make TB services sustainable than CA (76.4% males from NCA and 36.8% males from CA).
23. More patients in CA have been identified to be visited traditional healers than NCA (40.0% males and 58.2% females from CA; 18.9% males and 17.8% females from NCA).
24. More respondents from NCA mentioned the dogmatic behavior of health workers than CA (45.3% males and 35.1% females from NCA; 24.8% males and 27.3% females from CA).
25. More respondents in CA need to cross the river and jungle while going HF than NCA (62.4% males and 57.4% females from CA; 2.0% males and 5.4% females from NCA).
26. More respondents in CA need to travel more than 1 hour than NCA (44.8% males and 60.0% females from CA; 4.7% males and 5.4% females from NCA).

27. Conflict is affecting the more patients while getting access to and utilization of TB service in CA than NCA (66.4% males and 72.7% females from CA; 3.8% males and 1.4% females in NCA).

28. More than two third of the respondents responded that mass campaigns, curfews, closures, casualties and killings are being practiced in CA and affecting access to and utilization of TB services. Most of the respondents mentioned that during the abovementioned happening they could not go to health facilities for treatment.

5.6 Multivariate Analysis

Multivariate analyses were done in order to achieve the specific objective number Seven; to explore the strength of associations between the factors related to access to and utilization of TB services in areas with and without civil conflict. Associations between factors related to access to and utilization of TB services have been established by using logistic regression model. For the data analysis SPSS computer software was used.

5.6.1 Binary Logistic Regression

All the factors defined as access to and utilization of TB services in Chapter IV was entered into the Logistic Regression model. Statistical associations were calculated by using Binary Logistic Regression Model. P-value less than .05 has been taken as the statistical significant value. Total samples (n=360) were used in statistical calculation. Both access to and utilization of TB services was calculated as dependant variables. In

both logistic regression models presented as below had 13 missing cases (3.6% of total cases).

b. Associations between factors related to Access and Access

To measure the association with access, the following 18 factors were used; "Stop cough", "knowledge about TB service", "Microscopy in health facility (HF)", "knowledge about TB drugs", "separate examination room", "affordability", "expenses for each visit", "first visit for diagnosis", "satisfaction", "female staffs in HF", "dogmatic behavior of health workers (HW)", "HF in walking distance", "time to go health facilities", "mass campaigns", "curfews", "closures", "casualties", and "killings" that were related to access to services were used. Each of these factors were defined as the indicators of access to and utilization in Chapter IV and found to be related to access and utilization on univariate analysis. The results of this analysis are shown in Table 5.40, showing the Odds Ratios with their 95% Confidence Intervals and P-value.

Table -5.40: Associations between Factors Related to Access and Access

Factors	B	OR	95% CI for OR	P-Value
Stop Cough	-.142	.868	.540, 1.393	.557
Knowledge about TB service	-.056	.946	.533, 1.680	.850
Microscopy in HF	.518	1.679	.998, 2.827	.051
Knowledge about TB drugs	**.718**	**2.051**	1.206, 3.488	**.008**
Separate examination room	.281	1.243	.660, 2.341	.500
Affordability	.257	1.293	.710, 2.355	.401
Expenses for each visit	-6.437	.002	.000, 1.76	.649
First visit for diagnosis	.080	1.083	.639, 1.835	.767
Satisfaction	-.119	.888	.498, 1.584	.688
Female staffs in HF*	.297	1.345	.628, 2.881	.445
Dogmatic behavior of HW**	**-.778**	**.459**	.272, .777	**.004**
HF in walking distance	.117	1.124	.654, 1.933	.672
Time to go health facilities	.157	1.170	.638, 2.145	.611
Mass campaigns	.146	1.158	.576, 2.325	.681
Curfews	-.090	.941	.481, 1.736	.783
Closures	-.283	.754	.399, 1.425	.384
Casualties	.049	1.050	.505, 2.183	.896
Killings	-.192	.825	.386, 1.764	.620
Constant	**6.200**	**492.617**		.661

* = Health Facility
** = Health Worker

The model derived is Logit (Access) = 6.200 -.142 (stop cough) -.056 (knowledge about TB service) +.518 (Microscopy in HF) +.718(knowledge about TB drugs) +.281 (separate examination room) + .257 (affordability) -6.437 (expenses for each visit) + .080 (first visit for diagnosis) -.119 (satisfaction) + .297 (female staffs in HF) -.778 (dogmatic behavior of HW) +.117 (HF in walking distance) + .157 (time to go health facilities) +.146 (mass campaigns) -.090 (curfews) -.283 (closures)+ .049 (casualties) -.192 (killings).

As Table 5.40 shows, the statistical associations were revealed between access and two factors. The first is knowledge about TB drugs; study revealed that there is a statistical association (P-value .008) between knowledge about TB drugs and access. The model shows that if availability of microscopy in health facility increases by 1 unit the log (odds) of access will increase. The Odds Ratio for access in knowledge about TB drugs is 2.051 (in comparison to 1 in the reference group). The model indicates that the knowledge about TB drugs contribute to increase the access to TB services.

The second is the dogmatic (unsupportive) behavior of health workers; study found that there is statistical association (P-value .004) between dogmatic behavior of health workers and access to TB services. The model found that if dogmatic behavior of health workers increases by 1 unit the log (odds) of access will decrease. The Odds Ratio for access in dogmatic behavior of health workers is .459 (in comparison to 1 in the reference group). The model identified that the dogmatic behavior of health workers contributes to decrease the access to TB services. The rest of 15 factors have not been found to be statistically associated with access.

b. Associations between factors related to Utilization and Utilization of TB services

To measure the associations related to utilization, the same 18 factors were used; "Stop cough", "knowledge about TB service", "Microscopy in health facility (HF)", "knowledge about TB drugs", "separate examination room", "affordability", "expenses for each visit", "first visit for diagnosis", "satisfaction", "female staffs in HF", "dogmatic behavior of health workers (HW)", "HF in walking distance", "time to go health facilities", "mass campaigns", "curfews", "closures", "casualties", and "killings". Each of these factors were defined as the indicators of access to and utilization in Chapter IV and found to be related to access and utilization on univariate analysis. The Table 5.39 shows the analyses.

The model is Logit (Utilization) = .518 -.377 (stop cough) -.314 (knowledge about TB service) + .130 (Microscopy in HF) -.008 (knowledge about TB drugs) -.005 (separate examination room) + .747 (affordability) +1.613 (expenses for each visit) -.578 (first visit for diagnosis +.907 (satisfaction) -.332 (female staffs in HF) -.567 (dogmatic behavior of HW) + .774 (HF in walking distance) -.508 (time to go health facilities) +.042 (mass campaigns) + .226 (curfews) +.602 (closures) -.021 (casualties) -1.493 (killings).

Table- 5.41: Associations between Factors Related to Utilization and Utilization of TB services

Factors	B	OR	95% CI for OR	P-Value
Stop Cough	-.377	.686	.364, 1.293	.244
Knowledge about TB service	-.314	.731	.358, 1.490	.388
Microscopy in HF	.130	1.139	.566, 2.290	.715
Knowledge about TB drugs	-.008	.992	.506, 1.946	.982
Separate examination room	-.005	.996	.437, 2.267	.991
Affordability	.747	2.110	.887, 5.022	.091
Expenses for each visit	1.613	5.020	.113, 222.581	.404
First visit for diagnosis	-.578	.561	.281, 1.121	.102
Satisfaction	**.907**	**2.478**	**1.047, 5.861**	**.039**
Female staffs in HF*	-.332	.718	.254, 2.028	.532
Dogmatic behavior of HW**	-.567	.567	.273, 1.180	.129
HF in walking distance	**.774**	**2.169**	**1.107, 4.251**	**.024**
Time to go health facilities	-.508	.602	.290, 1.248	.173
Mass campaigns	.042	1.043	.466, 2.334	.918
Curfews	.226	1.253	.557, 2.819	.585
Closures	.602	1.826	.807, 4.132	.148
Casualties	-.021	.979	.401, 2.392	.963
Killings	**-1.493**	**.225**	**.080, .629**	**.004**
Constant	**.518**	**1.678**		**.807**

* = Health Facility
** = Health Worker

Statistical significant associations were reveled between utilization and three factors. Firstly, the study identified that the satisfaction to the TB services is associated (P-value .039) with utilization. The model shows that if satisfaction to the TB services increase by 1 unit the log (odds) of utilization will increase. The Odds Ratio (OR) for utilization in satisfaction to the TB services is 2.478 (in comparison to 1 in the reference group). The model indicates that the satisfaction to the TB services contribute to increase the utilization of TB services.

Secondly, study revealed that there is statistical association (P-value .024) between HF in walking distance and utilization. The model shows that if HF in walking distance increases by 1 unit the log (odds) of utilization will increase. The Odds Ratio (OR) for utilization in HF in walking distance is 2.169 (in comparison to 1 in the reference group). The model define that the HF in walking distance contribute to increase the utilization of TB services. It means that the HF in far distance could contribute less utilization of TB services.

Thirdly, statistically significant association (P-value .004) was found between killings and utilization. The model found that if killings increase by 1 unit the log (odds) of utilization will decrease. The Odds Ratio for utilization in killings is .225 (in comparison to 1 in the reference group). The model identified that the killings occurred in the family and community contributes to decrease the utilization of TB services. The rest of 15 factors have not been found to be statistically associated with utilization.

5.6.2 Conclusion

The Logistic regression model identified that 3 different factors are associated with access to and utilization of TB services, i.e. the availability of microscopy in HF, knowledge about TB drugs and dogmatic behavior of health workers are all statistically associated with access to TB services. The model indicated that if the National Tuberculosis Control Program (NTP) concentrates on these factors in DOTS Treatment Centers and Sub-Centers the access to TB services will increase.

Three factors were found to be statistically associated with utilization of TB services. These were satisfaction with the TB services, health facility within walking distance and killings in the family and community. The model suggested that if NTP could concentrate on these factors in DOTS Treatment Centers and Sub-Centers the utilization of TB services will increase.

5.6.3 Implication of Quantitative Data in terms of Planning

Many of the issues of the planning have been covered by secondary data; focus group discussions, and planning meetings. Following are the issues for planning raised from the both univariate and multivariate analysis.

1. Planning issues for NCA

A. Established the systematic recording system.

B. Multicultural and multi-religious advertisement.

C. Expansion of DOTS Treatment Centers and Sub Centers.

D. Create TB awareness by giving focus on the productive age group (<45

years).

E. Provide clear information on TB drugs.

F. Improve the behavior of health workers.

G. Introduce the local tax to support sustainable control of TB.

H. Promote the satisfaction of patients: patients centered treatment.

I. Create the awareness on DOTS.

2. Planning issues for CA

A. Establish the systematic recording system.

B. Expand the Microscopy Centers.

C. Expand the DOTS Sub-Centers.

D. Introduce the interpersonal communication.

E. Aware the people with special preference to the age > 45.

F. Introduce the community saving for sustainable TB control.

G. Promote the health education in each DOTS Treatment Center and Sub Center.

H. Create the awareness on the conflict and TB.

I. Improve the information system and provide right suggestion to TB patients.

J. Promote patients centered treatment.

5.7 Refinement of the Plans by Combining Qualitative and Quantitative Data

5.7.1 Planning to be Used by District Health Facilities (DHF), Lalitpur

Introduction

The participatory approach was used to develop the plan for TB control in Lalitpur District. All the participants (9) who participated in the planning process were partners of the National TB control program declared by National Tuberculosis Center (NTC), Nepal. Participants were from; District Development Committee (DDC), Municipality, District Health Office (DHO), DOTS Center, YUHP (Yala Uurban Health Project), TB patients (3), Nepal Anti Tuberculosis Association (NATA), and Community Volunteer. The planning steps developed by Primary Health Care Management Advancement Program (PHCMAP), planning and assessing health workers activities module # three were adapted in this study.

Following steps were utilized while developing the plan in Lalitpur District. With the individual level help of all participants the Principal Investigator (PI) accomplished the step one. The rests of the steps (1-3) were done by an equitable participation of all participants in a group.

Step 1. Description and Map of the Target Area

a) Primary and Secondary Data

The secondary data and information were collected from different governmental and non-governmental agencies, which were working in TB control program in Lalitpur

District. The TB records kept by DHO were reviewed first and the name lists of the DOTS Centers were noted. The socio-demographic data were collected from DDC. Other related information was collected from DOTS center of Patan Hospital, TB patients, United Mission to Nepal; Community Development and Health Project (CDHP) and Lalitpur sub-metropolitan city. The primary sources of this planning are the questionnaire and the focus group discussions.

The socio-demographical situation of the District has been reported to be better than average national figures. The literacy rates of male and female were 80.8 percent and 59.4 percent respectively. The DDC Lalitpur (2003) mentioned that except for some hilly areas the means of transportation can reach the most part of the District. The total population has been reported to be 337,785 (male 172,455 and female 165,330) in 2001. The population growth rate was 2.73 percent in 2001 (CBS, 2002). All the basic education, communication and water and sanitation have been identified to be good in the District.

It has been identified that that there were 30 Sub-Health Posts, 9 Health Posts, 3 Primary Health Centers, 1 Government (Supported by UMN) Hospital, 1 Mental Hospital, One Leprosy Hospital, some nursing homes, herbalists and private medical practitioners were functioning in Lalitpur District.

Under the District Health Office (DHO), total 23 DOTS Centers are providing the TB services in the District. National Tuberculosis Center (2001/2002) reported that

10 DOTS center are providing Microscopy services in the District. A total of 717cases were reported in the year 2002/2003. The total positive cases were 363 (male 248 and female 115). The patients and providers mentioned that except few Centers all most all Centers are highly accessible to the patients.

b) Target Areas

The study has been conducted in 16 of the 23 DOTS Centers. Thus the target area was decided to be whole District.

c) Maps of Target Areas

The map of the District has been collected from DDC and showed the areas where DOTS Centers are located. The help from DDC and DHO staffs were achieved while finalizing the map of the DOTS Centers (See Appendix B).

Step 2. Needs and Available Resources

The Focus Group Discussion (FGD) was conducted to identify the community needs and available resources. Step 1 has been presented and components of step 2 were presented among the participants. For each step common consensus of the participants was achieved.

a) Indicators of Access and Utilization of TB Services

All of the participants agreed upon the following 2 indicators

1. Access to services refers to the case detection of more than 70 percent. And it should address the patients' experiences, which means access refers to possibility of obtaining services by all people regardless the class, caste, geography and education.

2. Utilization of services refers to the cure rate more than 85 percent. It should also be able to deal with the patients experience on whether they are faced the problem in utilizing the services every day or not.

b) Internal and External Resources

For the purpose of this plan internal resources mean the resources available in District Health Facility, DOTS microscopy Centers, and DOTS Sub-Centers. In another way internal resources mean the resources allocated by Ministry of Health, National Tuberculosis Center. The external resources define the inputs from other than MOH/NTC. Following resources were identified during the discussion among the participants (for more see Appendix K).

Step 3. Priorities and High –Risk Groups

a) Priorities for TB Control

The priorities were set after reviewing the issues come from the questionnaire and FGD. Participants were came up with many ideas to deal with problems creatively. Common consensuses were made after a wider level of discussion.

1. Hold the detected cases properly and increase the adherence to the TB services.
2. Improve the recording system in DHO and DOTS Treatment Centers and Sub Centers.

3. Work on the possibility of local tax for sustainable TB control.
4. Create an awareness level by giving special focus on the age <45 years.
5. Promote the supportive behavior of health workers.
6. Provide the health education about the treatment course, side effects of the drugs. and need to follow-up sputum examinations.
7. Ensure the 2nd, 5th and 8th month's sputum examinations.
8. Manage the daily reporting in patients and treatment cards.
9. Encourage the local NGOs/CBOs (community based organizations) to from the TB patients association for the rights of the patients.

b) High Risk Group

Participants were unanimously agreed that the people who are working in Carpet factory were at high risk of TB infection. The poor ventilation, many people sleeping in the same room and poor knowledge on health were mentioned to be the causes of high risk groups. Secondly, the people from slum areas are also at high risk. Thirdly the internally migrated people were defined to be the high-risk group. Participants also mentioned that health workers (both microscopic staffs and DOTS workers) were also at risk of being infected by TB.

c) Risk Factors

The risk factors were drawn from the FGDs and individual experiences of the participants. Following were the major risk factors defined during the planning.

1. Adherence to the treatment. It is by both sides i.e. by patients as well as health workers.
2. Sputum making and preparation of the slide. Most of the female produce saliva and so it is hard to get rightly diagnosed.
3. Sputum prepared by untrained health workers.
4. Poorly record the required doses in treatment card and patients' card. That can cause high or low doses. Low doses can lead to failure or drug resistance.

d) The Strategies to Mitigate the Risk Factors

Participants came up with various strategies to mitigate the risk factors. Following are commonly agreed strategies.

1. Train at least 3 health staffs from each center on DOTS and slide preparation so that patients will get right advice and drugs even when the mainly responsible person is not available in the certain period of time.

2. Organize the patients into an in formal group and encourage them to help each other for the better treatment compliance, manage working hours, carry the patients' cards every day and make the sputum properly.

Step 4. Plan TB Service Activities

The TB service activities plan was developed after completing the all the above-mentioned process. Participants were came up with the activities what they are carrying

out in individual settings. The individual level activities were matched with the questionnaire and FGD findings then listed the activities in different year with different specific objectives. The participants also set the indicators for each activity.

A. Objectives

A. General Objectives (By the end of 2009)

1. To improve the Access to and Utilization of TB services in Lalitpur District.

2. To sustain the 70 percent case detection and 85 percent cure rate.

3. To reduce the prevalence rate of the TB from 202.81 in 2003 to 152.11 (per 100,000, population) in the year 2009.

B. Strategies to Achieve the Objectives

1. Expansion of DOTS in all HP and SHP.
2. Expansion of DOTS in all private hospital, teaching hospitals and nursing homes.
3. Train sufficient number of health staffs for DOTS and Microscopy.
4. Use the TB patients association in improving compliance and panning of TB services.
5. Cross supervision; public, private and civil societies.

C) Yearly Specific Objectives, Activities, Indicators and Resources

The yearly plan has been decided to achieve the 5 years objectives. Most of the participants mentioned that the resources are not a big problem but mobilization does matter in the Lalitpur District.

1. The Year 2005

1.1 Objectives

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To Expand the DOTS Center in all Health Post.
3. To establish Public Private Forum for regular discussion on TB.
4. To train the health staffs from both Public and Private Sector on DOTS.
5. To establish the Public, Private and Civil Societies' Forum for partnership.

1.2 Activities

In order to achieve the objectives following activities has been decided to implement in target areas.

Table- 5.42: Yearly Activities for 2005

Activities	Indicators	Sources
Expand the DOTS to all HP	9 HP with DOTS	Report
Establish the proper reporting and recording system	Folders, files	Reports
Distribute Microscopes to all HP	#of Microscopes	Store record
Public private meetings	# of meetings	Report
Public, private and civil society meetings	# of meetings	Report
Train health staffs from private and civil societies	# of staffs	Report
Supervision by District DOTS committee	# of supervision	Report
World TB day by TB camps: Focus on youth	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual planning meeting with private, civil society and patients	# of participants	Plan

All the participants mentioned that the detail plan should be made by DHO and approved by DOTS committee.

1.3 Resources

Most of the activities can be carried out by the regular budget provided by NTC. The additional things are microscope and some meetings with partners. For the microscopes a formal request from DHO needs to be submitted to NTC. For the

meetings cost sharing can be done with NGOs and private sectors. Participants were believed that the proper implementation of this plan would bring the positive changes in the Lalitpur District.

1.4 Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The supports from the local government i.e. District Development Committee (DDC) and Municipality have been identified as the important support that can assist to sustain the achievements in TB control. Participants mentioned that Municipality has already been shown interest to take over a DOTS Sub-Center run by UMN/YUHP. Supports from the local Private Nursing Homes, Hospitals and Private Practitioners have been reported to be important support to control the TB. More importantly, support from the patients has been taken as only the factor that can make possible to achieve the objectives of NTC, Nepal.

2. The Year 2006

2.1 Objectives and Activities of the year 20056

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To Expand the DOTS Sub-Centers in 50 percent of all (30) Sub-Health Posts.
3. To establish the Patients' Association (PA), an informal group of TB patients.
4. Explore the possibility of integrating the TB massages in District level Public, Private and Civil Societies' routine activities.

Table- 5.43: Yearly Activities for 2006

Activities	Indicators	Sources
Expand the DOTS to SHP	15 SHP with DOTS	Report
Public private meetings	# of meetings	Report
Public, private and civil society meetings	# of meetings	Report
Train health staffs from private and civil societies	# of staffs	Report
Supervision by District DOTS committee	# of supervision	Report
Patients' Association formation	Committee	Register
Meetings of PA	# meetings	Register
Possibility of integrating the TB with stakeholders activities	# participants	Minute
World TB day by TB camps: Patients First	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual planning with private, civil society	# of participants	Plan

3.1 Objectives and the Activities of the Year 2007

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To Expand the DOTS Sub-Centers in 100 percent of all (30) Sub-Health Posts.
3. To develop the guidelines for integrating TB in District level Public, Private and Civil Societies' annual activities.

4. To train the members of the Patients Association (PA) on planning and monitoring skills.

Table -5.44: Yearly Activities for 2007

Activities	Verifiable	Sources
Expand the DOTS to SHP	30 SHP with DOTS	Report
Public private meetings	# of meetings	Report
Public, private and civil society meetings	# of meetings	Report
Train health staffs from private and civil societies	# of staffs	Report
Supervision by District DOTS Committee	#supervision	Report
Patients' Association meetings	#meetings	Register
Supervision by PA	# supervision	Report
Guidelines for integrating TB with other stakeholders	Guidelines	Guidelines
Meetings with DDC	# meetings	Report
Training on planning and supervision to PA members	# participants	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual planning meeting with private, civil society and patients	# participants	Plan

4.1 Objectives and the Activities of the Year 2008

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.

2. To Expand the DOTS Treatment Centers to all Private Nursing Homes.

3. To develop the strategies for acquiring the annual activities carried out by District level agencies through the DDC.

4. To institutionalize the planning developed by PA.

Table -5.45: Yearly Activities for 2008

Activities	Indicators	Sources
Expand the DOTS Treatment Center to Nursing Homes	3 Nursing Homes with DOTS	Report
Public private meetings	# of meetings	Report
Public, private and civil society meetings	# of meetings	Report
Train health staffs from private and civil societies	# of staffs	Report
Supervision by District DOTS Committee	# of supervision	Report
Patients' Association meetings	# meetings	Register
Supervision by PA	# supervision	Report
Strategies to get TB activities annually from DDC	# Paper	Guidelines
Meetings with DDC	# meetings	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual planning meeting with private, civil society and patients	# of participants	Plan

4.1 Objectives and the Activities of the Year 2009

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To acquire the list of annual activities done by District level agencies from DDC.
3. To finalize the plan developed by PA.

Table -5.46: Yearly Activities for 2009

Activities	Indicators	Sources
Public private meetings	# of meetings	Report
Public, private and civil society meetings	# of meetings	Report
Train health staffs from private and civil societies	# of staffs	Report
Supervision by District DOTS Committee	# of supervision	Report
Patients' Association meetings	# meetings	Register
Supervision by PA	#supervision	Report
Annual TB activities from DDC	#activities	Report
Meetings with DDC	#meetings	Report
World TB day by TB camps	# of camps	Report
National TB day by patients gathering	# of patients	Report
Planning meeting organized by PA	# of participants	Plan

Promoting Patients Participation and Integrating the TB with Poverty Reduction Projects in TB Control Program in Dang: A Five Years Plan to be used by District Health Facility

5.7.2 Planning to be used by District Health Facility Dang

Introduction

The participatory approach was used to develop the plan for TB control in Dang District. Eleven participants were involved in the planning process. All of the participants were partners of National TB control program declared by National Tuberculosis Center (NTC), Nepal. Participants were from; District Administration Office, District Development Committee (DDC), Municipality, District Health Office, Women Development Office, DOTS Center, International Nepal Fellowship (INF), Local media, TB patients (2), and Community Volunteer. The planning steps developed by Primary Health Care Management Advancement Program (PHCMAP), planning and assessing health workers activities module number three were adapted in this study. With primary sources of data a) quantitative and b) qualitative and the individual help of all participants, the Principal Investigator (PI) completed step one. The rests of the steps (1-3) were done by an equitable participation of all participants

Step 1. Description and Map of the Target Area

a) Primary and Secondary Data

The primary source of this planning are, a) questionnaire, and b) FGDs done in this study. The secondary data and information were collected from different governmental and non-governmental agencies, which were working in TB control program in Dang District. The TB records kept by DHO were reviewed first and the name lists of the DOTS Centers were noted. The socio-demographic data were collected from DDC. Other related information was collected from DOTS Treatment Center of INF, TB patients, and Tribhuvan Nagar Municipality.

The socio-demographical situation of the Dang has been reported to be poorer than average national figures. The literacy rates of male and female were (63.82 and 40.84 percent) respectively. The total population of Dang has been reported to be:

Table- 5.47: Population of Dang

	Year 1990	**Year 2001**
Male	175,985	228,763
Female	176,252	234,133
Total	352,237	462,896

Source: CBS 2001, DDC 2001

The female population is 1.2 percent higher than male. The annual population growth rate has been documented to be 2.67 percent.

It has been reported that there were 26 Sub-Health Posts, 11 Health Posts, 3 Primary Health Centers, 1 District Hospital, 1 TB and Leprosy Hospital and one AYURVEDA Hospital in Dang District . Under the District Health Office (DHO), a total 23 DOTS Centers were providing the TB services in the District in 2003. National Tuberculosis Center (2001/2002) reported that 4 DOTS Treatment Centers are providing Microscopy services in the District. The total cases reported in the year 2002/2003 were 999. The total positive cases were 568 (Male 425 and female 143). The patients and health workers mentioned that due to the conflict and geography they are facing problem in getting access to utilization of TB services.

More importantly, the Focus Group Discussion carried out in different 3 levels were used as the primary source of the data. The FGDs were useful in developing the common consensus among the participants during the planning. The major findings of the FGDs were pasted on the wall so that each participant could read them easily.

b) Target Areas

Out of 23 DOTS Centers the study has been conducted in 14 Centers. Thus the target area has been decided to be whole District.

c) Maps of Target Areas

The map of the District was collected from DDC and the areas where DOTS Centers were identified. DDC and DHO staffs were helpful while finalizing the map of the DOTS Centers (See Appendix C).

Step 2. Needs and Available Resources

The Focus Group Discussion (FGD) was conducted to identify the community needs and available resources. Step 1 has been presented and components of step 2 were presented among the participants. For each of the steps, common consensuses of the participants have been taken.

e) Indicators of Access and Utilization of TB Services

All of the participants agreed upon the following 2 indicators

1. Access to TB services refers to possibility of obtaining TB services by all people regardless the class, caste, geography, education and conflict situation.

2. Utilization of TB services refers to the use of TB services by all diagnosed cases. It should be able to deal with the patients experience on whether they are facing the problem in utilizing the TB services every day or not.

f) Internal and External Resources

For the purpose of these plans internal resources indicates the resources available in District Health Facility, DOTS microscopy Centers, and DOTS Sub-Centers. In another way internal resources mean the resources allocated by Ministry of Health, National Tuberculosis Center. The external resources define the inputs from other than MOH/NTC (see Appendix L).

Step 3. Priorities and High –Risk Groups

a) Priorities for TB Control

The priorities were set after reviewing the NTPs priority activities. Participants came up with many ideas to deal the problem constructively.

- To increase access to the TB services of rural population.
- Hold the detected cases properly and increase the adherence to the TB services.
- Ensure the provision and timely availability of health workers (Paramedics and Microscopic Staffs) in health facility.
- Integrate the TB messages into poverty reduction projects.
- Establish the Health Desk to create the understanding on the nature of TB Disease in DHO; by having participation of Health Institutions, Administrative Unit, Security Unit, TB Patients, DOTS Worker, Media and Civil Societies.
- Mange the bimonthly Public Hearing Meetings and ensure issues related to access and utilization of TB services. It should raise the supports and difficulties created by both Government and Maoist Armed Forces.
- Ensure the Consistency of the results of smear examinations among the Microscopy Centers.
- Encourage the local NGOs/CBOs to from the TB Patients Association for the rights of the patients.
- Organize the Integrated Health Camps (as a Health Fair), where people may get Diagnosis, Counseling, Treatment, Get-Together and Entertainment. The

Health Fair should organize an Independent Health Instruction. The Health Fair should be Free from Armed Weapons and supervised by Members of Civil Societies.

b) High Risk Group

It was agreed that the people in remote areas are in the high risk of completion of treatment, follow-up smear examinations and spreading TB. The findings from FGD suggested that Tharu ethnic minorities are at high level of risk of the treatment non-compliance. The reasons were a) no cooperation from Government Security Forces and b) heavily busy during rainy season. The poor ventilation, many people sleeping in the same room and poor knowledge of health were mentioned to be the causes of being high risk groups. Secondly, the people from slum areas are also at high risk. Thirdly, the internally migrated people (Salyan, Rolpa, and Rukum District s), were defined to be the high-risk group. Participants also mentioned that health workers both microscopic staffs and DOTS workers were also at risk of being infected by TB and due to the conflict they are at risk to visit DOTS Treatment Centers and Sub-Centers every day.

g) Risk Factors

The risk factors were drawn from the FGDs and individual experiences of the participants. Following were the major risk factors defined during the planning.

1. Conflict has put high level of threats in everyday access to and utilization of TB services.
2. Conflict also threats to the everyday availability of health workers in DOTS

Treatment Centers and Sub-Centers.

3. Sputum making and preparation of the slide. Most of the female can not produce saliva and so it is hard diagnosed.
4. Sputum prepared by untrained health workers and inconsistent results of Smear Examination among the Microscopy Centers.
5. Poorly record of the required doses on treatment card and patients' card. That can cause high or low doses. Low doses can lead to failure or drug resistance.
6. Working hours of the Health Facility, opens at 10 Am., people have to go for work at the same time. Due to the incompatibility of time and lack of support from work place many patients in Dang are facing problem.
7. Poor supervision from District level authorities.

h) The Strategies to Mitigate the Risk Factors

Participants were come up with various strategies to mitigate the risk factors. Following are commonly agreed strategies.

a. To establish the regular communication between Security Forces and DHO.
b. Implement the NTP treatment policy and manage the supervision from District to Treatment Center and Treatment Center to Sub-Center. Involve the Patients in supervision.
c. Integrate the TB messages in poverty reduction projects.
d. Establish a Health Desk to deal with the Conflict and TB service delivery issues.

e. Develop the guideline for protecting the patients' right to be cured in the Conflict Situation.

f. Make the Security Personnel aware about nature of TB disease.

g. Organize the bimonthly public hearing meeting and discuss on the issues related to access and utilization of health services, with special focus on TB services.

h. Train at least health 3 staff (including helper) from each Center on DOTS and slide preparation so that patients will get right advice and drugs even mainly the responsible person is not available in the certain period of time.

i. In from the patients about the Security situation and Dos and Don'ts in Conflict situation.

j. Organize the patients into an informal group and encourage them to help each other for the better treatment compliance, manage working hours, carry the patients' cards every day and make the sputum properly

k. Developed Dos and Don'ts posters and paste in each health Centers.

l. Disseminate the Dos and Don'ts to the TB patients in Security sensitive areas and Security check posts.

m. Promote the Gender sensitive health education in each DOTS Treatment and Sub Center.

n. Organize the Integrated Health Fairs in remote areas by independent health institutions.

Step 4. Plan TB Service Activities

The TB service activities plan was developed after completing the all the above-mentioned process. Participants were come up with the activities what they are carrying out in individual settings.

A. Objectives

General Objectives (By the end of 2009)

- To improve the Access to and Utilization of TB services in Dang District.

2. To reduce the prevalence rate of the TB from 208.24 in 2003 to 156.18 (per 00,000, population) by the year 2009.

3. To sustain the 70 percent Case Detection and 85 percent Cure Rate.

B. Strategies to Achieve the Objectives

- Implement the NTP treatment policy and manage the supervision from District to Treatment Center and Treatment Center to Sub-Center, Patients should be involved the in supervision.
- Establish a Health Desk under DHO to deal with the Conflict and TB Service delivery issues.
- Organize the bimonthly public hearing meeting and discuss on the issues related to access and utilization of health services specially focus on TB services.

- Organize the patients into an informal group and encourage them to help each other for the better treatment compliance, manage working hours, carry the Patients' cards every day and make the sputum properly.
- Expansion of DOTS Treatment Center in Mahendra Hospital.
- Expansion of DOTS Sub Center in all HPs and SHPs.
- Developed Dos and Don'ts during security sensitive situation posters and

  Disseminate in each health Centers.
- Train the sufficient number of health staffs for DOTS and Microscopy
- Promote the Gender sensitive health education in each DOTS Treatment and Sub Center.
- Organize the Integrated Health Fairs in remote areas by independent health institutions.
- Integrate the TB messages with poverty reduction projects.
- Maintain the functional coordination with civil societies, private clinics, and traditional healers.

C) Yearly Specific Objectives, Activities, Indicators and Resources

The yearly plan has been developed to achieve the 5 years objectives. Most of the participants mentioned that the resources are not a big problem but mobilization does matter in the Dang District. Mobilization of Local Government, I/NGOs, NGOs,

TB patients, educational institutions, traditional healers and trade union could contribute greatly in achieving the objective.

1. The Year 2005

5.1 Objectives

- To continue the regular treatment services provided by DOTS Centers and Sub- Centers.
- To Expand the DOTS Treatment Center in Mahendra Hospital.
- To establish the health desk in DHO.
- To organize the bimonthly public hearing meeting and discuss on the issues related to access and utilization of health services, with special focus on TB services.

1.2 Activities

In order to achieve the objectives it was decided to implement the following activities in target areas. The regular activities have been recommended to be carried out as usual. All participants suggested in integrating this plan with DHO annual activity plan. A budget of 300,000.00 Nepali Rupees has been estimated for the year 2005.

Table- 5.48: Yearly Activities for 2005

Activities	Indicators	Sources
Expand the Treatment Center	5 HPs with TC	Report
Establish Heath Desk	# of members	Record
Meeting of health desk	# of meetings	Record
Public Hearing	# of hearing	Report
Meeting with DDC and partners	# of meeting	Report
Meeting with civil society	# of meeting	Report
Trainings to traditional healers	# of participants	Report
Orientation to security personnel	# of participants	Report
Supervision by District to TC and TC to Sub center	# of supervision	Report
World TB day by TB camps: Patients first	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual planning meeting with private, civil society and patients	# of participants	Plan
Annual Planning meeting	# participants	Report

All the participants mentioned that the detail plan should be made by DHO and approved by DOTS Committee.

1.3 Resources

Participants agreed that the most of the activities can be carried out by the regular budget provided by NTC. The additional costs are; meetings, training and orientations to partners. For the meetings cost sharing can be done with NGOs and private sectors. Participants were believed that the proper implementation of this plan would bring the positive changes in the Dang District.

a. Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The supports from the local government i.e. District Development Committee (DDC) and Municipality have been identified as the important support. Supports from the local I/NGOs, CBOs and Trade Union have been reported to be important to control TB. More importantly, support from the security forces and patients has been taken as the factor that can make possible to achieve the objectives of NTC, Nepal.

2. The Year 2006

2.1 Objectives and Activities of the Year 2006

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To Expand the DOTS Sub-Centers in 100 percent of all (11) Health Posts.
3. To establish the Patients' Association (PA), an informal group of TB patients.
4. To train the DOTS and Microscopy workers on the security information.

5. Explore the possibility of integrating the TB massages in poverty reduction projects (Poverty and TB).

a. Activities

Following activities have been planned to carry out in the year 2006. All the participants have strongly recommended in developing the Action Plan by DHO. A total of 500,000.00 Nepali Rupees has been estimated for the activities.

Table -5.49: Yearly Activities for 2006

Activities	Indicators	Sources
Expand the Sub-Centers	# of Sub-Centers	Report
Meeting of Health Desk	# of meetings	Record
Public Hearing	# of hearing	Report
Meeting with DDC and partners	# of meeting	Report
from a Patients' Association	# of participants	Report
Train HW on security	# of participants	Report
Poverty and TB meeting	# of meetings	Report
Meeting with civil society	# of meeting	Report
Trainings to traditional healers	# of participants	Report
Orientation to security personnel	#of participants	Report
Supervision by District to TC and TC to Sub center	# of supervision	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Annual Planning meeting	# participants	Report

2.3 Resources

All the Participants decided that the most of the activities could be carried out by the regular budget provided by NTC Nepal. The additional funds may need to

expand the DOTS Sub-Center District level meetings, orientation, trainings, establishment of Patients Association (PA). Participants mentioned that NTC and Local Government should work collaboratively to establish the Patients Association and train the health workers on security issues. The cost proposal can be submitted to DDC, municipality, and I/NGOs.

2.4 Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The support from the local government i.e. District Development Committee (DDC), Municipality and I/NGOs have been identified as the important. More importantly, support from the security forces, media, traditional healers and patients has been taken as the factor that can make possible the achievement of the objectives of NTC, Nepal.

3. The Year 2007

3.1 Objectives and the Activities of the Year 2007

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To Expand the DOTS Sub-Centers in 50 percent of all (26) Sub-Health Posts.
3. To develop the Guidelines for integrating TB in Poverty Reduction projects carried out by District level Public, INGOs, NGOs , Private and Civil Societies'.
4. To develop printing materials and Dramas on the Dos and Don'ts during the conflict situation.

3.2 Activities

Following activities have been planed to be carried-out by DHO. The detail budget and action plan have been recommended to be developed by DHO. Total of 1000,000.00 Nepali rupees have been estimated to be required for the new activities.

Table- 5.50: Yearly Activities for 2007

Activities	Indicators	Sources
Expand the Sub-Centers	# of Sub-Centers	Report
Meeting of Health Desk	# of meetings	Record
Public Hearing	# of hearing	Report
Meeting with DDC and partners	# of meeting	Report
Patients' Association meeting	# of participants	Report
Train HW on security	# of participants	Report
Poverty and TB meeting	# of meetings	Report
Guideline on poverty and TB	Guideline	Report
Dos and Don'ts Drama	# of shows	Report
Dos and Don'ts posters	# of posters	Report
Meeting with civil society	#of meeting	Report
Trainings to traditional healers	# of participants	Report
Orientation to security personnel	# of participants	Report
Supervision by District to TC and TC to Sub center	# of supervision	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Maintain consistency Microscopy Centers	# participants trained	Report
Annual Planning meeting	# participants trained	Report

3.3 Resources

All the Participants decided that the most of the activities could be carried out by the regular budget provided by NTC Nepal. The additional funds may need to expand the DOTS Sub-Center District level meetings, orientation, trainings, guidelines publications drama shows and posters. The cost proposal can be submitted to DDC, municipality, and I/NGOs.

3.4 Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The supports from the local government i.e. District Development Committee (DDC), Municipality and I/NGOs have been identified as the important support. More importantly, support from the security forces, media, traditional healers and patients has been taken as only the factors that can make possible the achievement the objectives of NTC, Nepal.

4. The Year 2008

4.1 Objectives and the Activities of the Year 2008

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. Expand the DOTS treatment Centers to all Sub-Centers
3. To develop the strategies for acquiring the annual TB activities carried out by District level agencies through the DDC.
4. Promote the Gender sensitive health education in each DOTS Treatment and Sub Center.
5. Organize the Integrated Health Fairs in remote areas by independent health.

4.2 Activities

Following activities have been planned for the year 2008. The total 800,000.00 Nepali Rupees has been purposed for the whole year. The detail action plan recommended to be developed by DHO.

Table- 5.51: Yearly Activities for 2008

Activities	Indicators	Sources
Expand the Sub-Centers	# of Sub-Centers	Report
Meeting of Health Desk	#of meetings	Record
Public Hearing	# of hearing	Report
Meeting with DDC and partners	# of meeting	Report
Patients' Association meeting	# of participants	Report
Train HW on security	# of participants	Report
Poverty and TB meeting	# of meetings	Report
Training on gender and TB	# of participants	Report
Dos and Don'ts Drama	# of shows	Report
Integrated health fair	# of fairs	Report
Meeting with civil society	# of meeting	Report
Orientation to security personnel	# of participants	Report
Supervision by District to TC and TC to Sub center	# of supervision	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Maintain consistency Microscopy Centers	# participants	Report
Annual Planning meeting	# participants	Report

4.3 Resources

All the Participants decided that the most of the activities could be carried out by the regular budget provided by NTC Nepal. The additional funds may need to expand the DOTS Sub-Center District level meetings, orientation, trainings, guidelines publications drama shows and posters. For the cost proposal can be submitted to DDC, municipality, and I/NGOs.

4.4 Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The supports from the local government i.e. District Development Committee (DDC), Municipality and I/NGOs have been identified as the important support. More importantly, support from the security forces, media, traditional healers and patients has been taken as only the factor that can make possible to achieve the objectives of NTC, Nepal.

5 The Year 2009

5.1 Objectives and the Activities of the Year 2009

1. To continue the regular treatment services provided by DOTS Centers and Sub-Centers.
2. To acquire the list of annual activities done by District level agencies from DDC.
3. To finalize the plan developed by PA.

5.2 Activities

Following activities were planned for the year 2009. A total 500,000.00 NRs. has been estimated for the year.

Table -5.52 Yearly Activities for 2009

Activities	Indicators	Sources
Meeting of Health Desk	# of meetings	Record
Public Hearing	# of hearing	Report
Meeting with DDC	# of meeting	Report
Patients' Association meeting	# of participants	Report
Train HW on security	# of participants	Report
Poverty and TB meeting	# of meetings	Report
Collect annual report from DDC	# of activities	Report
Dos and Don'ts Drama	# of shows	Report
Integrated health fair	# of fairs	Report
Meeting with civil society	# of meeting	Report
Orientation to security personnel	# of participants	Report
Supervision by District to TC and TC to Sub center	# of supervision	Report
World TB day by TB camps	# of camps	Report
National TB day by patient patients gathering	# of patients	Report
Maintain consistency Microscopy Centers	# participants	Report
Annual Planning meeting	# participants	Report

5.3 Resources

All the Participants decided that the most of the activities could be carried out by the regular budget provided by NTC Nepal. The additional funds may need to District level meetings, orientation, and trainings. For the cost proposal can be submitted to DDC, municipality, and I/NGOs.

5.4 Local Support

In order to achieve the objectives, the local support has been identified to be very crucial. The supports from the local government i.e. District Development Committee (DDC), Municipality and I/NGOs have been identified as the important support. More importantly, support from the security forces, media, traditional healers and patients has been taken as only the factor that can make possible to achieve the objectives of NTC, Nepal.

Step 5. Evaluation Plan of the Plan

Participants agreed that the five-year plan should be evaluated and upgraded properly. National Tuberculosis Center (NTC) Nepal has identified the partners of the TB control program. Most of the partners are the Health Institutions. Apart from that, Local Government, security forces, Maoist (if possible), I/NGOs, traditional healers and the Patients have been taken as the partners. There is a need to include the following partners to evaluate the plan jointly; DHO, DDC, Security Forces, Maoist (if possible) Municipality, Patients Association, Representative from DOTS Treatment Center, representative from DOTS Sub-Centers, Traditional Healers, Private Sector,

NGO, Media, Human Right Group, and School. Total 14 evaluators were selected to evaluate the plan annually and at the end of five year. Following main factors has been identified to be evaluated during the planning. Evaluation committee should evaluate the both process and impact evaluation. The plan should be evaluated by the end of each year (from 2005 to 2009). The report of the evaluation should be submitted to the DHO annually. The recommendations from evaluation should be incorporated in annual plan. Following major 3 aspects needs to be considered during the evaluation.

1. To improve the Access to and Utilization of TB services in Dang District.
2. To reduce the prevalence rate of the TB from 208.24 (per 100,000 Population) in 2003 to 100 (per 100,000, population) by the year 2009.
3. To sustain the 70 percent Case Detection and 85 percent Cure Rate.

For the measurement interview with patients and health workers need to be done. Apart from that, medical records kept by DHO needs to be reviewed. For the each year activities the verifiable indicators mentioned in activity plan needs to be considered. The following important aspects have to be done by observation, reports review, record review and interviews.

1. Implement the NTP treatment policy and manage the supervision from District to Treatment Center and Treatment Center to Sub-Center, Patient should be involving the in supervision.
2. Establish a Health Desk under DHO to deal with the Conflict and TB service delivery issues.
3. Organize the bimonthly public hearing meeting and discuss on the issues

related to access and utilization of health services specially focus on TB services.

4. Organize the patients into an informal group and encourage them to help each other for the better treatment compliance, manage working hours, carry the patients' cards every day and make the sputum properly.
5. Expansion of DOTS Treatment Center in Mhendra Hospital.
6. Expansion of DOTS Sub Center in all HPs and SHPs.
7. Developed Dos and Don'ts during security sensitive situation posters and disseminate in each health Centers.
8. Train the sufficient number of health staffs for DOTS and Microscopy
9. Promote the Gender sensitive health education in each DOTS Treatment and Sub-Center.
10. Organize the Integrated Health Fairs in remote areas by independent health institutions.
11. Integrate the TB messages with poverty reduction projects.

The reports of the evaluations should be presented in the partners meeting and final paper should be submitted to DHO.