



## **FINAL EVALUATION**

### **THANZI (“GOOD HEALTH”) (TB HEALTH ACTIVITIES IN ZAMBIA)**

Chadiza, Chipata, Lundazi and Petauke districts  
Eastern Province, Zambia

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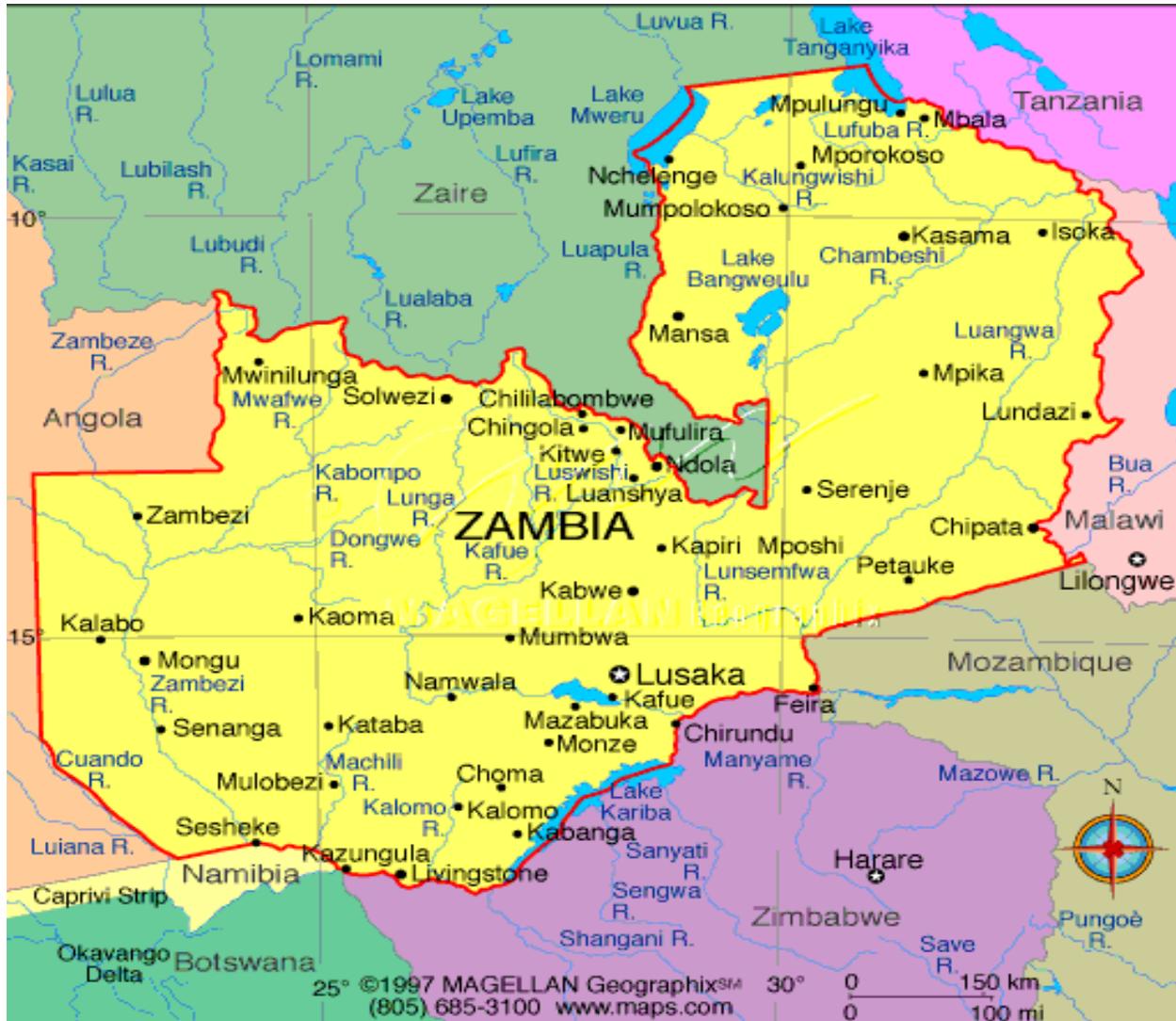
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## A. Preliminary Information

### Map of Zambia



Map copied from WHO 2010 NTL Review Report

## ***Acknowledgements***

The final evaluation (FE) mission took off in Lusaka, with discussions and interviews with CARE Zambia staff, NTLP Central Unit team and representatives of collaborating partners at national (CDC, TBCARE I, NAC) and provincial level (CIDRZ, ZATULET, CDC). We are grateful for these interactions, as they provided the necessary background information and highlighted the collaboration with CARE. During these visits the external consultant was accompanied by the Director MELU of CARE, who gave a lot of insight in CARE's operations and proved to be a good host as well.

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## ***Abbreviations and Acronyms***

ACSM	Advocacy, Communication and Social Mobilization
AFB	Acid-Fast Bacilli
AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-retroviral therapy
CARE	Co-operation for Assistance and Relief Everywhere
CBO	Community Based Organization
CBVs	Community Based Volunteers
CDC	Centers for Disease Control and Prevention
CDE	Classified Daily Employee
CDL	Chest Diseases Laboratory
CDR	Case Detection Rate
CF	Case finding
CHAZ	Churches Health Association of Zambia
CHW	Community Health Workers
CIDA	Canadian International Development Agency
CIDRZ	Centres for Infectious Diseases and Research in Zambia
CNR	Case Notification Rate
CPT	Cotrimoxazole Preventive Therapy
DIP	Detailed Implementation Plan
DMO	District Medical Officer
DHMT	District Health Management Team
DHO	District Health Office
DHS	Demographic and Health Survey
DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment, Short Course
DRS	Drug Resistance Survey
DST	Drug Susceptibility Testing
EP	Eastern Province
EQA	External Quality Assurance
FBO	Faith Based Organization
FDC	Fixed-Dose Combination (tablet)
FE	Final Evaluation
FGDs	Focus Group Discussions
FHI360	Family Health International
FPP	Focal Point Person
GDP	Gross Domestic Product
GF	Global Fund
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GLC	Green Light Committee
HBC	Home Based Care
HC	Health Center
HDI	Human Development Index
HF	Health Facility

HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HQ	Head Quarters
HW	Health Worker
IPT	Isoniazid Preventive Therapy
IUATLD	International Union Against Tuberculosis and Lung Disease
KAP	Knowledge, Attitude and Practice
KIT	Royal Netherlands Tropical Institute
KPC	Knowledge, Practice and Coverage
KNCV	Royal Netherlands Tuberculosis Foundation
M&E	Monitoring and Evaluation
MELU	Monitoring, Evaluation and Learning Unit
MOH	Ministry of Health
MTE	Mid Term Evaluation
NAC	National AIDS Council
NGO	Non-Governmental Organization
NRL	National Reference Laboratory
NTLP	National Tuberculosis and Leprosy Control Programme
PEPFAR	President's Emergency Plan For AIDS Relief
PMD	Provincial Medical Director
PHO	Provincial Health Office
PITC	Provider Initiated Testing and Counseling
PLWHA	People Living with HIV AIDS
PTB	Pulmonary Tuberculosis
QC	Quality Control
RHC	Rural Health Centre
SLD	Second Line Drugs
Sm+	Sputum smear positive
S.O.	Strategic Objective
STI	Sexually Transmitted Infections
TB	Tuberculosis
TBWG	TB Working Group
TDRC	Tropical Diseases Research Centre
TH	Traditional Healer
THANZI	<b>TB HEALTH ACTIVITIES IN ZAMBIA</b>
THPAZ	Traditional Health Practitioners Association of Zambia
USAID	United States Agency for International Development
USG	United States Government
UTH	University Teaching Hospital
WHO	World Health Organisation
ZAMBART	Zambia AIDS Related Tuberculosis Project
ZATULET	Zambia Tuberculosis and Leprosy Trust

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## ***Executive Summary***

**TUBERCULOSIS HEALTH ACTIVITIES IN ZAMBIA**, THANZI, is a USAID funded project executed from Oct 2007 to Sept 2012 by CARE International in four districts of Eastern Province, namely in Chadiza, Chipata, Lundazi and Petauke, with the goal to support the National Tuberculosis and Leprosy Programme (NTLP) to decrease morbidity and mortality caused by tuberculosis (TB), in the context of HIV co-infection. The objectives of the project are in line with the NTLP targets:

- To increase the Case Detection Rate of newly detected sputum smear positive TB cases to 70%, based on the WHO estimated value for Zambia.
- To increase the Treatment Success Rate of new sputum smear positive TB cases to 85%.

The strategies chosen were:

- To intensify and expand sustainable community-based TB control structures, in the context of TB/HIV.
- To strengthen the capacity of the district and provincial TB program to implement Directly Observed Treatment Short course (DOTS) and address the impact of HIV co-infection on TB.
- To increase private sector participation in the TB Program.

Multiple CARE interventions enhance the quality of diagnosis as well as attempted to improve TB screening in high risk groups (contacts, HIV infected, workplace), to ensure an early start of treatment with high treatment success.

This final evaluation has followed the detailed USAID FE guidelines:

- CARE Zambia defined the Scope of Work involving stakeholders (MoH, USAID) and CARE HQ
- Both quantitative and qualitative assessment methods were used
- Phase I: a KPC survey was done in February 2012
- Phase II: field visits, interviews, focus groups discussions, document and literature review took place in May/June 2012.

The objectives of the Final Evaluation of THANZI were:

### **1. “Determine the extent to which the project accomplished the results” (effectiveness)**

The *impact* of TB control on health and mortality is difficult to measure without repeated population based TB prevalence studies, which are far beyond the scope of THANZI.

When assessing *outcomes* in TB control, the key indicators are increased rates in finding cases and high treatment success. Even though the number of patients who were suspected to have TB doubled during the five years of THANZI, the number of new sputum smear positive TB cases didn't increase. Conversely, it remained the same, in contrast with the other districts of Eastern Province and Zambia as a whole, where the declining trend in case notification continued. The treatment success rate increased from 81% to nearly to 85%, except in Chipata district.

As can be seen from Table 1, the *outputs* of the THANZI project are impressive, with most activities implemented as planned and a considerable proportion of targets reached. Please also refer to Table 3, the M&E Matrix, for details. The activity targets in the DIP, however, were very ambitious, with 21 out of 53 indicators having 100% targets. Of all the 53 targets, 14 were reached to completion (26%), out of which one was added after the MTE. Sixteen (30%) achieved 76% - 99% of the target. Another 7 (13%) attained a score of 51% - 75%. Fifteen (28%) scored below 50%. Two targets (1.4 and 1.9) were removed after the MTE as they were no longer applicable.

Altogether, these are positive scores. The accomplishments of THANZI are summarized in Table 1, page ix.

## 2. “Describe key factors that contributed to what worked or did not work” (effectiveness and efficiency)

### What worked:

- *Involving Community Based Volunteers (CBVs) in suspecting TB* during the 5 years of the project resulted in an increase in number of suspected TB patients whose sputum was examined in the laboratory: an increase from 4,676 in 2007 to 9,196 in 2011. According to THANZI’s HF survey report (of Feb. 2012, page 59), out of these 9,196, the number of suspects referred by CBVs was 2, 355 (25% of the total).
- *Training of Classified Daily Employees as microscopists*, to work in hard-to-reach areas also contributed to this increased number of suspected TB patients examined.
- *Training of various cadres of health staff and community based volunteers* involved in TB control was completed, culminating with better knowledge of TB as well as a measurable increase in accuracy in the use of recording and reporting formats (KPC survey Feb. 2012). More TB suspects were found, but TB Case detection remained the same, while treatment success improved to close to the target of 85%.
- *Coordination of many activities and partnerships for community based interventions* were initiated and supported, including ACSM / Behavioral Change Communication (BCC), training and supporting meetings of the Neighborhood Health Committee and the TB/HIV Coordinating Committee members at various levels, with an increased proportion of interviewees from the community having knowledge of TB and a high appreciation of THANZI’s support.
- *Facilitating numerous meetings at all levels* (provincial, district, HC and community level) improved coordination and collaboration.
- *Leveraging additional resources* where THANZI’s own funding was found insufficient was successful, e.g. for a car and motorcycles.

### What didn’t work:

- *Involving more than 1000 CBVs* did not result in the expected significant increase of many thousands of persons suspected of having TB or finding the additional hundreds of sputum smear positive TB patients.
- *Doubling the number of sputum smears examined* in the last few years did not lead to detecting more sputum smear positive TB patients each year.

This unexpected result could be attributed to the downward trend of the HIV and TB epidemics in Zambia and specifically to the low HIV prevalence in Eastern Province, correlated to a much lower than expected TB prevalence in this largely rural area compared with the more urban provinces with higher HIV/TB prevalence.

- *Assessing the contribution of CBVs to TB case finding was in many locations not possible.* Transitioning the supply of THANZI stationery to the District Health Offices has not successfully completed: the data collection tools were not accessible, and hence were not used widely.
- *The contribution of CBVs to TB treatment could not easily be assessed.* The treatment success percentages reported by THANZI in ANNEX 5, page 2 *are based on estimates* and are not in line with data reported in literature from other projects or countries; usually the success rate of

DOTS provided through Community TB Care is higher than or at least equal to that achieved at health facilities.

- *Treatment success results were just below the target.* This could possibly be due to THANZI's mandate not including improvements in clinical care in a large health facilities. For instance, Chipata General Hospital, which gets the more difficult cases, but also lags behind in providing quality TB services and loses many patients (high death rate, high defaulter rate).
- *Most larger employers have no TB work place policy or program,* with the exception of a few companies, while their workers trained in TB were often transferred / relocated.
- *Involving Traditional Healers (THs) in TB case finding* showed a limited contribution: they are infrequently consulted by potential TB patients and many THs cannot keep records, making it difficult to validate data collected / compiled by THs.

### **3. “Provide a record of how these results were obtained” (efficiency and implementation mechanism)**

The planning of the THANZI project was well designed, involving all stakeholders (USAID, MoH, PHO, DHO, partner organizations, other CARE projects) from the beginning: from concepts being discussed in 2005 to developing a Detailed Implementation Plan in 2008. This comprehensive approach ensured the buy-in of all players and the implementation was rather smooth. Because of THANZI's integrated design and skillful management, the relatively small budget has been stretched to the limit with only the innovations piece, requiring a slightly extra budget.

The operational approach of THANZI – working mostly through the existing government structures and National TB and Leprosy Programme (NTLP) – is commendable. It has avoided many potential conflicts by using the NTLP M&E system, though the involvement of community based volunteers (CBVs) required additional M&E tools.. While the small THANZI team made regular supervision visits, it was sometimes difficult to get sufficient cooperation from district TB/L team members, 125 health facility staff, hundreds of Neighborhood Health Committees and over 1,000 CBVs to collect regularly and timely information. This demanded extra efforts of the M&E staff.

### **4. “Demonstrate how this project contributes to global learning about community-based health programming” (lessons learned)**

- A close-out workshop (Feb. 2012) was used to get district government and local partners on board to sustain a selected number of activities. The focus of the workshop was on supportive supervision and quality assurance.
- In an environment where some (international) partner organizations pay community based volunteers, it is difficult to maintain a CBV program without incentives. The lesson learned here is that there should be a common national policy for working with CBVs, which all CBOs/ CSOs/ INGOs adhere to.
- The training of existing, government paid, unskilled laborers (Classified Daily Employees) to work as microscopists in peripheral health facilities can help as a short term measure to reduce the shortage of laboratory workers able to do sputum smear microscopy. This could lead to improved access to facilities that can diagnosis TB for community members in remote areas, enabling earlier treatment and reducing TB transmission.
- When planning future interventions in TB control, a more detailed assessment of the local HIV prevalence and its trend should be undertaken.

<b>Table 1 Summary of Major THANZI accomplishments</b>			
<b>Objectives: To improve TB case finding and treatment results in four districts of Eastern Province</b>			
<b>Project inputs</b>	<b>Activities</b>	<b>Outputs</b>	<b>Outcome</b>
<p>Intensify and expand sustainable community based TB control structures in the context of TB/HIV through:</p> <ul style="list-style-type: none"> <li>• coordination,</li> <li>• training,</li> <li>• drama/radio</li> <li>• community meetings,</li> <li>• IEC/BCC materials,</li> <li>• supervision,</li> <li>• resources</li> </ul>	<p>Train Community Based Volunteers (CBVs) Train women from CBOs Use Drama / Radio Monthly meetings in community Develop IEC materials Coordination with NTLP and partner organizations Monitoring and supervision Mobilize resources</p>	<p>479 CBVs trained and 1,115 refreshed 50 Women trained Use Drama / Radio 69% of planned community meetings held 371 of staff of partner organizations engaged Most quarterly M&amp;E and supervision visits made One vehicle, two motor bikes, and medical / lab supplies obtained</p>	<p>Besides a small number of cases found during active case finding organized by PHO and DHO, there was increased demand, health seeking improved and CBVs referred more than 2000 suspected TB patients, resulting in doubling of number of TB suspects identified and examined, from 4767 to 9196. The result, however, was not the expected increase in case notification, but only a less steep decrease in notification compared to the trend observed in Zambia since 2005. TB/HIV collaboration improved, HIV testing (96%) and CPT (&gt;90%) is high; ART reached 55%. TB screening of PLWHAs went up to 39%. Treatment results are close to the target of 85%, with death rate among TB patients on treatment declining below 10%, except at Chipata general hospital.</p>
<p>Strengthen the delivery capacity of the district and provincial TB program to address the impact of co-infection on TB through:</p> <ul style="list-style-type: none"> <li>• training of district and HF health professionals in TB DOTS and TB/HIV</li> <li>• training laboratory staff</li> <li>• coordinating with NTLP, partners</li> </ul>	<p>Train district and general health professionals in TB DOTS and TB/HIV Train laboratory staff in sputum microscopy Activate TB/HIV Coordinating Bodies Conduct joint supervision with PHO, partners Develop BCC Strategy Develop sustainability framework with partners Develop Close-out strategy with partners</p>	<p>163 HWs trained, 160 refreshed in TB DOTS 125 TB/HIV focal point persons of HFs trained 20 Microscopists trained TB/HIV coordination bodies at district (4) and HC (125) level activated Quarterly joint supervision with PHO, CDC, CHAZ Developed with partners BCC strategy (2009), framework for sustainability and close-out strategy</p>	
<p>Increase private sector participation in the TB program through:</p> <ul style="list-style-type: none"> <li>• Training traditional healers</li> <li>• Training staff of private companies</li> </ul>	<p>Train traditional healers in record keeping and recognizing TB Train - in collaboration with CoC – business representatives in TB DOTS Link traditional healers with NTLP</p>	<p>Trained 40 traditional healers in Chadiza district Trained 90 business representatives, with emphasis on referral of suspected TB patients</p>	

## **B. Overview of Project Structure and Implementation**

### **THANZI's tuberculosis and TB/HIV project description**

#### ***B.1 Project goal***

Thanzi means “good health” in the local Chewa language. THANZI is a USAID funded project (2007-2012) executed by CARE International Zambia. The project goal is to support the National Tuberculosis and Leprosy Programme (NTLP) to decrease morbidity and mortality caused by tuberculosis, in the context of HIV co-infection. The objectives of the THANZI Project were to increase case detection of newly found sputum smear positive TB cases and to increase treatment success rate; these targets are in line with the NTLP targets.

The project was designed to build on CARE's CDC supported Integrated Tuberculosis and AIDS Project (ITAP) and EU supported Strengthening Tuberculosis AIDS and Malaria Programmes STAMPP which ended last year in October, 2011. THANZI has a focus on community tuberculosis care, using community volunteers to try and enhance case finding and also to give more emphasis on Directly Observed Treatment Short course (DOTS) and improving TB/HIV collaboration. The project has been implemented in four of the eight districts of Eastern Province, namely: Chadiza, Chipata, Lundazi and Petauke, which districts at that time had one of the lowest TB case notifications.

See Table 1 Summary of Major THANZI accomplishments for a quick overview of results (on previous page).

#### ***B.2 Project location***

Zambia is a land-locked country in Southern Africa, bordering eight countries (see map page i). It has nine (recently 10) provinces and 72 districts. With a surface of some 750,000 square kilometers and a population of just over 13 million, Zambia is relatively sparsely populated, with a growth rate of 2.8% between 2000 and 2010. Urban population is 39%, rural 61%. Religion: Protestant: 75%; Catholic: 21%; Muslim 0.5%. Lusaka Province with the capital (100 persons per sq.km) and Copperbelt Province (63/sq.km) are most densely populated.

Eastern Province is predominantly rural and harbors 1.7 million people (2010), some 25 persons/sq.km. It shares borders with Malawi in the east and Mozambique in the south. The population in Eastern Province grew at an average annual growth rate of 2.7 percent in the period 2000 – 2010.

#### ***B.3 Population data***

*Provisional census data of 2010 are:*

<b>Census 2010</b>	<b>Zambia</b>	<b>Eastern Province</b>	<b>The four THANZI supported districts</b>
Female	6,652,053	871,566	617,135
Male	6,394,455	836,165	591,608
Total	13,046,508	1,707,731	1,208,743
18 years and older	6,069,753	757,274	540,591
In percentage	47%	44%	45%

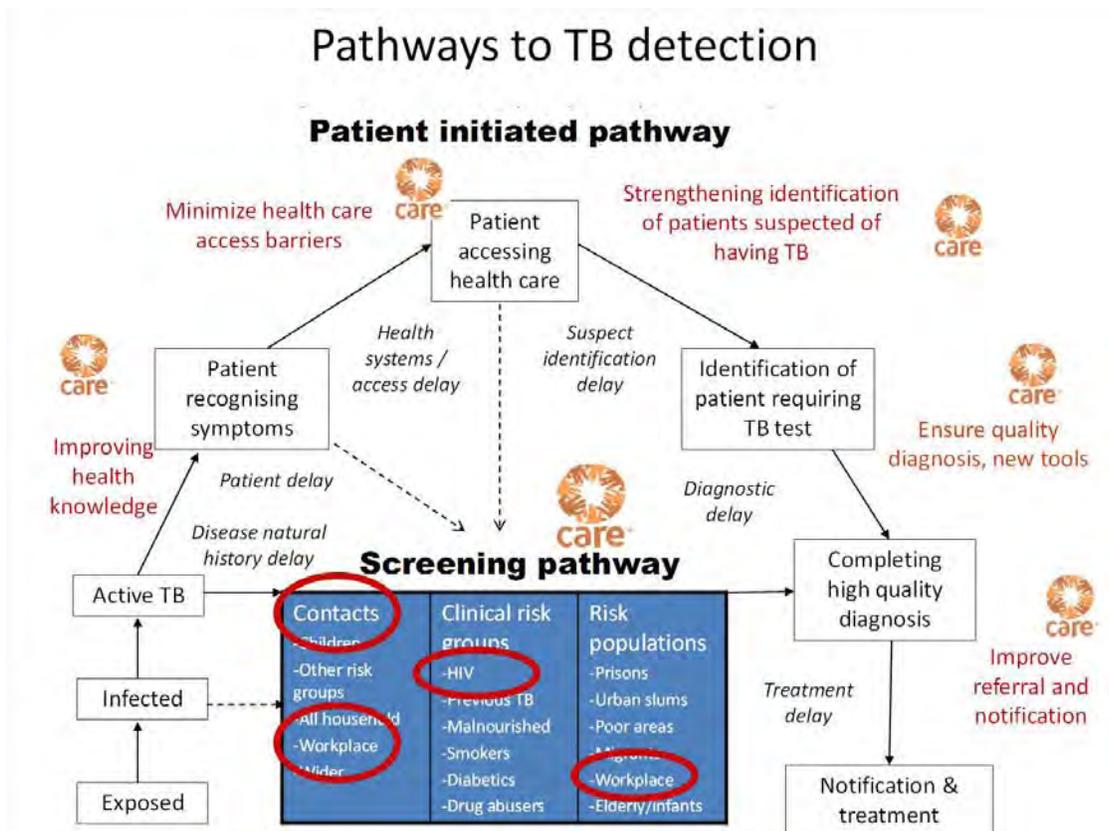
In 2005, the project area had an estimated population of 1.05 million. According to the 2010 census, the population will have increased to 1.2 million by 2012.

The total number of eligible voters (18 years and older) from the 2010 Census was 6,069,753 representing 47 percent of the total population of Zambia, which means that 53% of the population is

below 18 years, still matching the age distribution of 2000 (for graph and more details on population, see ANNEX 16).

#### B.4 Technical and cross cutting interventions

The figure below (courtesy WHO) shows how multiple CARE interventions as implemented under THANZI in the four districts aimed to reduce delays in case finding, enhance the quality of diagnosis as well as attempted to improve TB screening in high risk groups (contacts, HIV infected, workplace), to ensure an early start of treatment with high treatment success.



Picture from WHO publication

#### Key program strategies employed:

- Work with and through the government system on enhancing communication, ensuring coordination and cross-linkages with all stakeholders at various levels, whether government, NGO or the private sector
- Work through existing community systems on strengthening public education with messages like “don’t hide, come early, bring family members for examination, etc., mobilizing community and media in coordination with World TB Day, aiming at improving health seeking behavior, to address stigma and patient delay
- train various cadres of health staff in TB diagnosis and management, to improve diagnostic and treatment service and reduce health system delay in identifying TB suspects, increasing number of laboratories, offering DOT and enhancing linkage with community-based volunteers
- improve coordination and strengthen TB and HIV program implementation through policy dialogue/advocacy, participation in quarterly (district) and half-yearly (province) TB/HIV committee and program review meetings
- stimulate, support and participate in supportive supervision.

The THANZI project was designed in 2007/2008 to address various shortcomings in the implementation of TB control activities and included the following interventions:

- Implement Advocacy, Communication and Social Mobilization (ACSM) activities and dissemination of TB messages aimed at increasing the general population's knowledge, leading to reduced stigma, increased demand for health services, and improved health seeking behavior, so as to reduce patient delay and ensure treatment adherence and completion. Different channels were used:
  - Radio spots with TB and TB/HIV messages
  - Meetings with community leaders
  - Training Community Based Volunteers to provide information on TB
  - Promotion of information sharing among PLWHA and TB support groups
  - Drama performances at health facilities
  - Distribution of brochures
  - Training health workers to provide health education messages on TB
- Train and involve community-based volunteers (CBVs) in detecting persons with signs and symptoms of TB and refer them to the health facility for examination to reduce patient delay
- Train HWs in recognizing and treating TB, to reduce health service delay
- Expand TB services to more health facilities (including private health facilities) to improve access
- Train and re-train lab personnel to strengthen and expand the lab network and enhance TB case finding through quality ensured microscopy
- Involve CBVs in screening the contacts of known TB patients
- Train health staff working in ART clinics to screen HIV patients for TB.

Principal health education messages used were:

- What is TB? (infectious disease, spreads through air, no need for isolation when treated)
- Signs and symptoms of TB (cough for more than 2 weeks, fever, weight loss, night sweats)
- Co-infection with HIV is common and needs to be tested (HIV screening available)
- How TB is diagnosed (first step: laboratory examination of sputum)
- TB treatment and duration (treatable with tablets for 6 months, treatment free of charge at all public health facilities; also treatment at home possible)
- The importance of treatment compliance and completion
- The role of Community Volunteers/Treatment Supporters
- The role of TB support groups
- The role of family members and the community in TB management
- Where to get help when one thinks to have TB.

### ***B.5 Project design***

THANZI's goal and objectives were planned to be achieved through the following strategic objectives, which were designed based on findings and recommendations of the NTLR Review 2005:

1. To intensify and expand sustainable community based TB control structures in the context of TB/HIV.
2. To strengthen the capacity of the district and provincial TB program to implement DOTS and address the impact of co-infection on TB.
3. To increase private participation in the TB program.

#### *Delivery modalities*

Instead of constructing and rolling out a specific CARE project set-up, THANZI worked within the existing structures of government, private sector and community, while matching and coordinating

efforts and incorporating activities being implemented within other TB and TB/HIV projects of CARE and partner organizations. Thus duplication and parallel systems were avoided.

#### *Packages of interventions*

**Strategic Objective 1.** *Intensify and expand sustainable community based TB control structures in the context of TB/HIV*

Activities were: advocacy, public education, training of community health volunteers / treatment supporters and enabling existing Neighborhood Health Committees to meet and CBO groups to build community support for TB control

**Strategic Objective 2.** *Strengthen the capacity of the District and Provincial TB program to implement DOTS and address the impact of co-infection on TB*

Activities were in training professional health staff in an integrated approach to TB/HIV at district and health facility level, aiming for effective collaboration and referral between NTLP and HIV programs; facilitation of TB/HIV and review meetings with health workers and partners; training microscopists, providing logistical support to health facilities and giving technical support to health workers.

**Strategic Objective 3.** *Increase private sector participation in the TB Program*

THANZI collaborated through the Chamber of Commerce with private companies to integrate TB/HIV activities at the work place and partnered with Traditional Healers for TB case detection.

#### *Phasing and sequencing of activities*

As the MTE in 2010 already concluded, many organizational and training activities were logically planned and implemented, building capacity in the first 2 years of the project, with the first fruits to be expected thereafter. Section E shows the results.

#### *Specific problems or gaps that interventions were designed to address*

Low TB case detection was seen as the most important shortcoming in the TB program. This was to be remedied by use of community volunteers for strengthening the link with the community and expansion of case detection, by training health workers and through the initiative to use the potential of already government-employed lay workers at health facilities (Classified Daily Employees) and train them as microscopists.

#### *Documentation*

The description of the technical interventions in the Detailed Implementation Plan was clear. Many training activities have been organized by THANZI, either conducted by THANZI staff themselves or undertaken by partner organizations. Records are kept in a training directory. Coordination is reflected in minutes of many meetings. Reports were made of all monitoring and supervision visits and findings are reflected in annual progress reports. Routine TB control data are collected through the NTLP recording and reporting (R&R) system, including laboratory reports. Information on all work done by community volunteers was to be collected through THANZI project forms and aggregated at different levels, which during the FE appeared in many places to be an incomplete process. The design of this additional R&R system (THANZI forms 1–4) to monitor the efforts of more than 1000 CBVs appears to be more elaborate than necessary, with a considerable amount of data from CBVs to be copied or aggregated at Neighborhood Health Committee and health facility level. In many instances this aggregation appeared not to happen and it was thus difficult to assess the efforts of CBVs based on routinely reported data. Also it was not immediately clear how many CBVs had reported and how many not. Some data (like mortality in the community) are better monitored on a quarterly cohort basis in the routine NTLP R&R system than by unlinked monthly reporting through CBVs. Commendable is the work of the M&E Officer and THANZI field officers, who made special efforts to still gather data and compile reports.

## ***B.6 Partnerships/collaboration***

THANZI management did a very good job in coordination and communication throughout the project period, resulting in good relationships apparent at various levels. From discussions with partners and stakeholders it became clear that THANZI support for TB and TB/HIV activities was seen as “oil in the machine”, enabling strong coordination among many stakeholders at different levels. Along with the CDC and other partners, THANZI leveraged resources ingeniously for medical supplies, health education activities, motorcycles and a vehicle. It conducted a close-out workshop in 2012 in good collaboration with all stakeholders: provincial and district health offices (PHO/DHOs) as well as NGOs like CIDRZ, CDC, NZP+ and District AIDS Task Force (DATF). From the work plans, which were developed at that workshop, for transitioning the THANZI project activities to partners, it is clear that around 85% of THANZI’s support activities will either be absorbed under the Provincial and District plans or will continue with other partners’ technical or financial assistance (See Annex 8, KAP and Health Facility Survey Report, THANZI, 2012).

*Partnerships with groups that played major or supporting roles in project activities:*

- USAID Mission’s bilateral programs  
The management of CARE Zambia is well aware of the objectives and programs of USAID Zambia Mission in the field of health. The THANZI project therefore fitted in very well, having strategic objectives that aim at improving access and utilization of health services, with a focus on sustainability and integration of HIV and TB activities.
- National/local government (MOH)  
From the time of conceiving the THANZI project till the sharing of the Final Evaluation findings and recommendations, the national, provincial and district TB and leprosy control staff have been informed and many were also directly involved in the implementation.
- International/local NGOs  
Depending on the presence of NGOs and other partners in each of the four THANZI supported districts, coordination of efforts has always been at the top of the agenda and CARE undertook to arrange for the necessary support for regular quarterly and half yearly coordination meetings.
- Media  
THANZI also maintained good relationships with the media (news papers, radio,). Radio programs – based on a format received from the NTLP – were made in various local languages and repeatedly broadcasted (see M&E matrix for more details).
- Communities  
Working with the community through its leaders, its action groups and CBOs, has been one of the key areas of the CARE approach to sustainable poverty relief, humanitarian aid and health system strengthening. This is true for THANZI also and it can also be elucidated by the brief descriptions of recently finished or still ongoing CARE projects in Eastern Province in ANNEX 17: **ITAP 2** (Integrated Tuberculosis and AIDS Program), **STAMPP** (Strengthening Tuberculosis, AIDS & Malaria Prevention Programs), **PRISM** (PRIVate sector Social Marketing project), **SCORES** (Strengthening Community Schools to provide Education and other related Services); **COMACO** (Community Markets for Conservation) and **STEPS –OVC** (Sustainability Through Economic strengthening, Prevention and Support for Orphans and Vulnerable Children and other vulnerable populations).

## ***B.7 Collaboration with the USAID Mission***

THANZI involved the USAID mission from the beginning of the project, from the concept note to debriefing of the Final Evaluation. All required quarterly and annual reports were shared with the key person and, where needed and possible, further communication was maintained with telephone

calls and e-mail exchange. THANZI project shares a number of CARE staff with related projects like ITAP, as well as with other projects, which also deal with HIV/AIDS or health in broader sense. Some of these projects are also USG funded, thus follow a similar philosophy and they are all closely monitored by CARE's MELU unit.

### ***B.8 Changes to the project since the DIP***

Collaboration with traditional healers (THs) was initially designed as an operational research (OP) piece but this was halted after it became evident that 75% of the THs involved in the study were illiterate as they were neither able to read nor write. An effort to monitor their work was still done: collection of information from THs was through oral interviews. However, information collected was difficult to validate and compare with health facility data because in some cases THs could not remember personal details of the clients they attended to. OP could be of great importance if conducted amongst THs who are able to read and write, as TH are known to be the first medical practitioners contacted by some community members (Annex 6, KPC).

Further there were only few and small changes proposed after the MTE, which have been made clear in section E, pages 10 and 15 of the M&E matrix through blue highlighting.

## **C. Evaluation Assessment Methodology and Limitations**

This final evaluation of THANZI is an assessment of achievements and challenges, looking from different perspectives and at as many sources of information as relevant and possible. The following gives a summary of the different methodologies used.

With the goal to reduce mortality and morbidity of TB in the context of HIV, THANZI set its outcome and impact targets during the project design phase in line with the then WHO guidelines and NTLP targets. Specifically, to increase new smear positive pulmonary TB case detection rate to 70% of the average rate level for Zambia and to increase treatment success rate to 85%. THANZI therefore uses as much as possible NTLP data for monitoring output, process and outcome indicators. THANZI staff also participated regularly in routine monitoring visits by province or district staff for supportive supervision, data verification and on-the-job training of health facility staff. Only for specific activities which are not captured by the routine NTLP M&E system has THANZI developed own M&E tools (see B.5). Data analysis is done by the M&E Officer for each of the THANZI supported districts on a quarterly and annual basis and reported in a THANZI progress report. Trends over years are studied for selected indicators like case notification (routinely using numbers, not rates) and treatment results.

Stakeholder and partner opinions on importance of the project were captured during interviews, which are summarized in section F.3 and ANNEX 18.

For this evaluation, CARE Zambia (M&E and Learning Unit, MELU) together with CARE Eastern Province and THANZI staff defined the Scope of Work, for which they followed USAID's Final Evaluation Guidelines. CARE Zambia also involved CARE USA HQ and asked input from Ministry of Health staff of Eastern Province's Health Office and USAID Zambia.

The evaluation was conducted in two phases:

***Phase I***, a KPC survey (made up of a Knowledge, Attitude and Practice survey as well as a health facility coverage survey) was already undertaken by CARE staff in February 2012:

- The KAP survey was conducted in 30 wards across the four districts, a 10 x 30 cluster sampling technique was used; 300 households were randomly selected and a semi-structured interview questionnaire was used

- Health facility assessment in 30 health facilities using a semi-structured questionnaire, observation, data verification
- Treatment Supporters and FBO assessment: because of limitations of funds only two FGDs were conducted, in Chipata and Chadiza districts
- Private sector assessment through 4 FGDs sessions across districts

Both quantitative and qualitative evaluation methods were used. A draft report was ready in June, at the start of the field work of Phase II and some findings could be corroborated with data collected during Phase II. The final KPC report is attached as ANNEX 6.

**Phase II** started off with document review by the external consultant and in close communication with CARE USA and CARE Zambia an agreement was reached on evaluation team composition, a detailed time schedule, the program for field visits, revision of the tools for (in-depth) interviews and focus groups discussions and methods for data analysis. The field work took place between 10 and 22 June 2012. Overall, phase II involved;

- Review of THANZI project documents and analysis of TB program data in May
- Randomization sampling - two districts (Chipata and Lundazi) were randomly selected
- Site visits from 13 – 20 June 2012, including:
  - Observations, record review, data verification
  - 20 In-Depth Interviews with various health staff of 10 health facilities
  - Eight Focus Group Discussions
  - Meetings with key stakeholders, like staff of NTLP, CDC, FHI360, NAC, PHO, DHO, partner organizations
- Project data synthesis, presentation, validation with stakeholders in Chipata on 19 June 2012
- Revision, presentation and discussion during validation meeting with stakeholders in Lusaka on 21 June 2012, followed one day later by a separate debriefing session with USAID
- Dissemination of the THANZI Final Evaluation report will follow after initial writing and revision of a first draft, incorporating factual corrections and misrepresentations.

To help the reader understand details of the evaluation process used by the evaluation team, additional information is included in ANNEX 9, covering:

- ✓ Evaluation team Scope Of Work, including timeline of activities
- ✓ Brief descriptions of information gathering methodologies, such as key informant interviews, focus group discussions, facility record review
- ✓ Data collection instruments, including interview guides, data extraction guides, and questionnaires used
- ✓ Names of places visited
- ✓ Documents reviewed

*Other assessments conducted by the grantee: Improved Management Capacity of HWs after Training*

THANZI – in conjunction with the PHO and the four DHOs – conducted a needs assessment of health workers prior to the start up of capacity building activities in the all THANZI supported districts. A baseline survey was conducted in 2008 and the Final Evaluation was done in 2010 after a considerable number of health workers were trained in TB management. This was in response to assess the impact of capacity building interventions in TB management and for sustainability of capacity built amongst health workers in TB/HIV management in the four districts of Eastern Province. See attached Annex 2.

## D. Data Quality and Use

Because of THANZI's broad approach and variety of attempts to address different factors influencing health seeking behavior and provision of health services for TB and HIV care and treatment in the four districts in Eastern Province, it is not easy to measure effects and attribute them to THANZI interventions. Care was taken during the final KPC survey to apply the same methodology (described above) during Baseline and Mid Term Evaluation. The same questionnaires and tools for interviews were used, to get as little deviation as possible. Just a few questions were added, so no discrepancies were found between baseline and final KPC surveys in the way the surveys were implemented.

The THANZI project used a good mix of methods to measure both quantitative and qualitative data. However, the tiered system of data collection on work of Community Based Volunteers (through CBV Focal Point Persons, Neighborhood Health Committees and eventually health facility staff) posed a problem for getting regular aggregated reports and measure routinely the contributions from CBVs in TB case finding and treatment. As a result, more qualitative information is directly available from interviews, while special efforts had to be undertaken to collect what is supposed to be the routine information on CBVs contribution to both case detection as well as DOTS.

Stigma was assessed through asking the following six questions: 1. TB is curable. 2. You get TB from someone on TB treatment. 3. Someone with HIV can have TB. 4. It is shameful to have TB. 5. Would you visit someone with TB in their home? 6. Would you allow someone with TB to stay in your house? Regarding "A person infected with HIV can have TB", 75% of respondents agreed. Over 90% would visit someone with TB at their home or allow them in their own home. Only one question (# 4: "It is shameful to have TB") showed an increase (from 9% to 20%) in the proportion of respondents agreeing with the statement. While the consultant is doubtful whether each of these statements are really reflecting "TB stigma", THANZI responded that ZAMBART studies have shown that using these statements can help to assess the level of stigma and discrimination. There may be need for a more in-depth study.

For the assessment of progress made in TB control, THANZI supported and helped to improve the use of routine NTLR recording and reporting (R&R) through training of HWs and district staff. The NTLR R&R system is based on the in 2006 modified WHO R&R system and was adapted several times between 2005 and 2010, also because of introduction of the Rifampicin-based 6-month regimen from 2010. It has just a few shortcomings, e.g. subdivision in age groups 0-4 and 5-14 years is not included; totals per sub-group / patient categories are not included in the overview of HIV testing, making analysis a tedious exercise. One limitation experienced is that some district data on the same period may differ between various electronic data bases and reports because of initially late and incomplete reporting, which is later corrected. Nevertheless, the NTLR routine data collection system in Eastern Province has improved over the last five years. This was also established through a study by THANZI on the management capacity of the HF and district staff involved in TB care and control work (ANNEX 2) before and after training.

Analysis of the reported data is not routinely done at HF or district level, though data from different health facilities are aggregated at district level. The province compiles an annual TB/Leprosy report. Population data of catchment area are not included in the quarterly/annual forms and calculation of rates is not encouraged. Even the province doesn't report yet on notification **rates**. Comparison between districts is thus hampered, needing extra efforts to measure progress towards project results. See E.3 for an overview and more detailed data is provided in Annex 5.

## E. Presentation of Progress toward Achieving Project Results.

### E.1 THANZI Project Implementation

Table 3: M&E Matrix					
Overall Objectives/Goal	Impact Indicators	Data Source	Baseline Value	Final Value	Final Target
<b>To decrease morbidity and mortality caused by tuberculosis, in the context of HIV co-infection, in selected Districts of Zambia's Eastern Province.</b>	1.1 Case Notification Rate of new smear positive and relapse.	NTLP district annual reports	63/100,000 (NTLP annual report 2007)	50/100,000 (Dec 2011 notification TB data*)	127/100,000
	1.2 Case notification Rate of All new TB cases.	NTLP district annual reports	175/100,000 (NTLP annual report 2007)	131/100,000 (Dec 2011 notification TB data*)	425/100,000
	1.3 % or # of TB patients dying from any cause during treatment.	NTLP district annual reports	10% (2006 cohort analysis TB data reported in 2007)	11% (2010 cohort TB analysis data reported in 2011) 7% (2011 cohort), info June'12	Decrease death rate by 50%
	1.4 % or # All TB patients referred for VCT (at least 80% new TB patients tested for HIV)	NTLP district annual reports	No data	"Referred for VCT" is not applicable, as tests are done by TB Corner staff	Indicator and target deleted after MTE
	1.5 % or # New TB patients tested for HIV.	TB registers, HMIS /Records at HC/district/ Provincial health office	53%(993)-NTLP annual report 2007	96% (1,519/1,584) reported in the NTLP annual report Dec 2011	80%
	1.6 % Treatment Success Rate of New TB Smear Positive.	NTLP district annual reports	81% (2006 cohort reported in 2007)	79% (2010 cohort TB analysis data reported in 2011)	85%
	1.7 % or # HIV positive individuals screened for TB.	ART registers/TB suspects registers	Data was not collect at the time of baseline.	120 (39%) out of 311 referred HIV (+) clients were screened for TB and 7 were found with active TB.	100%
	1.8 % HIV positive TB patients put on ART.	NTLP district annual reports	42%(276)-NTLP annual report 2007	55% (456/826) reported in the EPHO NTLP Dec 2011 TB/HIV	80%
	1.9 % TB patients referred for ART.	NTLP district annual reports	Data was not available.	Not applicable.	Indicator and target deleted after MTE
	1.10 % HIV positive TB put on CPT.	NTLP district annual reports	30% (208/682 HIV positive TB patients)-NTLP annual report 2007	95% (781/826) reported in the EPHO NTLP Dec 2011 TB/HIV	80%
Result based Objectives	Performance Indicators	Data Source	Baseline Value	Final Value	Final Target
<b>S.O.1. To intensify and expand sustainable community-based TB control structures in the</b>	1.1 At least 125 (100%) NHC committees strengthened and actively disseminating TB and TB/HIV information	Thanzi Annual progress reports and NHC reports	8% (March 2008)	76% (95/125) formed and disseminating TB/HIV information (June 2012.	100%

<b>context of TB/HIV</b>	1.2 At least 75 % (37) out of 50 designated community structures FBOs disseminating TB and TB/HIV information	Thanzi Annual progress reports and NHC reports	10% (March 2008)	15 (30%) out 50 actively disseminating TB information-(June 2012).	75%
<b>S.O. 2.To strengthen the capacity of the district and provincial TB program to implement DOTS and address the impact of co-infection on TB</b>	2.3 Number of TB suspects examined in a year (At least 100% of all TB suspects sent for examination)	NTLP reports	4767 (NTLP annual report 2007)	29,401 cumulative (EPHO NTLP annual report 2011)	23,000 modified to 52,000 during MTE by consultant
	2.4. At least 40 out of 120 HFs have TB microscopy services	NTLP reports	20 (16%) March 2008	34 (85%) out of 40 (June EPHO lab report 2012)	100%
	2.5. % of laboratories which sent their slides for cross checking twice a year (100% per year)	Laboratory reports	No data	18 (53%) of the 34 TB labs doing TB microscopy examination (June EPHO lab report 2012)	100%
	2.6. 100% of smear slides sent by facilities to the District TB focal person cross checked and reported same reading	QA reports	Nil	80% of the slides cross checked had same reading (June EPHO lab report 2012)	100%
	2.7. 52 Health facilities formalized sputum collection and transportation (During MTE newly added indicator)	Laboratory reports	Initiated by Thanzi after consultation with PHO/DHO.	52 (100%) (June EPHO lab report 2012)	52
	2.8. At least 2 joint supervisory visits conducted by TBFPP per district per year	Supervisory and monitoring reports, annual reports	60%.(PHO technical reports March 2008)	100% (twice per year to selected HF)-June 2012	100% of planned
	2.9. % of HF reporting TB suspects sent for TB examination per quarter (at least 100% of all 125).	District level DHO records	No data	108 (86%) (2011 NTLP-DHOs)	100%
	2.10. 100% of DOTS centers reporting report within one month of the scheduled reporting date.	District level DHMT records	No data	92% (34/37) (2011 NTLP-DHOs)	100%
<b>S.O.3 To increase private participation in the TB control program.</b>	3.1 At least 25% out of 100 companies participating in DOTS activities.	Letter of understanding signed with Chamber of Commerce	10% (March 2008)	6% (6/25 companies) - June 2012	25%
	3.2 At least 25% local businesses supporting TB /HIV activities.	EPCC register	0% (March 2008)	6% (6/25) companies - June 2012	25%
	3.3. At least 100% trained traditional healers referring suspected TB patients to the health centers and disseminating TB/HIV information.	TH community TB suspect register	30% (March 2008)	80% (14/20) Traditional healers were actively reporting (Jan-Dec 2011)	100%

<b>1.Sustainable community based partnerships to implement TB control activities</b>					
<b>1.1 Intensify community based partnerships to implement TB control activities</b>	1.1.1 At least 25% (13) of 50 FBOs actively involved in TB/HIV activities.	TB data routine monitoring project reports	10% (March 2008)	15 (30%) out of 50 FBOs actively involved in TB/HIV (June 2012)	25%
	1.1.2 At least 100% once a month Community based DOTS coordinating committee meeting held in each health facility.	Minutes	No data	69% (86 active out of 125 formed) (June 2012)	100%
	1.1.3 By end of the project 80% of population able to mention at least productive cough for more than 2 weeks as common symptom of TB	KAP Survey report	Cough >2 wks alone: 58%	Cough >2 wks alone: 72%	80%
	1.1.4 Increase proportion of community members who know that TB is curable to 100% by end of project.	KAP Survey report	82% (March 2008)	79% (KAP Endline survey Feb 2012)	100%
	1.1.5 All trained treatment supporters refer TB suspects to health facility	Community based TB records.	No data	33 % (406/1,229) June 2012	100%
	1.1.6 100% community members feel that TB is not a shameful disease by end of project.	KAP Survey report	90.7% (Baseline March 2008)	76.3% (KAP Endline survey Feb 2012)	100%
<b>S.O.1.2 Train and support treatment observers</b>	1.2.1 Train 80% (400) of 500 untrained treatment supporter in DOTS.	TB reports	Nil	120% (479/400) (June 2012)	80%
	1.2.2 100% (125) Community based coordinating committee supervisors (NHCs) trained in supervisory skills.	Training directory	None trained	46 NHC supervisors were trained (20%) under ITAP 2 in 23 HFs (June 2012)	100%
<b>S.O.1.3 Use behavior change communications activities to increase TB health-seeking practices in the community</b>	1.3.1 Collect and adapt BCC tools available in the country.	BCC Monitoring checklist	One (March 2008)	Three tools from NTLF and tools developed by STAMMP, were adapted and used	At least five
	1.3.2 At least 90% (1,003 of 1,115) treatment supporters effectively using BCC tools to create awareness on TB and DOTS.	BCC Monitoring checklist	30% (March 2008)	40% (406/1,003) across all four districts (June 2012)	90%
<b>2. District and provincial TB program capacity building and coordination to implement DOTS and address the impact of co-infection on TB</b>					
<b>S.O.2.1 Build capacity of district and provincial health workers to manage</b>	2.1.1 Train 100% (8) District TB/HIV focal persons in TB DOTS programming.	TB data routine monitoring project reports	50% (March 2008)	100% (June 2012)	100%

<b>impact of co-infection on TB</b>	2.1.2 Train 100% (125) health center TB/HIV focal persons in TB DOTS programming	DOTS training directory	50% (March 2008)	100% (125/125) as at June 2012	100%
	2.1.3 At least train 50% (160) of 300 (Nurses/Clinical Officers/Doctors) in TB DOTS	Training reports	18% (March 2008)	50% (163/300) as at June 2012	50%
	2.1.4. Train Microscopists in sputum smear microscopy	Training reports	14 (March 2008)	20 (50%) as at June 2012	40
	2.1.5 At least all newly trained Microscopists receive 1 supervisory visit in 6 months after training	Technical support reports	No data	85% (17/20) as at June 2012	100%
<b>S.O.2.2 Spearhead the activation of TB collaborative bodies at the provincial and district level, by encouraging participation of all agencies working on TB and TB/HIV</b>	2.2.1 At least 100% attendance in all TB Partnership meetings at District/Provincial/National level	Stakeholders minutes	2/4 (March 2008)	75% (3/4) as at Dec 2011	100%
	2.2.2 At least 100% biannual TB review meetings held by key stakeholders (NTLP, Thanzi Project/DHO/MOH)	Stakeholders minutes	Nil	100% (2/2) (Dec 2011)	100%
<b>S.O.2.3 Advocacy at the national level to influence best practices and disseminate lessons learnt</b>	2.3.1 At least one THANZI presentation at national, province and district level after each evaluation.	Stakeholders minutes/MOH-6 <sup>th</sup> NHRC	Nil	A total of 5 presentations were prepared and two were selected and presented at the 6th National Health Research Conference in Oct. 2011	Three
<b>3. Private participation in the TB control program.</b>					
<b>S.O.3.1 Build capacity of traditional healers to adopt DOTS strategy for TB treatment</b>	3.1.1 At least 60% (180) THs actively participating in DOTS strategy.	Traditional healers' records/oral interviews.	10%	14 (80%) of 20 traditional healers were interviewed on the number of referrals to the facilities.	60%
	3.1.2 Train 60% (180) of 300 THs in TB DOTS. (target reduced to 40 at inception THANZI)	Training directory for traditional healers	10%	40 (100%) traditional healers were trained (20 in each of the control & intervention sites)	60%
<b>S.O.3.2 Collaborate with local businesses to improve outreach of TB activities into the community.</b>	3.2.1 At least 75% (75) of the 100 local businesses identified and partner with the DHO/PHO/Project to improve TB outreach services	District reports, Monitoring reports	10%	106% (32/30) Feb 2012 [target modified during MTE, reduced to 30]	75%
	3.2.2 Orient at least one management person in (75) out of (100) industries management staff in CoC in TB DOTS	Training directory, Chamber of Commerce reports on TB	10%	89% (89/100 management positions) June 2012	75%
	3.2.3 Train at least one (75) out of (100) local industry representatives in (existing peer educators) TB DOTS	Training directory, Chamber of Commerce reports on TB	25%	89% (89/100 company representatives) June 2012	75%

## ***E.2 Major Findings of KPC (KAP and Health Facility) Survey***

The Knowledge, Attitude and Practices survey of February 2012 followed the same methodology as previous surveys conducted by THANZI staff in 2008 (baseline) and 2010 (MTE), as described in section C page 7; for full details see the KPC survey report in ANNEX 6. The socio-demographic characteristics of respondents (gender, type of settlement, income and educational level) show quite similar patterns compared to baseline or MTE. There were slightly more males than females interviewed at FE, but the sample would seem to be representative of the mostly rural population interviewed. Based on data (as presented in the summary slides ANNEX 6), one may speculate that monthly income and education level (10% higher secondary school enrollment) has slightly increased in the last few years. Ninety eight percent of respondents have heard of a disease called tuberculosis (TB) and knowledge of the various signs and symptoms of TB increased: “productive cough for more than 2 weeks” was known by 72% (up from 58% at baseline) and knowledge of “weight loss” increased from 39% to 51%. The combination “cough for more than 2 weeks” and “fever” – initially chosen as one indicator in the M&E matrix – unfortunately scored much lower (from 31% down to 27%). More respondents (44%) had been exposed to information on TB in the last 6 months than at MTE (30%), though less than at baseline (74%). As to the sources of information on TB, respondents mentioned posters/brochures (8%), health centre staff (74%), Community Health Workers or Treatment Supporters (32%) and other sources like TV, PLWHA, community members (46%), all up from previous figures in 2008. Of the respondents, 76% agree that someone with HIV can have TB, quite a high level of knowledge on TB/HIV co-infection (up compared to midline 70%). While a large majority (>80%) of respondents would visit a home of a TB patient or care for a TB patient at home, more than 20% agreed that TB is a shameful disease. See summary slides in ANNEX 6. The opinion of community members on THANZI’s work on improving TB control was sought through interviews during the KPC survey in February 2012: nearly half the respondents indicated that they have volunteers/treatment supporters involved in health and educational activities in their community compared to less than 35 percent at baseline. Regarding the role of treatment supporters, respondents mentioned that they provide care and support, re-supply of medicines, and provide food supplements.

During FGDs conducted with CBVs/treatment supporters, similar views were expressed.

Additionally, they help clinics in identifying TB suspects, make referrals, collect sputum, monitor drug compliance amongst TB patients and also carry out community sensitization activities. They also reported that they collect data at the community level; this data is then relayed to the health facilities. THANZI therefore concluded that role and responsibilities of CBVs/treatment supporters should be explained well to community members in order to create more awareness about the roles of these treatment supporters.

### **THANZI 2012 HF survey**

The health facility survey looked at staffing levels and interviewed 176 health staff. Compared to 2008, the shortage of staff had increased as a result of re-deployment of existing staff to more peripheral health centers as well as staff recruitment by the government. The number of clinical officers had reduced by 80%. The project initiated task shifting of 40 Classified Daily Employees (CDEs) who were trained as microscopists from all the eight districts of Eastern Province in-conjunction with PHO and ITAP, another CARE supported project on TB/HIV, to bridge the shortage

of lab technicians to manage TB microscopy centers. This had considerably helped to increase the number of functional TB labs from 20 in 2007 to 34 in 2011.

The large training effort by government, THANZI and many other partner organizations has led to finding during the HF survey more than 50% of staff trained in Prevention of Mother To Child transmission (PMTCT), Voluntary Counseling and Testing (VCT), Diagnostic Counseling and Testing (DCT) and Tuberculosis. Between 30% and 40% are trained in Anti-Retroviral Treatment (ART), Opportunistic Infections (OIs) or STI syndrome management.

**Table 3.2.3. Percentage of health facilities with TB drugs available in the last three months**

	Adult Rifinah	Paed. Rifinah	Paed. 3FDC	Adult 3FDC	Streptomycin	Adult 4FDC
<b>Endline survey (n=30) February 2012</b>	53.3	60.0	66.7	43.3	73.3	73.3
<b>Midterm survey (n=30) February 2010</b>	93.3	76.7	63.3	90.0	66.7	90.0
<b>Baseline survey (n=30) March 2008</b>	83.3	No data	No data	83.3	76.7	93.3

Data source: Health facilities survey Feb 2012

Shortage of TB drugs in the last three months before the survey (December 2011, January and February 2012) was a nationwide problem as a result of delayed delivery of drug orders from the Global Drug Facility (Stop TB Partnership) and Global Fund; new supplies were only coming into the country by May 2012. In the meantime the MoH Zambia bought some TB drugs and NTLP managed to borrow in February 2012 a three months supply from Botswana to close the gap. The FE review team didn't come across drug shortages anymore in June 2012.

All health facilities stated that they were implementing integrated TB/HIV activities and reported screening PLWHAs for TB, but no records were seen in February to confirm that. 50 Percent of the facilities reported providing ART services compared to 37% at baseline.

### ***E.3 Major Findings from analysis of TB Data***

Zambia launched the National Tuberculosis/Leprosy Control Programme more than 40 years ago. With an interruption at the end of the 1990s due to health sector reforms, the program continues to be quite well established with TB focal points at national, provincial and district level providing technical support to health workers in the 1800 general health facilities, which deal with recognition of persons suspected to have tuberculosis and providing treatment. There are currently 245 diagnostic facilities using mainly light microscopy for sputum examination, with an External Quality Assurance (EQA) program being rolled out with support from CDC.

The following findings are based on analysis of standard TB indicators from the four THANZI supported districts in Eastern Province and comparison with available provincial and national data. See separate ANNEX 5 for more details.

#### ***1. Case finding***

As noted in section B.4, suspecting tuberculosis among persons with signs and symptoms of TB is done under different circumstances by various actors: at out-patient departments (OPDs) by health workers (HWs), by traditional healers and private company clinic staff among self-presenting symptomatic clients, by volunteers in their local community, and by HWs at PMTCT and ART

clinics. Details are discussed under S.O. 1 – 3, (pages 21 to 23) while more aggregated data are presented here per THANZI supported district.

#### Case detection in the four THANZI supported districts 2011

<b>Case detection 2011</b>	<b>Chadiza</b>	<b>Chipata</b>	<b>Lundazi</b>	<b>Petauke</b>	<b>4 THANZI supported districts</b>
* data from 2011 Annual Report PHO					
Suspects examined	1571	4057	2056	1512	9196
Found Sm+ PTB	31 *	320 *	94 *	162 *	607 *
Proportion	2%	7%	4%	11%	7%

Expanded case finding efforts over the last five years have increased the number of suspects, especially in the last two years: in THANZI supported districts from 4767 in 2007 to 9196 in 2011; in EP from 7401 in 2007 to 13,707 in 2011. At the same time, this expansion reduced the proportion of PTB smear positives far below 10%, except in Petauke.

#### 2. Sputum smear examination and lab functioning

In Eastern Province, the number of laboratories with sputum smear examination increased from 24 in 2006 to 38 in 2011, after renovations and training of microscopists. Since suspect registers are not maintained systematically, numbers referred and numbers examined at the lab could not be compared during the field. This is also not reported on the NTLP reporting form at the diagnostic centre. However, from the NTLP lab reports 2006 – 2011, it can be noted that the number reported as positive among those examined is about 10% higher than the number of cases notified (Annex 5) pointing to a considerable initial default.

The scoring of smears at the labs visited showed little variation and many had a high positivity score, confirming the same finding by Provincial TB/L Coordinator in the AR 2011. In some labs the quality of sputum smear microscopy had recently been assessed by visiting National TB Reference Lab staff and remedial action was planned for those with very high discordant scores. Results had been discussed on the spot, but there were no reports yet available.

#### 3. Notification

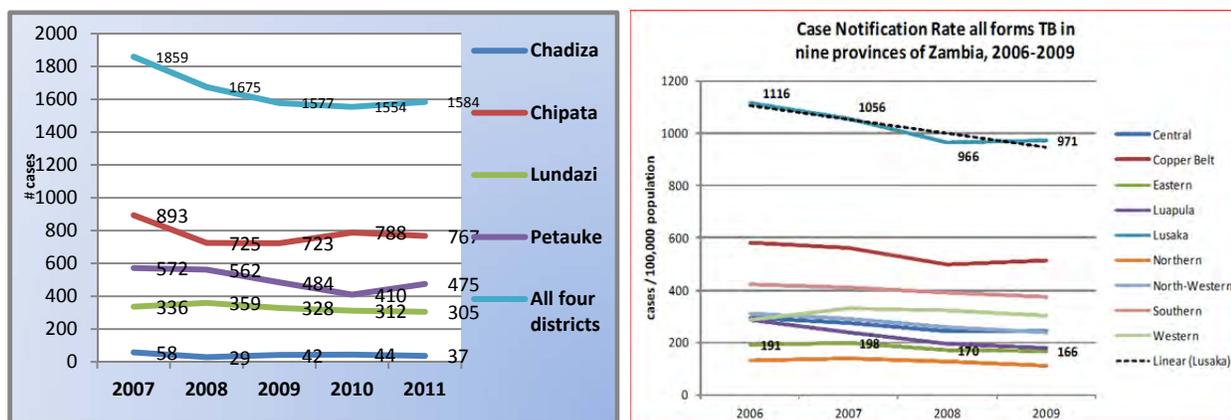
<b>Case notification 2011</b>	<b>Chadiza</b>	<b>Chipata</b>	<b>Lundazi</b>	<b>Petauke</b>	<b>4 THANZI supported districts</b>
Total Notifications	37	752	305	475	1569
Smear Positive PTB	31	269	85	148	533
Estimated Population	104,255	452,428	314,281	337,779	1,208,743
Notification Rate ALL TB per 100,000	35	166	97	141	130
Notification Rate Sm+ PTB per 100,000	30	59	27	44	44

There are quite large differences in **Case Notification Rates** of either sputum smear positive (Sm+) PTB or “All forms of TB” between districts. Some of these differences can partly be explained by health system and geographical differences (see F.2, contextual factors).

Field visits in Lundazi and Chipata also gave some detailed information, like inconsistent application of NTLN guidelines for suspecting TB in general OPD patients or lack of screening the contacts of known Sm+ PTB patients, while active case finding drives were conducted in the general community, not focused on high risk populations.

There is nevertheless a gradual decline in number (and rates) of TB cases detected, even though the case finding efforts were expanded and strengthened; see under S.O.1, page 21, the detailed information on the role of CBVs.

**Figure** Number of TB cases notified (all forms of TB) from 2007 to 2011 in the THANZI supported districts, compared with trends in rates in EP and all other provinces, 2006 - 2009.



Data source: Eastern Province Health Office; NTLN annual reports; 2007, 2008, 2009, 2010 and 2011 and National TB Strategic Plan 2011-2015.

As seen above, when CN is expressed as rates, the downward trend is even steeper: the dotted line showing the trend in Lusaka Province is comparable with CNRs in most other provinces.

Chadiza district TB statistics over the last 5 years do not show a clear increase in TB cases found, even while more and active case finding activities were undertaken. Data from the other three districts demonstrate that with considerable THANZI contributions to increased and active case finding efforts in Eastern Province, a fairly constant number of new smear + TB cases can be noted, not a decline as elsewhere. That is the noticeable achievement.

No decline of TB is visible in the other four districts of Eastern Province either, where also active case finding was undertaken (See ANNEX 5 for details).

#### 4. Treatment results

The treatment regimens for TB in Zambia follow WHO guidelines; the six month 1<sup>st</sup> line regimen containing Rifampicin throughout, which was only introduced in 2010 in Zambia. TB drug shortages occurred early 2012 and different replacement drugs were made available by the NTLN, some as loose Fixed Dose Combination drugs (seen during field visit) instead of blister packs.

### Treatment outcome 2011

Treatment results of the 2010 cohort	Chadiza %		Chipata %		Lundazi %		Petauke %		Eastern Province %	
Total Sm+ PTB	39		290		99		162		813	
Cured	30	77	218	75	89	90	130	80	675	83
Completed	2	5	0	0	4	4	2	1	16	2
Died	4	10	24	8	5	5	11	7	57	7
Failed	1	3	4	1	0	0	0	0	8	1
Defaulted	0	0	32	11	0	0	11	7	33	4
Transferred out	2	5	12	4	1	1	9	5	35	4
Treatment Success	<b>82%</b>		<b>75%</b>		<b>94%</b>		<b>81%</b>		<b>85%</b>	

The four THANZI supported districts combined reached a success rate of 80%, below the target and below the provincial average. The outliers are Chipata (which over the years has recorded a consistently high death and defaulter rate) and to a lesser extent Chadiza and Petauke, which keep the average below the target of 85%.

### 5. TB/HIV

Progress is being made in implementing TB/HIV collaborative activities, in THANZI supported districts and in Eastern Province as a whole. Provider Initiated Testing and Counseling is used as the opt-out strategy to convince as many TB patients as possible to get the HIV test, with high compliance:

#### THANZI supported Districts

Period	# TB patients tested for HIV		TB patients tested HIV positive		On CPT		On ART	
	#	%	#	%	#	%	#	%
2007	994	53	682	69	208	32	276	42
2008	1164	69	671	58	200	30	277	41
2009	1267	81	727	57	226	31	371	51
2010	1379 / 1554	87	787	57	486	62	366	47
2011	1519 / 1584	96	826	54	781	95	456	55

#### Eastern Province

TB/HIV collaborative activities 2007-2011  
Eastern Province

Period	Total # TB pts. notif.	TB patients tested for HIV		TB patients tested HIV positive		On CPT		On ART	
	#	#	%	#	%	#	%	#	%
2007	3171	1856	58	1297	70	729	56	756	58
2008	2803	1971	70	1180	60	503	43	467	40
2009	2814	2341	83	1358	58	562	41	581	41
2010	2623	2342	89	1339	57	895	67	612	46
2011	2843	2666	94	1487	56	1440	97	903	61

These data show an enormous improvement during the last five years in HIV testing among TB patients, reduction in HIV positive outcomes among TB patients and an increase in the provision of co-trimoxazole prophylaxis and ART to co-infected persons. The data compare well with the national figures as presented in the WHO TB profile or – with quite similar data – in a recent article by the NTLP program manager et al. (TM&IH, 2011), which for the whole of Zambia shows in 2010 a lower proportion tested (84%), higher proportion HIV+ (70%), lower CPT (70%) and lower ART (50%) provision. Screening for TB among PLWHAs is gradually becoming a routine in PMTCT and

ART clinics, but is still not yet routinely reported from ART sites. All HFs visited during the FE (except one) had TB/HIV Coordinating Bodies.

## 6. MDR TB

The proportion of patients failing to cure under first line DOTS is less than 1%, hinting at the likelihood that Multi Drug Resistant (MDR) TB is a relatively small problem in Zambia and possibly much smaller than the WHO estimates from 2010. The EP Annual Report mentions three MDR-TB patients diagnosed in 2011. Two patients started MDR treatment in 2011, one improved and one died (personal info from EPHO).

Estimated MDR-TB cases among new pulmonary TB cases notified in 2010: 590 (260–1 200)  
Estimated MDR-TB cases among retreated pulmonary TB cases notified in 2010: 150 (6.3–760)

Together with partners including the CDC, the country established several TB reference labs in the country, with the Chest Disease Laboratory in Lusaka being the apex lab. An MDR prevalence survey in 2008 detected some 50 MDR-TB patients, for whom Second Line Drugs were bought by the Zambian government. Green Light Committee approval was eventually obtained. Quite a number of those MDR-TB patients could not be found anymore in 2011. Routine MDR TB surveillance among re-treatment patients is not yet country-wide implemented, resulting in small numbers of DR-TB patients found. Culture results take long to reach the Provincial Health Office (2011 AR EPHO). New molecular technology (Xpert MTB Rif), currently tested out by the National TB Reference Lab, could reduce delay with months. The introduction of this new technology by several USG supported projects (TB CARE, CDC) is underway, as is the building up of the necessary sample transport system from the 1800 DOTS clinics country wide to the reference labs (with TB CARE I support).

### **S.O.1. To intensify and expand systemic approaches to community based control of TB through DOTS**

The role of CBVs in Community TB Care is varied and well appreciated. After the training they received, CBVs may suspect TB among community members and refer patients or arrange for sputum to be delivered to the nearest laboratory; some CBVs function as support staff in TB and ART clinics; others are involved in TB/HIV defaulter retrieval (ZATULET experience in Chipata town). They often also function as TB (and HIV/ART) treatment supporters. CBVs do report on their activities, but record keeping is often not up-to-date and reporting too irregular to ascertain on a routine basis their contribution to Community TB Care (CTBC). Especially their role in identifying patients suspected to have TB could not be assessed on the spot during field visits. Interviews with lab staff provided mixed messages on the way the transport/referral system for sputum and/or slides works (“works well”; “referral system is weak”; “frequent delays”).

During field visits the involvement of CBVs as treatment supporters could in most HFs be seen from the DOTS plan on patient cards and treatment registers, but this information is not systematically reported (as this activity is not part of the routine NTL P M&E or HMIS).

The THANZI M&E Officer managed on request of the FE team to compile an overview of internationally agreed indicators on Community TB Care (See ANNEX 5, page 2), based on 2010 data (2011 data were not yet complete) and summarized here:

1. From among all 6,469 persons suspected to have TB in 2010, 1,657 (or 26%) were detected and referred by CBVs
2. From all 593 diagnosed as Sm+ PTB, 258 (44%) were referred by CBVs

3. CBVs provided DOTS to 178 (30%) of all 593 Sm+ PTB patients
4. Of those provided DOTS by CBVs, 75% completed their treatment successfully.

The overall number of TB suspects examined in 2011 in THANZI supported districts was double the 2007 figure; a quarter of suspects were identified by CBVs. A good proportion of these by CBVs suspected TB patients was sputum smear positive TB (16%), while among those identified at health facilities 6% had Sm+ PTB.

The system to use schedules for involving CBVs at the DOTS corners was not in place in most health facilities (7 out of 9). Involvement of CBVs in DOTS appeared quite low (30%), as most patients seem to prefer DOTS by a relative (DOTS R).

“I want to help the community understand TB by sharing my own experience to them”

Treatment supporter, Lumezi, Lundazi

Some of the CBVs are active as Community TB Focal Point Person (FPP), overseeing and stimulating the work of CBVs. The success of the CBV TB FPP in supervising several CBVs depends very much on the person selected by the community for this function. Some of them interviewed appeared very dedicated and active, while others do not live up to expectation and are sluggish in data aggregation and reporting. There were considerable differences between the sites visited. Some NHCs meet regularly, with records and reports maintained well; others are struggling with their role as supervisors of CBVs, depending on leadership, availability of reporting forms and feedback from health facility staff.

Drop-out of CBVs is considerable: some 900 were remaining active in 2011 from over 1,500 trained since 2007. The challenge is to keep CBVs motivated; regular meetings alone are not enough; the demand for more incentives is increasing, more since few other organizations do pay allowances (e.g. CIDRZ pays 500,000 ZKW per month, about 100 USD; also provides a bicycle, rain boots and coats for those who work nearly every day). Repeatedly brought up during FGDs was the request for means of transport, weather protective gear and other, or more monetary encouragements. Findings from the FGDs also show that CBVs could do with just more attention from health workers and feedback on their referrals.

“Our work is too involving but we are not cared for ...no support of any kind to motivate us in terms of logistics.”

Male Treatment Supporter, Kapata Clinic, Chipata

One FGD (out of eight FGDs conducted during the FE) did not confirm that there was a considerable contribution of those CBVs to case-finding: of 22 CBVs participating in that FGD, only one had referred one suspected TB patient in the past quarter.

“TB case finding drives” were held in Chadiza, which doubled the number of “TB suspects” in 2011. However, from the Eastern Province 2011 TB and Leprosy Bulletin, it is clear that in this way not many more smear positive TB patients were identified, rather that the yield of microscopy halved (to only 2% of smears found positive). A similar but less pronounced trend can be seen in the other two districts where active case finding was undertaken. Field visits confirmed this: in Lundazi several lab

registers showed tens of entries with one or two smears from active case finding; only in one a positive result was seen. In Chipata over 200 sputa were collected during such a community case finding drive a few days before the FE team visited: more than 30% was just saliva, with no positive specimen found through a (much too) fast examination process by two lab technicians working overtime throughout the weekend.

In contrast, important information from the same PHO 2011 Bulletin would show that  $\frac{3}{4}$  of all Sm+ TB patients put on treatment in 2011 had a high positivity score (3+) in the lab, pointing to still much delay in case finding at the health facility. Staff often quoted “distance” as the main barrier causing patient delay. Information from Kapata Health Centre (2011 data) is also interesting in that respect: from the 36,769 Out-Patient Department (OPD) attendees, 440 were identified by health staff with signs and symptoms of TB. Among them 63 were found with Sm+ PTB. These figures are in line with the old adage based on MRC studies in the sixties in Kenya: of all OPD attendees, about 10% has respiratory symptoms with a cough; out of them 10% have a long-standing cough of more than 2 – 3 weeks and again some 10% of those with a chronic cough has Sm+ PTB. It would appear that Kapata clinic is doing a proper TB case finding job.

### **S.O.2. To strengthen the delivery capacity of the district and provincial TB program to address the impact of co-infection of TB and HIV**

More than 320 health workers were trained/re-trained in TB DOTS and TB/HIV aspects in collaboration with PHO; 40 CDEs were trained as microscopists and posted in newly opened labs. Several of them - when interviewed - complained of work overload, having a double assignment as cleaner and as a microscopist; coordination bodies for TB-HIV at district and health center levels were activated in all the four districts and regular meetings were supported, including biannual stakeholders meetings; quarterly joint supportive supervision visits on TB-HIV were conducted with partners to districts and health centers. A workplace policy on TB/HIV and Infection Control in health facilities is being implemented, but TB and HIV screening among health workers is only routine in half the facilities visited. A detailed overview of all activities implemented is provided in Annex 4, work plan table FE.

### **S.O.3. To increase private participation in the TB program.**

After training a total of 40 Traditional Healers (THs) in recognizing possible TB and referral, 20 THs were further trained in keeping records and all were followed up. Many were illiterate and didn't keep records well; several were not active and dropped out. THANZI M&E made annual follow up visits to collect verbal reports of 14 in the intervention group and six in the control group. THANZI M&E provided an overview of data on case finding by 20 THs since 2007: on average each healer identified 4 to 5 symptomatic persons per year (in total about 100 per year), of whom one third (31) was confirmed with Sm+ PTB. See for details the table in ANNEX 5.

THANZI trained 90 business representatives in TB DOTS, linked industrial clinics to health centers for referrals of TB suspects. This was done in collaboration with the Chamber of Commerce.

## **F. Discussion of the Results**

### *Preamble*

As can be seen from the M&E matrix and Annex 4, work plan table, a large number of THANZI activities were implemented as planned. The phrasing of targets of the activities in the DIP, however, was very ambitious, with 21 indicators having 100% targets, of which eight (8) stating “at least

100%”, even where one cannot reach above 100%. Of all the 53 targets, 14 were reached fully (26%), of which one was added after the MTE. Sixteen (30%) achieved 76% - 99% of the target. Another 7 (13%) attained a score of 51% - 75%. Fifteen (28%) scored below 50%. Two targets (1.4 and 1.9) were removed after the MTE as they were not applicable anymore.

The term “Impact Indicators” on page 1 of the M&E matrix is a bit misleading, as these are outcome (or mainly output) indicators, some of which may function as a proxy for the impact on the TB epidemic (reduced mortality and morbidity).

### ***F.1 Contribution toward Project Objectives***

CARE is a development organization with a vision: “We seek a world of hope, tolerance and social justice, where poverty has been overcome and people live in dignity and security”. CARE’s mission is to serve individuals and families in the poorest communities in the world.

The focus of CARE’s THANZI project on people living in rural, underserved areas in Eastern Province is therefore just, as tuberculosis (TB) is a poverty disease. The risk factors and determinants of TB are, however, multifold and thus outcomes will be difficult to attribute to interventions of THANZI alone.

THANZI’s approach to improving TB control efforts focused on various ways of improving the case detection rate (CDR) while attempting to maintain a high treatment success rate. The first target, increasing CDR to the average for Zambia, has proved to be impossible to reach. See section F.2 Contextual Factors (especially 3. HIV) on arguments for this statement.

The 85% treatment success rate target was reached in Lundazi, but not in the other three THANZI supported districts, for different reasons:

Chipata: a large proportion of the patients comes from all corners of the province to the specialist hospital, with diagnosis of various forms of TB made for the self-presenting TB patients, and admissions of the more complicated cases; high defaulter rate and high death rate is also due to admission and treatment of those with relapse and a high HIV co-infection, while starting ART in co-infected TB patients is lowest among all districts (only 48% in Chipata in 2011).

Chadiza: as the district has no hospital, the diagnosis of TB is almost entirely made through sputum smear examination in peripheral health centers, resulting in a very high proportion Sm+ PTB (>90%) among the (low number of) TB patients found. Only seven out of the 14 HIV+ TB patients received ART in 2011, which may be a factor contributing to a high death rate there.

Petauke had 2011 a defaulter rate of more than 7% in 2011, as well as a 7% death rate, together with a 5% transfer out, resulting in 82% treatment success.

Training 1,500 CBVs and retaining some 1,000 active CBVs in a population of just one million people means that one CBV has on average 1000 community members to care for; to find among them the expected 1 to 2 TB cases per year, some 10 to 20 suspected TB patients need to be identified and tested with sputum smear microscopy. However, the actual contribution was on average 2 to 3 suspects identified per CBV and one Sm+ PTB patient found per 3 or 4 CBVs.

The number of labs expanded in EP to now 46 labs for a population of 1.7 million, a high number and more than double the WHO recommended one AFB microscopy lab / 100,000 population.

To monitor the additional labs, microscopists were trained and many function well. The Central TB Reference Lab started EQA with field visits and initial screening of labs doing sputum smear microscopy. They used an 80% score of concordance as a cut off point for deciding which labs would need most support. Very low proportions of smear positivity (like 2% in Chadiza) may have a

negative influence on the accuracy and reliability of smear examination, unless a more effective quality assurance system is in place.

Doing more active CF will not be a wise investment, unless at the same time combined with improving the ("passive") case finding among symptomatic patients presenting at all the health facilities and a stricter policy on contact examination. It is well known from literature that a TB patient has visited a health facility on average 3 times before being diagnosed with TB, so health service delay may play an important part here too. Operational research may shed light on this.

## ***F.2 Contextual Factors***

### **1. Multiple determinants of tuberculosis**

From the framework of risk factors and determinants (See ANNEX 5) presented by Lönnroth et al. (Soc. Science Med. 2009) we know that the TB epidemic is influenced by many different conditions, most of them even outside the scope and direct influence of the health service. While the THANZI interventions chosen by CARE are very relevant (improving health seeking, health system functioning, accessibility and HIV care), the direct influence on diminishing TB in the community is thus probably very small and difficult to attribute to THANZI efforts.

### **2. Challenges encountered during the past five years were mentioned as:**

- The restructuring program within the MoH slowed implementation of TB DOTS activities and resulted in many new staff coming on board. These staff needed retraining in TB DOTS management because the originally trained health workers were redeployed (mostly to non-THANZI supported districts)
- The downsizing of CARE's ITAP project, from six districts to only three (Chadiza, Chama and Petauke) caused Lundazi district to have no CARE staff, while the other three districts (Chadiza, Chipata and Petauke) had new staff who had to be re-oriented on project deliverables and National TB/HIV protocols to ensure quality and effective implementation.
- Instability in the private sector posed a challenge to the project in that most of the people trained were either not available during the crop marketing season or have been laid off or were transferred to other non-THANZI supported districts
- Health workers are typically overloaded as they are required to attend to an average of 50-250 clients with different needs (PMTCT, CT, child health services) in a given day. In 60% of health facilities the FE noted shortcomings in recording and reporting (Survey Feb 2012).

### **3. HIV**

It is well known that the TB epidemic in Sub-Saharan Africa is driven by HIV. This is also the case in Zambia, one of the high HIV burden countries (WHO TB profile, [www.who.int/tb/data](http://www.who.int/tb/data)). It is also known that TB follows the HIV epidemic with some six years delay (Dye et al. Bull WHO, 2009) and the decline in TB case detection throughout Zambia since 2004 follows some 6 to 8 years after the HIV epidemic reached its peak in the mid 1990s (Zambia HIV Prevention Response and Modes of Transmission Analysis, Final Report, June 2009) and continues to fall, be it very slowly in the last five years. HIV prevalence varies widely between urban and rural, between women and men and between provinces. Table 14 from that report (see ANNEX 11) shows that among ANC clients in urban EP (Chipata) the HIV prevalence was 24.4%, while in rural EP (Minga) it was 8.7 percent. HIV prevalence trends in young women can be seen as a proxy for incidence trends: in ANC clients aged 15-19 years, HIV prevalence was 13.9% in 1994 and 8.5% in 2006-07, a statistically significant

change suggesting that the HIV incidence is falling. In women (sexually active or not) aged 15-19 who were sampled in the Demographic and Health Survey 2007 (DHS) the change between 2001-02 and 2007 was 0.9% (from 6.6% to 5.7%, not statistically significant). Table 14.8 of the DHS (ANNEX 11) gives an HIV prevalence among young people, age 15-24, in Eastern Province as low as 4.2% among females and 2.2% among males, one of the lowest rates of the country. Altogether that is good news, but this also makes it improbable that TB incidence and prevalence will be around the average level of Zambia. It is important to mention here that according to the consultant, the strong link with the HIV epidemic and the low rate of HIV prevalence in Eastern Province was not fully recognized when the outcome target on TB case finding was formulated in the THANZI DIP.

#### 4. Geographical factors

a. Chipata is the provincial capital and has a large hospital with specialists, doing more than sputum examinations and finding more TB patients with relapse or failure. Some presumptive TB patients do bypass their own district hospital and present at the well organized and busy chest clinic. As a result, Chipata has a much higher case notification than corresponds with the catchment area of the district only.

b. Chadiza district is a particular case: it doesn't have its own district hospital and it is located close to Chipata with its provincial hospital. In addition, there is a large, well functioning mission hospital in neighbouring district Katete, at a much shorter distance for a large part of the population of Chadiza District, attracting many clients. Thus many Chadiza inhabitants will be diagnosed with TB outside their district. The resultant case notification rate in Chadiza is thus "artificially" low! This is confirmed by the fact that even while a high number of smears is examined in the labs of Chadiza, only 2% (two per hundred!) of them is found smear positive. This is a clear example why operational data can't be used to judge an epidemiological situation.

### ***F.3 Role of Key Partners***

*Stakeholder and partner opinions on importance of the project: interviews*

For a compilation of all interviews see ANNEX 18.

The main points can be summarized here as follows: from obtaining the formal approval by the Ministry of Health for the THANZI project to the close-out workshop at the end of the nearly five year period, THANZI has been coordinating and collaborating with all stakeholders well, ensuring good capacity building, effective communication and avoiding overlap. MoH at all levels wants partners to stick to NTLP guidelines, use official NTLP R&R system and share data timely. THANZI adhered largely to those instructions. The focus on improving the link between the community and the health service through establishing fora for regular contact and exchange is appreciated by all.

### ***F.4 Overall design factors that influenced results***

Working with a low number of own staff through supporting the government system allows but limited direct influence on collaboration and linkage between staff at the most peripheral health facilities and (voluntary) community actors like NHCs and CBVs. From literature on community-based health care and working with volunteers is known that regular communication and feedback is needed to keep motivation going (references J.Dick et al. 1996 Tubercle and Lung Disease; HATiP issue 179, 14 July 2011). With more than 1,500 CBVs initially trained and about 900 still active, a huge drop-out has taken place. THANZI's limited staff presence may have hampered provision of

more guidance for health workers to stimulate community workers. A larger and continuous training effort to replenish CBVs might have been contemplated too.

#### *What did work in THANZI?*

- The large majority of interventions was executed as planned; most recommendations of the Mid Term Evaluation were acted upon, all through regular and intensive coordination with many partners, most notably with Provincial TB/Leprosy Coordinator and TB Focal Point Persons (FPP) of the District Health Offices
- Training of various cadres of health staff and community volunteers involved in TB control was completed with better knowledge of TB as well as a measurable increase in accuracy in the use of recording and reporting formats (KPC survey Feb. 2012)
- Many activities and partnerships for community based interventions were initiated and supported, including ACSM / Behavioral Change Communication (BCC), Neighborhood Health Committees and TB/HIV Coordinating Committees at various levels
- Suspecting TB increased during the 5 years of the project, as can be seen from the number of suspected TB patients whose sputum was examined in the laboratory: from 4,676 to 9,196. According to THANZI's HF survey report (of Feb. 2012, page 59), out of these 9,196, the number of suspects referred by CBVs was 2,355 (25% of the total) based on THANZI community based forms/reports(form 4).
- Training and deployment of microscopists in hard to reach areas contributed also to this increased number of suspected TB patients examined
- Facilitating numerous meetings at all levels (provincial, district, HC and community level) improved coordination and collaboration
- Leveraging additional resources where THANZI's own funding was found insufficient.

#### *What didn't work?*

- ACSM activities and disseminating messages increased the knowledge on TB in the community to some extent, but stigma appeared to have increased (though based on just one question during the KPC survey 2012, see discussion on page 9) – this could possibly be due to increased knowledge about the link of TB with HIV in the community? This will need further investigation
- Involving more than 1000 CBVs didn't result in the expected large increase of many thousands of persons suspected of TB or hundreds of (Sm+) TB patients
- Doubling the number of sputum smears examined in the last few years did not lead to detecting more sputum smear positive TB patients each year
- During the field visit it was not possible to assess in all locations the contribution of CBVs to TB case finding. The data collection tools were not everywhere in use or accessible: transitioning the supply of stationery from THANZI to DHO hadn't worked well
- Similarly, the contribution of CBVs to TB treatment could not easily be assessed. The treatment success percentages mentioned in ANNEX 5 (page 2) are not in line with data reported in literature from other projects or countries, where usually the success rate at health facilities is reportedly lower or perhaps equal to that achieved through Community TB Care (Reference: S. Atkins et al., 2011, Int J Tub Lung Dis; Z. Zvavamwe et al., 2008, Int J Nursing Studies; M. Clarke et al., 2005, Int J Tuberc Lung Dis)

- Treatment success results were just below the target, with as possible reasons that THANZI's mandate didn't include improvements in clinical care in a large health facility like Chipata General Hospital, which gets the more difficult cases but also lags behind in quality TB services and loses too many patients (high death rate, high defaulter rate).
- With exception of a few companies, most larger employers have no TB work place policy or program, while their workers trained in TB were often transferred / relocated
- Traditional healers are infrequently consulted by potential TB patients and many cannot keep records; the study had to be halted as an operational research due to high illiteracy levels amongst THs; verbal reports during follow-up visits showed a limited contribution to TB case detection because it was difficult to validate data collected/compiled from THs.

## G. Conclusions and Recommendations

Compared to the size of the population (>1million) in the four THANZI supported districts, as well as the complex interaction of factors driving the TB endemic, the ambitions of CARE (to improve detection of TB patients through community and health service interventions) as formulated in the Detailed Implementation Plan of 2007 may on the one hand have been on the higher side. On the other hand, the overall performance of NTLP in Eastern Province has improved significantly in the last 5 years and EP received the NTLP prize for best performance in 2011 (Annual Report 2011, PHO). There is, however, still need for more consistent guidance of the busy and sometimes overstretched peripheral health workers in suspecting TB among OPD attendees and PLWHAs, strict adherence to diagnostic algorithms, proper use of lab EQA procedures and keeping accurate records. THANZI strengthened the information system at the community level in order to document the contribution of CBVs in TB control through the introduction of CBVs recording and reporting forms. The Provincial/District health offices were fully involved in the development of the tools. Key indicators were: TB suspects referred by CBVs to the health centre, TB suspects found with Sm+ PTB, contacts referred for examination and community members referred for HIV testing to the health centre by CBVs. The initiative contributed to an information system from CBVs to zones and health centre level for the entire district. Challenges identified were supply of stationery, regular reporting and leadership gaps to aggregate information collected from individual CBVs on monthly or quarterly basis at each zone, health centre and district level.

CARE employed for THANZI and ITAP several clinical officers with experience in TB control, who through on-the-job exposure as well as through attending meetings and conferences gained considerable extra and up-to-date knowledge on TB, TB/HIV and TB care and control. This exposure during THANZI implementation certainly strengthened the institutional capacity of CARE.

The literature shows that based on national and international trends in TB epidemiology, HIV has much more influence on the TB endemic than operational TB control factors: e.g., while the TB program in Zambia was again well established from 2002 and services were expanding, TB case notification rates (CNR) show a downward trend since 2004 and vary between **971**/100,000 in (mostly urban) Lusaka to **180**/100,000 in mainly rural Eastern Province. Only (rural) Northern Province has a lower rate: **110**/100,000 (data of 2009, from National TB Strategy 2011-2015). These huge differences in TB CNRs largely coincide with the unequal spread in prevalence/incidence of

HIV infection in those areas and the downward trend of TB since 2004 follows 6 to 8 years after the start of the decrease of the HIV prevalence.

**Final conclusion: TB is a considerably smaller problem in Eastern Province than initially envisaged in 2007, especially when compared to most other provinces in Zambia.**

## **Recommendations**

### [Recommendations for CARE]

1. To allow better attribution of output and outcome to project interventions, CARE may consider future project designs to focus on fewer interventions and implement them (still through the government system and other partners) with clear guidelines, simple algorithms and incentives for volunteers, health workers and supervisors
2. Plan, where necessary, for more technical assistance in TB program management aspects, to support provincial and district TB FPPs as counterpart(s)
3. In CARE's Integrated TB and AIDS Project (ITAP), emphasis should be on ensuring the use of SOPs (see examples from FHI's "Collaborative TB/HIV Services" document of 2009) and supporting general health workers at TB/HIV clinics such that data is routinely captured on:
  - a) the work of Community Based Volunteers (CBVs) in TB case detection in the community, by using for instance different colored sputum examination request forms, a note in the lab register under "remarks" or other ways to allow attribution of case finding to CBV's efforts
  - b) checking for TB among HIV+ persons during each contact at the HIV/AIDS Care and Treatment Clinic and including this checking for TB in the routine reporting.
4. Either in ITAP 2 or separately, consider to plan an operational study/research, to try and measure in facilities with good quality smear microscopy, if TB patients in 2012 are diagnosed and start treatment earlier than in 2007 as a result of the various measures taken for intensified case finding, e.g.
  - lower initial bacterial load at time of diagnosis (proportion AFB 3+)?
  - higher proportion of conversion at 2 month?
  - better treatment outcome at end of treatment?

### [Recommendations for CARE, NTL, PHO, DHO and partners]

5. There is still a need to strengthen community sensitization activities to address stigma
6. Frequent follow-up of CBVs and health workers is needed after their training to keep them motivated and ensure stricter adherence to national policies and technical guidelines, e.g. ensure tracing and examination of contacts of new Sm+ PTB patients
7. Active case finding should be restricted and focus more on high risk groups like contacts, HIV infected and persons in congregate settings, not on community-wide unfocused sensitization and sputum collection as was done in Chadiza. Emphasis should be shifted back to the intervention that has the highest yield: strengthening the selection of potential TB patients from among the daily self-presenting symptomatic persons at health facility OPDs through:
  - a) using SOPs consistently and paying attention to case finding during supervision
  - b) involving Classified Daily Employees (CDEs) to ask for cough (cough triage at OPD) or let CDEs support laboratory work and maintain records

- c) implementing active TB case-finding at ART/HIV clinics and in high-risk groups rather than embarking on a “Blitz” approach in TB case detection in the community (PHO Annual Report 2011)

[Recommendation for CARE Zambia at Lusaka; also MoH and USAID Zambia]

- 8. CARE Zambia with partners to initiate development of a national policy for involvement of and engagement with community health volunteers to harmonize approaches of MoH and different partner organizations as well as their remuneration.

[Recommendations for MoH, NTLP, CDC/NTRL]

- 9. Improve on the precision in the roll-out of the national EQA for smear microscopy.
- 10. A well-designed and agreed national system for transportation of specimen should be put in place, for sputum smear examination, for identification of TB (Xpert MTB RIF) as well as for Culture and Drug Sensitivity Test at TB Reference Labs. It is understood that TB CARE I is in the process of supporting this already country-wide
- 11. Instead of using people to collect or send paper-based results, the use of available modern technology is recommended: as soon as the results of diagnostic examinations are known, mobile phones should be used (send an SMS!) to inform the requesting HW soonest, so patients can start their treatment as early as possible.

[Recommendations for MoH, NTLP, PHO, DHO]

- 12. Finalize the updated TB/HIV Manual as soon as possible and ensure dissemination to all health facilities with DOTS and ART clinics in sufficient numbers. Also all PHOs, DHOs and partner organizations should receive and use a manual
- 13. NTLP staff at various levels should make sure that general health workers involved in TB and HIV care and control activities read the national TB/HIV manual (and other guidelines that are applicable) and use/adhere to them in their day-to-day work
- 14. Supervision from national and provincial level should concentrate on improving the performance in supervision and on-the-job training of district coordinators rather than merely checking the performance of peripheral health facility staff
- 15. In case active TB case finding is done, it should concentrate on high risk populations (HIV infected sub-groups, congregate settings, TB case contacts, etc.) rather than mobilizing “suspects” from the general population, to avoid overburdening of laboratory staff and obtaining negative results.