



## EVALUATION

# Final Evaluation of the Vurhonga Community-based TB DOTS Project, Rural Mozambique

This publication was produced at the request of the United States Agency for International Development. It was prepared independently by Henk Eggen, MD, MPH, lead evaluator.



For the Final Evaluation Brief and other Child Survival and Health Grants Program materials, please visit <http://www.mcsprogram.org/CSHGProducts>

## Acknowledgements

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I thank the field supervisors of the project for sharing their experiences and showing their dedication to their job.

I am very grateful to all the government health staff, the village leaders, the volunteers and the patients that discussed project matters frankly with us.

Finally, good drivers are a great comfort during field trips. I am grateful for having travelled safely with Ezekiel and Arlindo at the wheel.

The Lead Evaluator

**Photo on cover page:** Participant of focus group discussion during project final evaluation, rural Mozambique; photo taken by Henk Eggens, August 2014.

# **Final evaluation of the Vurhonga Community-based TB DOTS Project, Mozambique**

**An effort to increase the tuberculosis control performance through  
a Care Group Volunteer network**

October 29, 2014

CSHGP Cooperative Agreement Number: GHN-A-00-09-00017-00

“A chain is only as strong as its weakest link”. Community-based interventions need to be matched with effective health system strengthening.

## **DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.





## Final evaluation of the Vurhonga Community-based TB DOTS Project - Executive Summary

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### Evaluation Purpose and Evaluation Questions

This is the Final Evaluation (FE) report of the Vurhonga Community-based TB DOTS Project (TB DOTS = Tuberculosis Directly Observed Treatment Short course) project in northern Gaza province, Republic of Mozambique.

The project period ran from 30 September 2009 until 30 September 2014. The project was financed by USAID through the Child Survival and Health Grants Program (CSHGP) and a match by the implementing Private Voluntary Organization, World Relief, U.S.A. The USAID budget was USD 1.500.000, the match by World Relief was USD 500.000.

The evaluation questions in the Scope of Work (SOW) for this final evaluation can be grouped into four general subjects:

- To what extent did the project accomplish and/or contribute to the results (**goals/objectives**) stated in the Detailed Implementation Plan (DIP)?
- **How** were results achieved?
- To what extent and in what ways did engagement of the **Ministry Of Health** contribute to sustainability of the project outcomes?
- Which elements of the project have been or are likely to be **sustained or expanded?**

### Project Background

*The problem:* Fuelled by the HIV crisis, tuberculosis (TB) is a great health concern in Mozambique. Gaza Province has specific challenges due to the high percentage of migrant workers and poor access to health services. Three out of four infectious TB patients are also HIV positive. The proportion of TB patients dying while on treatment in the project area was around 15% in the year before the start of the project.

*The project area:* The project operated originally in six under-served, rural districts and three urban areas (total project area population around 300,000) in Gaza province. During the

course of the project implementation, three districts were excluded from the project, when a similar project assumed responsibility in these areas.

*The project design:* The project aimed to reduce the burden of TB in the project area. Its key strategies included:

1. To use and enhance an existing Care Group Volunteer (CGV) network in the villages of the project area.
2. The project supported government services by facilitating supervision, training and logistics.

The intended intermediate results reflected the two main and one minor project strategies:

1. Through the use of Care Group Volunteers (existing since an earlier mother and child care project), three sets of activities were defined:
  - Provide health information messages to promote improved health seeking behavior among persons with suspect symptoms for tuberculosis;
  - Facilitate suspect cases to present themselves to health services for diagnosis and subsequent treatment.
  - Promote adherence to completing the full course of anti-tuberculosis treatment.
2. Through health services support, enhance the diagnostic capability of the district governmental health services. Activities concentrated on the facilitation of sputum transportation, improved referral and counter-referral system using volunteers and supervisors, increase of supervisory capabilities through provision of means of transport.
3. Decrease the burden of TB/HIV dually infected patients by providing health education and mobilization in villages. Also, promote testing for the other disease in tuberculosis patients and in HIV-positive persons.

The evaluation methodology consisted of a mixed-methods approach using both quantitative and qualitative data. The approach comprised both a desk review of secondary data sources and the collection of data to complement existing resources.

Focus Group Discussions (FGD) guided by specially developed questionnaires were held in five rural and three urban settings in the project area with volunteers, (ex-) patients and village leaders. Key Informant Interviews (KII - also with specific sets of questions) were held with project managers and supervisors, with health staff at facility, district, provincial and national level.

District tuberculosis registers were reviewed extensively; in addition health facility ledgers, laboratory registers and patient records were reviewed and discussed.

The project realized Knowledge, Practice, Coverage (KPC) surveys at three points in time: project inception, at mid-term and before the final evaluation. Data produced in the project health management information system (M-DRAT) was reviewed.

Site visits were planned and implemented by two teams, and included visits to three urban and five rural project locations. Due to time limitations, two faraway districts were not visited. Statistical information was available for all districts.

## Findings and Conclusions

The findings and conclusions are organized in this report using a logic model of Outcomes, Processes and Inputs.

### *Outcomes:*

The project's primary objectives were to contribute to a 50% increase of the tuberculosis case notification rate and to achieve 85% treatment success rate in project areas fully implementing Community-Based Directly Observed Treatment Short-Course (CB-DOTS). Contrary to expectations, there was no increase in notification rates during the entire project period. Satisfactory results of treatment were measured only in the most recent three quarters of the project period. Favorable outcomes are hampered seriously by persistent high mortality rates of patients while on treatment. These rates are linked to a high proportion (approximately 75% in the area) of tuberculosis patients dually infected with HIV. On provincial level, statistics on tuberculosis reveal a slight tendency of reduced notification rates in recent years.

The persistent high mortality during the project period reflects delay in diagnosis and treatment for tuberculosis and insufficient early application of anti-retroviral therapy for HIV-positive patients.

The failure to achieve the main project objectives puzzled the evaluation team. Without clear explanations, the report hypothesizes several external and project-related causes:

1. Errors in population size estimations (too high, due to migration);
2. Insufficient patient access to tuberculosis health services (project and external reasons);
3. Possible persisting health seeking behavior leading to delay in diagnosis of TB.

### *Process:*

The expansion of the volunteer network has produced good success in the contribution towards tuberculosis case detection in the community. Project statistics indicate an increase of community-referred suspect cases up to 45% of all new tuberculosis cases diagnosed in the project area, without an increase in total case notification rates.

The project took a long time to produce the implementation plan and to train all volunteers. Probably, the reduced period of implementation determines partly the lack of achievement of project objectives. The extensive CGV network has produced a measurable shift in knowledge on tuberculosis etiology and care possibilities, as proven by the KPCs held.

These results are remarkable and very positive. To what extent this knowledge is followed by a more effective health seeking behavior, is uncertain. It has not led in any case to a substantial increase in case notifications, nor in a reduction in mortality figures (yet).

Strengthening district health services has not produced many sustainable results. The inputs and the sustainability of the interventions are likely to have been insufficient. Training and assistance in supervision has been effective during the project period. Means of transport depended heavily on the presence of the project; half of the six motorbikes provided are currently not operational. The volunteer structure will most likely continue to function in the short term (1-3 years). Without maintenance of the project supportive supervision level, a gradual decrease in effectiveness can be expected. Government diagnostic capability was not strengthened systematically or long lasting.

Government tuberculosis services in the project area have implemented the "One stop Approach", the recent Ministry of Health policy to provide HIV control and care to HIV-

positive tuberculosis patients. The project has facilitated the implementation of this policy on facility level. On village level, no attempt was made by the project to integrate HIV-care for dually infected patients. This expansion of volunteer activities could have increased patient satisfaction, and could have improved treatment outcomes.

*Inputs:*

USD 2,000,000 is a considerable expenditure for a project of restricted size and limited number of intended beneficiaries. The main category of expenditure was on human resources (salaries, incentives) which amounted to 70%. Equipment and supplies for health services were not a priority, expressed as a proportion of the budget. The project management seemed well structured and effective. Large numbers of volunteers were trained. During the project, a new cadre was developed, the Focal Point Volunteer, catering for 1500-2500 rural population. This type of volunteer proved very useful as liaison between village and government tuberculosis services.

**Recommendations:**

With the major objectives not reached, the question arises how funds could have been used more effectively. A better project design could have resulted in improved access to diagnosis and better treatment outcomes for this part of Gaza province in this period. The following aspects are discussed:

1. Making more use of tuberculosis control expertise in project design;
2. Enhanced analysis on project area population estimates and realistic target setting;
3. Integration of tuberculosis and HIV control measures in the community;
4. Larger sustainable health system strengthening: Linking community DOTS innovative efforts to support to facility-based tuberculosis health services.

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The Vurhonga Community-based TB DOTS Project in Gaza Province, Mozambique is supported by the American people through the United States Agency for International Development (USAID) through its Child Survival and Health Grants Program. Vurhonga Community-based TB DOTS Project is managed by World Relief under Cooperative Agreement No. GHN-A-00-09-00017-00. The views expressed in this material do not necessarily reflect the views of USAID or the United States Government.

For more information about the project, visit: <http://worldrelief.org>



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## Acronyms

ACSM	Advocacy, Communication and Social Mobilization
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
CB-DOTS	Community Based- Directly Observed Therapy Short-Course
CGV	Care Group Volunteer
C-HIS	Community Health Information System
CNR	Case Notification Rate
CPT	Cotrimoxazole Preventive Therapy
CSHGP	Child Survival and Health Grants Program
DDS	District Department of Health
DIP	Detailed Implementation Plan
DOTS	Directly Observed Therapy Short-Course
DPS	Provincial Health Department
FE	Final Evaluation
FGD	Focus Group Discussions
FHI	Family Health International
HBCA	Home Based Care Activist
HC	Health Center
HIV	Human Immunodeficiency Virus
HQ	Headquarters
IEC	Information, education and communication
IPT	Isoniazid Preventive Therapy
KII	Key Informant Interviews
KPC	Knowledge Practice and Coverage
LE	Lead Evaluator
M&E	Monitoring and Evaluation
M-DRAT	Modified District Rapid Assessment Tool
MOH	Ministry of Health
MTE	Midterm Evaluation
NGO	Non-Governmental Organization
NTP	National Tuberculosis Program
PLWHA	People Living With HIV/AIDS
PVO	Private Voluntary Organization
Q	Quarter
RD	Rural Districts
SS	Sputum Smear
SS-neg.	Sputum Smear Negative
SS-pos.	Sputum Smear Positive
TB	Tuberculosis
UC	Urban Centers
USAID	United States Agency for International Development
VHC	Village Health Committee
WHO	World Health Organization
WR	World Relief



## 1 Evaluation Purpose and Evaluation Questions

### 1.1 Evaluation Purpose

This report contains the findings, conclusions and recommendations of the Final Evaluation (FE) of the Vurhonga Community Based Directly Observed Tuberculosis Therapy (CB-DOTS) project in northern Gaza province, Republic of Mozambique. The project period ran from 30 September 2009 until 30 September 2014. The project was financed by USAID through the Child Survival and Health Grants Program (CSHGP), under Cooperative Agreement Number: GHN-A-00-09-00017-00 and a match by the implementing Private Voluntary Organization, World Relief, based in Baltimore, USA (the Grantee). The USAID budget amounted to USD 1.500.000 and the match by World Relief totaled USD 500.000. The purpose of USAID's CSHGP is to contribute to advancing the health system strengthening goals of Ministries of Health toward achieving sustained improvements in child survival and health outcomes, particularly among vulnerable populations, by supporting the innovative, integrated community-oriented programming of private voluntary organizations/non-governmental organizations (PVOs/NGOs) and their in country partners. The FE is intended as a performance evaluation but should be broadly accessible to various audiences including Ministries of Health (MOHs), and findings will contribute evidence relevant to global initiatives such as the Global Health Initiative and Feed the Future. The FE provides an opportunity for all project stakeholders to take stock of accomplishments to date and to listen to the beneficiaries at all levels, patients and their families, other community members and opinion leaders, health workers, health system administrators, local partners, other organizations, and donors. The FE Report can be used by the following audiences as a source of evidence to help inform decisions about future program designs and policies:

- Partners in Mozambique at national, regional, and local levels (e.g., MOH and other relevant ministries, district health team, local organizations, communities in project areas).
- USAID (CSHGP, Global Health Bureau, USAID Missions), and other CSHGP grantees.
- The international global health community. The FE report will be posted for public use at <http://www.mchipngo.net> and the USAID Development Experience Clearinghouse at <https://dec.usaid.gov>.

### 1.2 Evaluation Questions

The evaluation questions in the Scope of Work (SOW) are provided in Annex VIII. For this final evaluation report, these were merged with the questions suggested by EnCompass<sup>1</sup> in their feedback<sup>2</sup> of July 2014 to the Grantee. The questions were then aggregated by the LE (Lead Evaluator) to the following focused issues:

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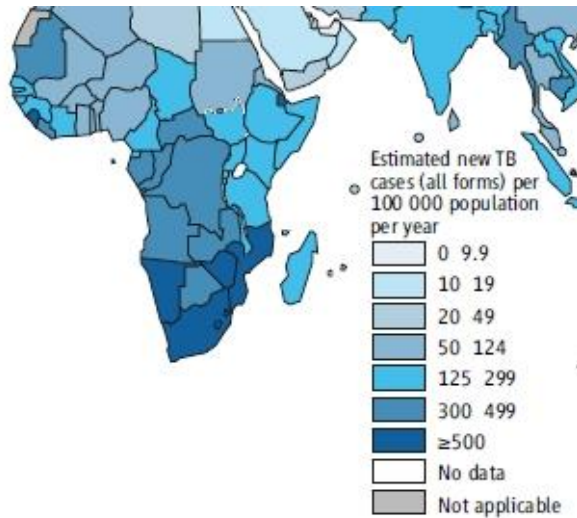
<sup>1</sup> EnCompass provides services to USAID and other agencies and organizations on evaluations.

<sup>2</sup> file: EnCompass Feedback on Vurhonga RF and SOW.docx

1. To what extent did the project accomplish and/or contribute to the results **(goals/objectives)** stated in the Detailed Implementation Plan (DIP)? Did case notification rate improve over the duration of the project and did the treatment success rate reach 85%?
  - a. To what extent and in what ways did engagement of the Care Group Volunteer network contribute to case notification and treatment success?
  - b. What is the quality of evidence for project results?
2. **How** were results achieved?
  - a. What were the key strategies and factors, including management issues, and contextual factors that contributed to what worked or did not work?
  - b. What project specific strategies were most effective in increasing access to quality diagnostic services and case detection in rural districts?
  - c. What were the contextual factors such as socioeconomic factors, gender, demographic factors, environmental characteristics, baseline health conditions, health services limitations outside the locus of control that affected implementation and outcomes?
  - d. Were HIV related stigma, gender, or human rights considerations incorporated into the project at the design phase or midway through the project? If so, how? Are there any specific outcomes? Are there any unintended consequences (positive and negative)?
  - e. Consider and make recommendation for World Relief's plan for adjusting the Community DOTS Data Collection and Referral Tool as well as tailoring OR for Care Group methodology for further tuberculosis (TB) research.
3. To what extent and in what ways did engagement of the MOH contribute to sustainability of the project outcomes?
4. Which elements of the project have been or are likely to be **sustained or expanded** (e.g., through institutionalization or policies)?
  - a. Analyse the elements of scaling-up and types of scaling-up that have occurred or could likely occur.
  - b. Analyse the costs and resources associated with implementation relevant for replication or expansion.

## 2 Project Background

### 2.1 The problem



**Figure 1: Estimated annual new tuberculosis cases in Sub-Saharan Africa (source: WHO, 2013)**

Fuelled by the HIV crisis, tuberculosis (TB) is a great health concern worldwide. The WHO ranks Mozambique third highest in estimated incidence of TB - 552 per 100,000 population - (See Figure 1 - after South Africa and Zimbabwe). It ranks fourth in mortality at 53/100,000 pop. behind Cambodia, South Africa and DRC (the numbers exclude deaths among HIV-positive TB cases. Source: WHO, 2013). In Annex XIX, the most recent WHO statistics are provided.

Gaza Province has specific challenges due to the high percentage of migrant workers, rural setting and long distances to health

centers (HC). Of all sputum-smear-positive (SS-pos.) TB patients 74.5% are also HIV+ and the proportion of SS-pos. TB patients dying while on treatment was 14.3% (in 2012, determined by cohort analysis as reported by the project information system called M-DRAT). Within the project area, there are only six health centers with the ability to diagnose and treat TB. Carmelo Hospital, a specialized private HIV/TB hospital, is located in Chokwe town.

### 2.2 Project area



**Figure 3: Gaza province**

The project operated originally in six under-served, rural districts (population 218,191) and three urban areas (population 87,997) in Gaza province, Republic of Mozambique. The province experienced (and still does experience) tuberculosis and HIV incidence figures above national average (see Table 1)



**Figure 2: In yellow: project area in Gaza province 2014. Other colors: non-project area.**

According to Gaza estimates (source: Project DIP; 2009), with an incidence of sputum smear positive (SS-pos.) TB of 186/100,000 and a combined project population of 306,188 (22% of the province population) the project could anticipate approximately 570 cases of TB per year and 2,850 SS-pos. patients over the life of the project.

	National	Gaza province
Tuberculosis notification rates (all forms of TB) per 100,000 population	214	345
Co-infection rates for TB & HIV	58%	73%
Source: Annual TBCARE1/MoH meeting, March 2014. All numbers are from 2012		

**Table 1: TB and HIV co-infection data, 2012, Gaza province and Mozambique**

Table 2 shows the original project area, names and population figures.

The project area was chosen for two main reasons:

1. The burden of tuberculosis and TBHIV coinfection in the area was high, considerably above national averages.
2. The implementing agency, World Relief, USA, has been active in the area since the nineties, developing a specific community-based approach (the so-called “Care Group Approach”) towards maternal and child survival goals, which had proven to be quite effective<sup>3</sup> and had won the 2014 Core Group Award<sup>4,5</sup>.

Rural Care Group Districts		Urban Centers with HIV/AIDS Activities	
Geographic Area	Population	Geographic Area	Population
Chicualacuala	40,014	Macia Town, Bilene	24,766
Chigubo	21,309	Chokwe Town, Chokwe	63,231
Guija(including town)	77,429	Guija Town, Guija	Included in Rural Guija
Mabalane	33,248	Sub-Total	87,997
Massangena	16,225		
Massingir	29,966		
Sub-Total	218,191		
Total Beneficiary Population: 306,188			
Estimated New SS-pos. TB Cases: 2,850			

**Table 2: Beneficiary Population by Geographic Area as defined in the DIP (2010).**

NB During the course of the project implementation, the population of the districts of Macia, Chokwe and Guijá Town were excluded as project beneficiaries, when a similar Community DOTS project (implemented by Family Health International/TBCARE1) assumed responsibility for assisting the National Tuberculosis Program (NTP) in these areas. In addition, the estimated incidence of new PTB cases in the rural area was adjusted to 374 new patients annually (estimated SS-pos. incidence of 165/100,000 population). Note that the current

<sup>3</sup> Publication on Care Groups in Sofala, Mozambique: <http://www.ghspjournal.org/content/1/1/35.full>

<sup>4</sup> <http://www.coregroup.org/our-network/dory-storms-award-winners>

<sup>5</sup>See:

[http://www.coregroup.org/storage/documents/Resources/Tools/Care\\_Group\\_Manual\\_Final\\_Oct\\_2010.pdf](http://www.coregroup.org/storage/documents/Resources/Tools/Care_Group_Manual_Final_Oct_2010.pdf)



provincial incidence estimations 174 per 100,000 population for new cases with SS-positive tuberculosis (source: Gaza annual NTP report 2012)

The tuberculosis control in Mozambique in general faces many challenges: The WHO global tuberculosis report 2013 and a recent The Lancet article<sup>6</sup> describes the difficulties facing the Ministry of Health. Poor access to tuberculosis diagnostic and therapeutic facilities, poor treatment results and extremely high co-infection rates with HIV are the results of underdevelopment, scarcity of human and financial resources and suboptimal programme organization.

The project approach, using community-based organization was in line with the national tuberculosis control programme 2010 guidelines (See Strategy 7)<sup>7</sup>. Since the project's start, other community-based TB control projects started in Gaza and other provinces in Mozambique, USAID-funded and FHI-implemented<sup>8</sup>. The new Ministry of Health strategic plan for tuberculosis control (2013-2017)<sup>9</sup> defines community involvement and empowerment as one of its key strategies.

### 2.3 Goal and intermediate results

The DIP defined the goals and Intermediate Results (IR) as shown in the results framework below.

#### **Results Framework** (source: Project DIP)

**Vision:** A TB-free Mozambique

**Goal:** Reduce the burden of TB in line with the Stop TB Strategy and National Strategic Plan

**Objectives:** To increase case notification rate by 50% and to achieve 85% treatment success for CB-DOTS in targeted districts.

IR1: Empower people with TB to seek and complete treatment with the support of their communities.

**Strategies:**

1.1 Advocacy Communication & Social Mobilization (ACSM): Address traditional beliefs that inhibit case detection and care seeking and reduce stigma associated with TB by training community volunteers, Village Health Committees (VHCs) and church leaders (including

those who practice traditional healing) about TB causes, signs & symptoms, testing, treatment options and infection control practices. Volunteers train all households in the community. [Rural Districts (RD)]

1.2 Case Detection: Increase case detection via Care Group (CG) volunteer network; Follow up with contacts of new cases. [RD]

1.3 Treatment compliance: Improve treatment success through assignment and training of treatment observers (padrinhos) by CG volunteers. [RD]

1.4 Community Health Information System (C-HIS): Integrate TB surveillance

into the Community Health Information System reported on to VHCs, the health post and the MOH. [RD]

IR2: Strengthen NTP Systems to improve TB service delivery and patient outcomes in select districts of Gaza Province.

**Strategies:**

<sup>6</sup>The Lancet, Volume 383, Issue 9913, Pages 215 - 216, 18 January 2014 doi:10.1016/S0140-6736(14)60069-6; Alberto L Garcia-Basteiro et al.: Mozambique faces challenges in the fight against tuberculosis.

<sup>7</sup> <http://www.who.int/hiv/pub/guidelines/mozambique.pdf?ua=1>

<sup>8</sup> FHI: <http://www.fhi360.org/projects/tb-care-i>

<sup>9</sup> – Portuguese draft version assessed, available at Ministry of Health, Mozambique

2.1 Assessment: Conduct assessment with MOH staff of TB services at health facilities in project area; prioritize needs and plan for quality improvement. [Rural Districts and Urban Centers (RD&UC)]

2.2 Diagnostic quality: Train district lab technicians to improve diagnostic quality using sputum smear microscopy, infection and environmental controls. Monitor and advocate for continuous and random quality assurance testing of sputum slides. [RD & UC]

2.3 Access: Improve access to diagnostic services at peripheral health centers through community collection of sputum; facilitate community level analysis of barriers to access and local problem-solving. [RD]

2.4 Referral: Improve referral and counter-referral between facilities and the community network of volunteers and treatment observers. [RD]

2.5 Information Systems: Strengthen the flow of information between district and provincial structures to improve drug supply and data management. Monitoring and Evaluation (M&E) Manager works with District TB supervisors and staff to improve record keeping, use of data for decision making and drug forecasting. [RD & UC]

2.6 Supervision: Enhance supervision of peripheral health facilities engaged in TB control through provision of motorbikes to MOH supervisors and mentoring in supportive supervision. [RD]

2.7 Attend monthly coordination meetings with all partners; integrate

supervisory visits with DPS, DDS, and FHI. [RD & UC]

*IR3: Decrease the burden of HIV in people with TB and TB in People Living With HIV/AIDS (PLWHA).*

**Strategies:**

3.1 TB and HIV Education through ACSM: Train existing HIV/AIDS volunteers in TB including signs, referral and stigma reduction. [Urban Centers (UC)]

3.2 Intensified case finding among PLWHA: Train existing Home Based Care Activists (HBCAs) to identify and refer possible TB cases among their HIV+ clients.

3.3 Routine HIV/TB testing: Improve screening for TB among HIV+ patients and maintain high levels of HIV testing among TB patients.

3.4 CPT for HIV/TB patients: Maintain high levels of CPT and track HC inventory of Cotrimoxazole to assist with preventing drug stock outs

3.4: Case management: Train HBCA in CB-DOT to improve treatment compliance and success.

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## 2.4 Strategies

### 2.4.1 The Care Group Volunteer system

The DIP stated the intentions to use existing Care Group Volunteers (CGV), having functioned successfully in an earlier Child Survival Project – see page 15:

*“Key Activities:* Local authorities, VHCs, APEs (Mozambican Community Health Worker), CGVs and religious leaders (including those who function as traditional healers) will be trained as trainers on the signs and symptoms of TB, how it is transmitted, and ways to prevent infection. ...Care Group Volunteers, with the endorsement of village leaders, will help to link health facilities to the households in the community”.

### 2.4.2 Support for MoH tuberculosis control programme

Strengthening the health system in the project area was the second main strategy to achieve the project goal.

Emphasis was placed on improving diagnostic capabilities in health facilities in the project area, and establishing an effective referral and counter referral system for tuberculosis suspects and tuberculosis patients. A project Monitoring and Evaluation (M&E) system was designed, named M-DRAT, modifying an existing system used by World Relief (WR) in an earlier project. Partnerships were sought and obtained with district and provincial government tuberculosis control programmes and with a similar, albeit much larger CB-DOTS project implemented by FHI360 under the USAID-funded TBCARE1 programme in the same province. Regular contacts were maintained with the USAID Mozambique mission.



### 3 Evaluation Methods and Limitations

The SoW for this assignment defined most of the methods used in this evaluation.

1. Secondary data was collected using the following sources: USAID documents:
  - a. USAID: Guidelines for Final Evaluation; 2013. CSHGP (FE Guidelines 2013 FINAL 6-12 (1).pdf)
  - b. How-to-Note\_Preparing-Evaluation-Reports.pdf
  - c. USAID graphic standard.pdf
  - d. Learning Themes Data Collection Tool\_7July2014.docx
  - e. FINAL Learning Themes Graphic\_June30.pptx
2. World Relief annual reports:
  - a. World Relief TB 1st REVISED Annual Report\_FY2010\_Final\_Oct31.2011.pdf
  - b. World Relief TB 2nd Annual Report\_FY2011\_Final\_Oct31.2011.pdf
  - c. World Relief 4 Year annual report.doc; 2013
3. Ministry of Health and provincial health service documents:
  - a. MISAU, Política e Plano Nacional de Controlo da Infecção para a Tuberculose em Unidades Sanitárias e ambientes conglomerados de Moçambique; 2010; <http://www.who.int/hiv/pub/guidelines/mozambique.pdf?ua=1>, assessed 23 October 2014.
  - b. MISAU DR<sup>a</sup>. Elizabeth - Estratégias para melhoria do sistema de referencia de amostras
  - c. Ministry of Health strategic plan for tuberculosis control (2013-2017) Portuguese draft version assessed, available at Ministry of Health, Mozambique
  - d. Gaza TB control program: Relatório anual 2010 TB
  - e. Gaza TB control program: RELATORIO ANUAL 2011
  - f. Gaza TB control program: RELATORIO ANUAL FINAL 2012
  - g. Gaza TB control program: Relatório Anual 2013
  - h. Gaza TB control program: Síntese do I Trimestre de 2014 encontro de Noti Final, 2014
4. Eggens, H: Vurhonga Community Based TB DOTS Project Mid Term Evaluation Report.docx; 2012.
5. The DIP (2009).
6. The quarterly project information Excel files (M-DRATs) from Q1 2010 through Q3 2014). The data used for indicator assessment is found in Annex XXI.
7. Three Knowledge, Practice and Coverage (KPC) surveys held at project inception, at mid-term and just before the final evaluation. The results of the final KPC survey can be found in Annex 6.
8. Health service registers.
9. Village volunteer registers.
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  22. Giffin, R. B. & Giffin, M. F. (n.d.). Cost benefit analysis: A primer for community health workers: The community health worker evaluation toolkit. Tempe, AZ: The University of Arizona Rural Health Office and College of Public Health.
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Primary data was collected by various means:

1. Focus Group Discussions (FGD) and Key Informant Interviews (KII) were held with prepared questionnaires. See Annex X for the data collection instruments.
2. Daily formal and informal discussions with the project staff and the World Relief director of Health and social Development provided valuable information and perspective.

*Limitations:* Time constraints caused the selection of project districts to exclude the two more distant districts Chicualacuala and Massangena. All the remaining districts were visited and covered 75% of the target population. The lead evaluator selected communities to visit from a comprehensive list provided by World Relief.

World Relief staff members were part of the evaluation team. The Lead Evaluator considered this fact an advantage, the WR providing information and insight that the LE would not have gathered in isolation. The LE did not feel pressured or manipulated at any time.

## 4 Findings

The findings of this FE are grouped by categories of the logic model as outlined in the USAID 2013 guidelines. The report refers to project goals, strategies and approaches as outlined in the DIP result framework (see page 5) This framework defined a logic model describing inputs, process/activities, outputs, and outcomes. This report describes the extent to which the project was implemented as planned plus any changes to the planned implementation.

As this is a final evaluation report, the focus of the report is on the extent to which the project achieved its goals and objectives, the outcomes (in section 4.1). These were defined in the result framework as goal and intermediate results (IRs). The indicators that were defined in the DIP were used to assess the level of achievement. After describing the level of attainment, the report outlines the processes (section 4.2) leading towards the results. Finally, the inputs needed to implement the project are assessed in section 4.3.

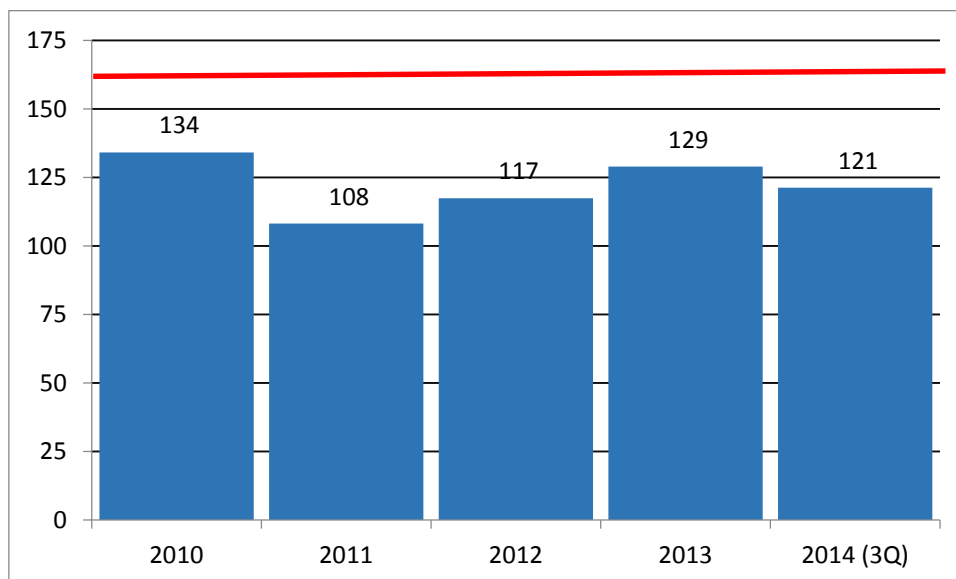
### 4.1 Outcomes

#### 4.1.1 Project objectives

##### **Top-level indicators: Notification rates and success rates**

This section aims to answer the first set of evaluation questions (on page 2 of this report).

The project's primary objectives are to contribute to an increase of the case notification rate by 50% to 165 per 100.000 pop. and to achieve 85% treatment success rate in project areas fully implementing Community-Based Directly Observed Treatment Short-Course (CB-DOTS).



**Figure 4: Notification rates for smear-positive pulmonary tuberculosis cases in the project area, FY 10-14. The red line indicates the project target.**

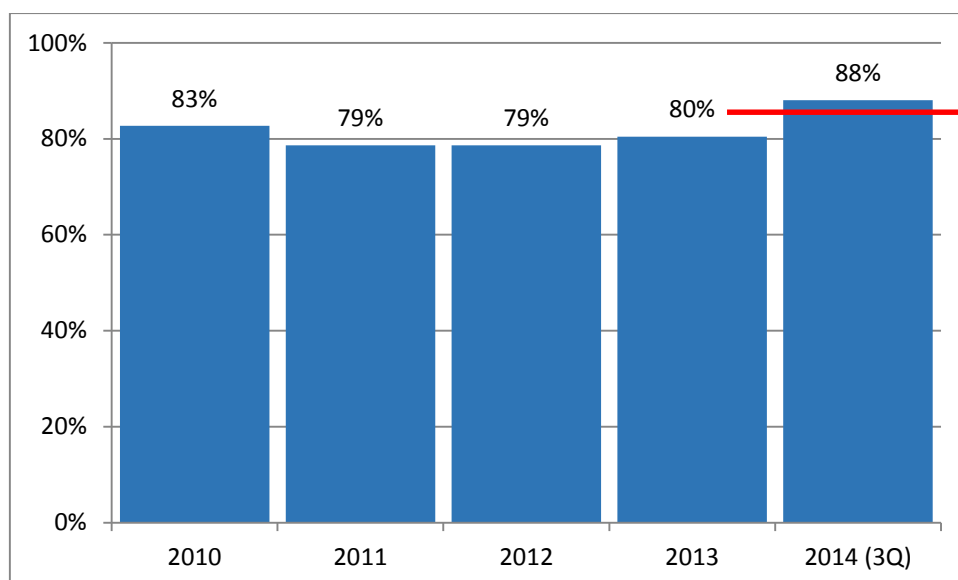
Data obtained from the project Health Management Information System (HMIS), called M-DRAT was used to analyse the results for these two top-level indicators. This HMIS was carefully planned and well maintained, giving it a fair degree of trustworthiness. Figure 4 shows the notification rates for smear-positive pulmonary tuberculosis cases in the project area during the project period. Contrary to expectations, there is no increase in notification rates during the entire project period. Neither the project management nor the LE could

identify likely explanations for this failure. Hypotheses are offered here, but there is a need for further research to validate these theoretical explanations.

Possible explanations include:

1. Population estimations for the project area are too high (migration to cities and to South Africa - miners).
2. Insufficient patient access to government TB services.
3. Insufficient diagnostic capability of government health services, in spite of government and project efforts.
4. Change in knowledge on tuberculosis (as demonstrated in KPC results) may not have led to change health-seeking behavior by persons with signs and symptoms of pulmonary tuberculosis.

The second indicator measuring the project’s contribution to the reduction of the tuberculosis burden in the project area was to increase the treatment success rate, as measured by cohort analysis, to 85%.

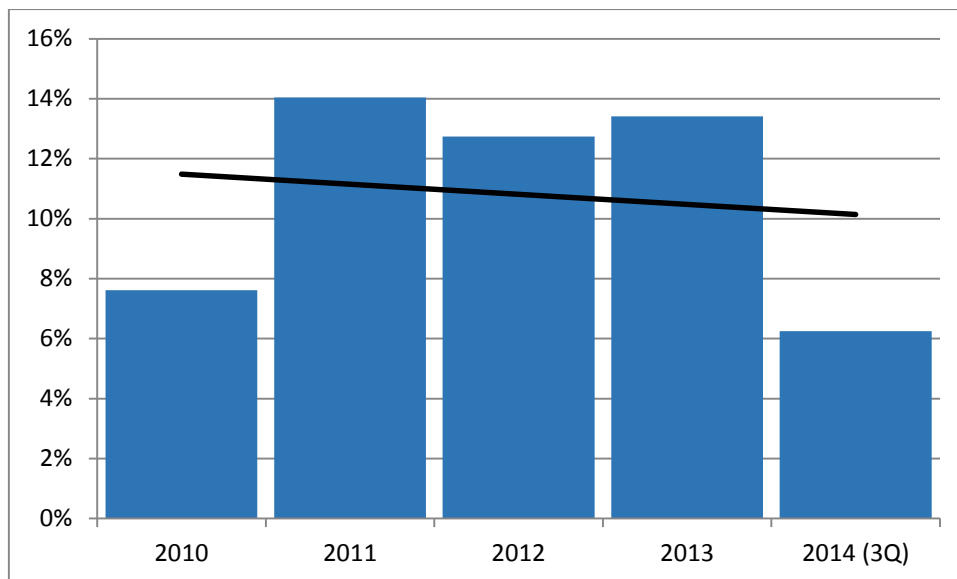


**Figure 5: Success rates for smear-positive pulmonary tuberculosis cases in the project area, FY 10-14. The red line indicates the project target.**

Figure 5 shows the values for this indicator as collected by the project HMIS. In the most recent three quarters (FY14) the target was reached, in the preceding periods it remained constant just below the target value. The reason for this sub-optimal performance in the project area stems most likely from a continuous extremely high death rate of around 15% among cohorts of patients (see Figure 6). This poor outcome is thought to be due to a large extent to two reasons:

1. Around three-quarters of tuberculosis patients are co-infected with HIV, making the patient more vulnerable to severe tuberculosis and to other opportunistic infections. These complications may lead to high mortality
2. This result implies that often tuberculosis patients are not diagnosed and put on treatment early enough to avoid death while on treatment for tuberculosis and in most cases also on Antiretroviral Therapy (ART) for HIV infection.

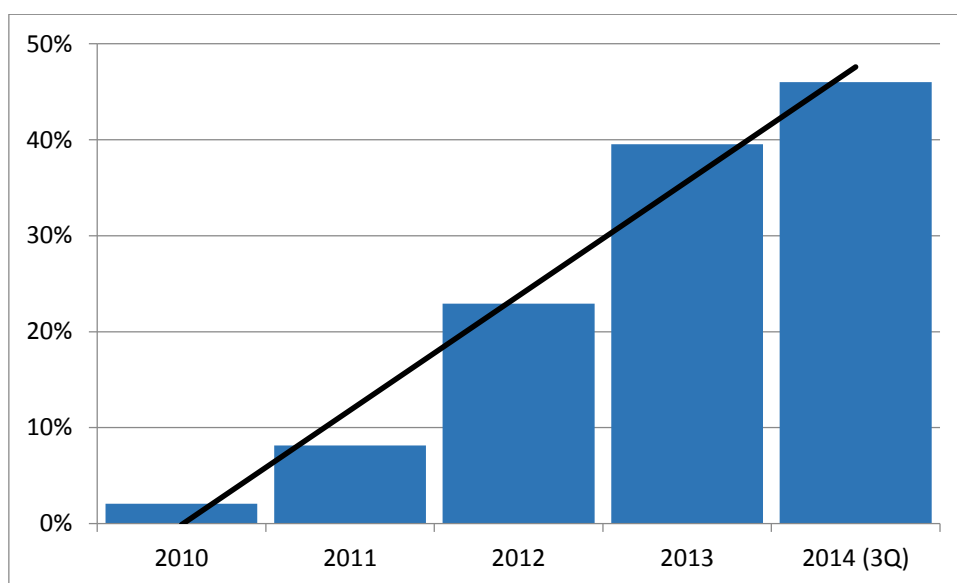




**Figure 6: Death rates for smear-positive pulmonary tuberculosis cases in the project area, FY 10-14.**

The indicator values for death rates have remained the same during the first four years of the project. Deaths in tuberculosis patients on treatment indicate late diagnosis and delay of start of treatment, when the disease is at an advanced stage. In the project area, most tuberculosis patients are also HIV-positive, making them extremely vulnerable to other diseases as well. The interpretation of the evaluator is that no improvement in earlier diagnosis and treatment could be demonstrated in the project period, with an exception of the sudden and exceptionally good results in the first three quarters of FY14 (Figure 6). It is hoped that this trend continues in future.

The project reported a steady increase in the contribution of the project for case-notification, culminating in 46% in the first three quarters of FY14 (see Figure 7)



**Figure 7: Proportion of new cases referred by project volunteers (source: M-DRAT)**

In comparison, the provincial government services reported on a decline in case notification in the same period (Table 3 and Figure 8). Another CB-DOTS project, covering 50 districts in Mozambique and implemented by FHI360, also reported no increase in new confirmed<sup>10</sup> cases in the period 2010-2012<sup>11</sup>. A comparison between the project area and the Gaza province data indicates that results in the project area are slightly better than in the province as a whole.

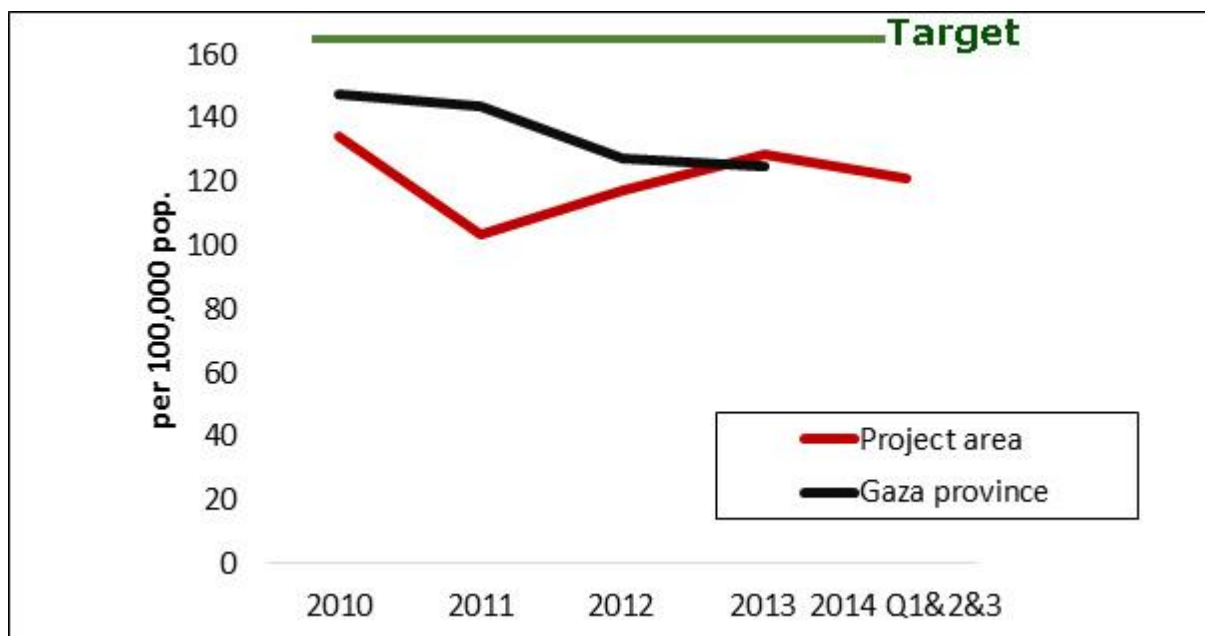


Figure 8: Case notification rates, project area and Gaza province, FY10-14 (Sources: Gaza annual reports, M-DRATs)

FY	Project area	Gaza province
2010	134	147
2011	104	144
2012	117	127
2013	129	125
2014 Q1&2&3	121	N/A

Table 3: Case notification rates, project area and Gaza province, FY10-14, (Sources: Gaza annual reports, M-DRATs)

#### 4.1.2 Intermediate Results

In this section the findings at the level of the Intermediate Results (IR), the strategies and activities to reach the results are described. The Grantee provided an overview of the major inputs, activities and results, shown in Annex XXII.

<sup>10</sup> WHO 2013 case definition: A bacteriologically confirmed TB case is one from whom a biological specimen is positive by smear microscopy, culture or WRD (such as Xpert MTB/RIF).

<sup>11</sup> TB CARE I - Mozambique Year 3 Annual Report October 1, 2012 –September 30, 2013

4.1.2.1 Intermediate result 1

- Empower people with TB to seek and complete treatment, with the support of their communities. The strategies to reach these IR are mostly linked with the development and implementation of the Care Group methodology (see 2.4.1).

These strategies were implemented according to plan as shown in the summary table in the year 4 annual report that provides an overview of activities performed.

IR1: Findings: Strategy of the Care Group Approach

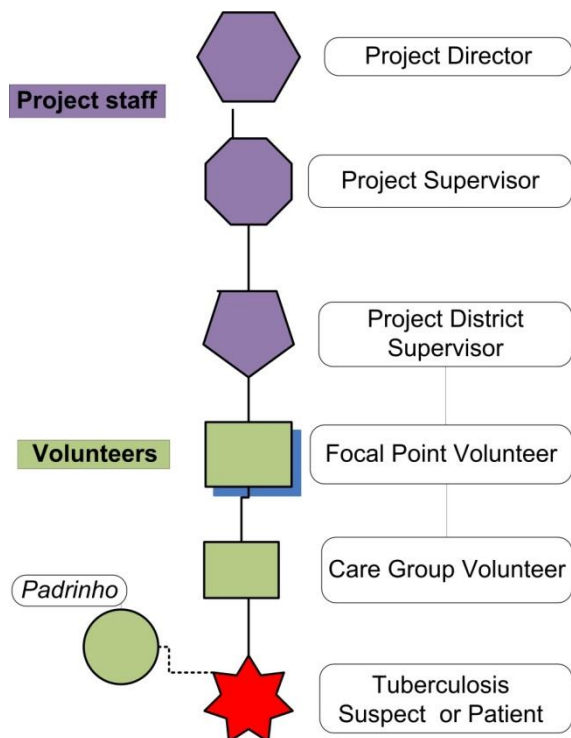


Figure 9: Project and volunteer structure

Concept: The DIP stated the intentions to use existing Care Group Volunteers (having functioned in an earlier Child Survival Project). See Figure 9 for the project structure.

Key Activities: Local authorities, VHCs, APEs (Mozambican Community Health Worker), CGs and religious leaders (including those who function as traditional healers) will be trained as trainers on the signs and symptoms of TB, how it is transmitted, and ways to prevent infection. Each CGV is responsible for visiting her group of neighboring families to be sure that every household is counselled about TB and that suspected cases report to the nearest health facility”.

Implementation: At the mid-term evaluation, 3,350 CGVs were trained and had started their activities. (Source: Year 4 annual

project report).

In the villages, patients were encouraged to choose individual patient *padrinhos*<sup>12</sup> (CB DOTS observers) to help them to take their tuberculosis drugs on time. Sometimes the CGV served as *padrinhos*.

What worked well in earlier project, where health events were frequent (child development, providing health information on hygiene, nutrition, immunizations, diarrhea, malaria control), would not automatically be equally effective to discover tuberculosis suspect cases. The event of finding a person with suspect symptoms for tuberculosis is relatively rare, as the following calculation may show:

Every CGV cares for ten families (about 50 persons). Assuming that 1-2% of the population suffers from productive cough of more than 3 weeks duration during a one year period, volunteers would find a “tuberculosis suspect” person once every 1-2 years, on average. That is not contributing to volunteer motivation. The probability of having a tuberculosis patients in her “ten families” is about one in 4 years, if the WHO annual incidence estimations of 552 cases per 100,000 population (= about 1 per 200 persons per year) is correct. The

<sup>12</sup> Similar to the concept of “buddies” in Tuberculosis and HIV/AIDS programmes

project responded with the development of a Focal Point Volunteer (FPV). S/he coordinates activities of 30-50 CGVs, thus 'covering' 1500 – 2500 villagers. This person would become the liaison between the village and the government health services. S/he would refer persons with suspect symptoms to the health facility, using a written referral form. S/he would also arrange for a tuberculosis patient to adhere to treatment, with the help of the CGVs and the *padrinhos*.

One of the consistent activities of the CGV and their FPV were the information, education and communication (**IEC**) **messages** to the village population on tuberculosis disease and care possibilities.

To assess to what extent these messages were understood and retained by the village population, the project designed and implemented Knowledge, Practice, Coverage (KPC) surveys at project inception, at mid-term and before the final evaluation. The full KPC report can be found in Annex VI. Here, a summary of the key findings is presented.

Of the many questions asked in the KPC surveys, four questions serve as key to assess any change in respondents' knowledge on tuberculosis disease and its care possibilities. Table 4 shows the percentages of respondents knowing the asked features. In three out of the four questions there was a remarkable increase in knowledge. On question two, in retrospect, the multiple choice answers were not mutually exclusive (see answers on question on page 15 of the KPC Report in Annex VI: "What symptoms can show that a person has TB?"), giving difficult to interpret percentage results. Annex VI provides the survey details.

<b>KPC Indicator</b>	<b>2010</b>	<b>2012</b>	<b>2014</b>	<b>Target</b>
<i>% of survey respondents that know TB is transmitted through the air by cough</i>	22%	65%	82%	60%
<i>% of respondents that know that cough longer than three weeks is a symptom of TB</i>	13%	18%	47%	60%
<i>% of respondents that know TB is curable</i>	85%	92%	98%	85%
<i>% of respondents that know that TB treatment is available for free at the hospital</i>	40%	23%	81%	80%

**Table 4: Key results from three KPC surveys**

#### 4.1.2.2 Intermediate result 2

- IR2: Strengthen National Tuberculosis Program (NTP) Systems to improve TB service delivery and patient outcomes. The strategies for IR2 outlined in the DIP were given in the Result Framework on page 5.

#### IR2: Findings

During the FE the activities to strengthen the NTP system on district level were analyzed. Most planned activities were carried out as planned (see Summary table in Annex XXII). After an initial hesitation to collaborate from the district and provincial health service staff, cooperation was reportedly effective and considered useful. Interviews with the provincial tuberculosis control supervisor and the discussions in the health facilities undertaken by the evaluator corroborated the project staff opinion in this matter.

The findings and issues encountered during the FE were:

Assessment was done as planned; training of staff was facilitated by the project. Community collection of sputum was attempted, but encountered difficulties because of lack of funds for sputum containers and had to be abandoned.

In the health facilities providing tuberculosis care, the following interventions were supported by the project and measured by the project M&E system:

1. High levels of provision of Cotrimoxazole Preventive Therapy (CPT) in HIV/TB patients were maintained. Project data shows consistent near 100% CPT uptake in project area.
2. High levels of HIV testing among TB patients were maintained close to 100% of patients were tested and put on ART, when eligible.

Referral and counter referral of tuberculosis suspects and tuberculosis patients was established. This part functioned well in practice, as shown by the interviews held with the health facility staff and the Focus Group Discussions held in the villages.

Problems arose, not solved, in the registration of volunteer-referred (to be marked: DOT-C) suspects in the district tuberculosis register. During the FE, large differences were observed in registrations of DOT-C patients in the villages and in the district registers.

The project M&E system (M-DRAT) was well established. It drew completely from data provided by health services and volunteer registers. Much data was collected, and transformed into rates, serving as information on the defined project indicators from the DIP. Analysis was done quarterly by project management staff and feedback provided to the district health services and the project supervisors for action.

Only partial sustainability of this IR could be secured; for instance: supervision by project supervisors cease at the end of the project. District health services do not have the manpower to maintain supervisory capability. Also, of the six motorcycles provided, with a planned government contribution for maintenance, only three motorcycles were operational at the end of the project (two immobilized for months due to lack of repair, one bike stolen). Various district and provincial meetings were supported by the project and attended by project management staff. In the province, more emphasis was gradually given to community DOTS, also triggered by the ministerial priority and a large NGO project (TBCARE1) implemented in other districts (urban and rural) in Gaza province.

Following a mid-term evaluation recommendation, the project staff produced a paper containing a scenario on CB-DOTS. In the paper, the experiences of the project strategies were outlined. Emphasis was given on the Care Group Approach with the village volunteer network. The intended audiences are organizations wishing to set up a similar CB-DOTS project. The paper was well received by reviewers. Unfortunately it is not yet translated into Portuguese, thus not reaching other Mozambican organizations without English language skills.

#### 4.1.2.3 *Intermediate result 3*

- IR3: Decrease the burden of HIV in patients with TB and decrease the burden of TB in people living with HIV/AIDS (PLWHA).

#### IR3: Findings

This IR had as per the planning at the onset of the project the least emphasis. The training of the various categories of volunteers and health staff, as facilitated by the project, included tuberculosis/HIV collaborative activities. Results from the project M&E show consistent good results for HIV-testing in Tuberculosis patients, provision of Cotrimoxazole Preventive Treatment (CPT) in dually infected patients.

The mid-term review gave a recommendation to extend the MoH policy of combined tuberculosis/HIV care (“One-stop policy”) to the village volunteer level of this project. The project management decided not to act on the mid-term recommendation to include HIV/AIDS

care to dually infected patients in the project village-based activities. Stigma for HIV-infection was the main reason put forward. This stigma was not confirmed in the Focus Group Discussions and interviews held during the FE. Patients and other villagers spoke openly in public about their treatment against tuberculosis and HIV (albeit without mentioning the word 'HIV' in the local language).

Another reason not to engage in support for Antiretroviral Therapy (ART) by CGVs is the difference in duration of support needed. Tuberculosis treatment is limited to 6 or 8 months. ART is needed lifelong. This argument also is not convincing to the LE. Lifelong therapy is common in many societies for chronic diseases, and support for adherence can be a valuable backing for patients.

## 4.2 Process

In this section, the processes and activities undertaken to attempt to achieve the planned results are described and analyzed.

### 4.2.1 Care Group Volunteer structure and implementation

In section 2.4.1 the design and development of the CGV methodology was outlined. At the mid-term evaluation, a total of 3,350 CGVs were trained and had started their activities. (Source: Year 4 annual project report).

The volunteers were trained to promote a better health seeking behavior; to recognize signs and symptoms of persons suspect for lung tuberculosis. They were enabled to support tuberculosis patients on treatment and stimulate them to complete the full 6 or 8 months course of DOTS.

In the villages, patients were encouraged to choose *padrinhos* (CB DOTS observers) to help them to take their tuberculosis drugs on time. Sometimes the CGV served as individual patient *padrinhos*.

In the Focus Group discussions it became clear how pivotal the role of the Focal Point Volunteers is. These are trusted and motivated villagers, all women that link the patient with the health services. In the interviews with health staff, the importance of this volunteer became clear to the evaluation team. "These Focal Point Volunteers are ours" was a significant quote emanating from one interview. After the end of the project, the sustainability of maintaining this linkage will be crucial for the continuation of this community-based DOTS methodology.

The LE considers it a missed opportunity not to have used the volunteer structure to the maximum for the systematic contact tracing, examination and provision of Isoniazid Preventive Therapy (IPT) for those eligible contacts. Contacts of infectious tuberculosis patients are known to have a high risk for developing the same disease, especially if HIV-positive.

### 4.2.2 Project staff structure

The project staff (see Figure 9) consisted of nine district supervisors for the six districts in the project area. They trained the volunteers, supervised their activities, and were the liaison between the project and the village leaders and the health staff. They were supervised by one head supervisor and the project director. A director of program integration coordinated all WR projects in the province. Regular meetings ensured feedback from field experiences to the project management. Liaison with the health structures were maintained effectively on district level (for operational matters) and provincial/project management level for strategic

issues. The evaluation team perceived, during interviews, an effective link between project staff and Ministry of Health staff.

#### 4.2.3 Strengthening government services

The activities to attain this result followed the annual plans. Assistance was provided to ensure diagnostic capabilities in the health centers. Partially successful attempts were made to make sputum containers available in the village to enhance sputum smear microscopy performance for tuberculosis suspect villagers. Practical support for district supervision was given in the form of facilitation of means of transport, and technical advice.

In interviews during the FE, doubts were raised by the interviewees how much of the support would be sustainable after end-of-project. Means of transport would be missed, supervisory capability by government institutions were deemed insufficient for the large project area and faraway health facilities.

#### 4.2.4 Project monitoring system

The project uses a TB-specific monitoring and evaluation (M&E) system called District Rapid Assessment Tool (DRAT) developed by a previous TB USAID grantee which was then modified by World Relief and is referred to as M-DRAT. The sources of data for this system are: 1) the district tuberculosis register and 2) laboratory registers. The M-DRAT is used for quarterly monitoring of defined indicators in line with the DIP. In addition, the project also collects data from Village TB registers which are maintained in project villages by the focal point volunteer of the respective village and the VHC. Although this system has proved to be useful for project monitoring several weaknesses became evident during the two external evaluations:

1. Insufficient local use of data for monitoring. Quarterly data was not aggregated to Fiscal Year information. Annual reports showed analysis of key indicators.
2. The linkages between village registers and district tuberculosis registers were already considered weak in the Mid Term evaluation (MTE). At the time of the FE, this weakness continued to exist, specifically evident in the fact that not all health centers systematically record if patients are on CB-DOTS. District register analysis done during field visit showed considerable incorrect recording of the type of referral of the notified tuberculosis patients.

The striking difference between poor outcomes and a well-trained and high quality Care Group system is an enigma for the project team and the evaluator. Possible explanations are provided in the next section (Conclusions).

### 4.3 Inputs

#### 4.3.1 Financial

A full cost analysis as suggested in the USAID guidelines (2013)<sup>13</sup> is outside the scope of this evaluation, as it would require detailed interviews and data collection for indirect costs (borne by providers and by beneficiaries). No time was available to implement such an analysis.

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<sup>13</sup> For instance using: Giffin, R. B. & Giffin, M. F. (n.d.). Cost benefit analysis: A primer for community health workers: The community health worker evaluation toolkit. Tempe, AZ: The University of Arizona Rural Health Office and College of Public Health.

Below a simple summary of budget costs and expenditures as per USAID budget items (Source: WR).

<b>Budget Summary</b>	<b>USAID</b>	<b>PVO</b>	<b>TOTAL</b>
Headquarters Direct Costs	191.881	63.960	255.841
Headquarters Indirect Costs	33.119	11.040	44.158
<i>Subtotal HQ Costs</i>	<i>225.000</i>	<i>75.000</i>	<i>300.000</i>
Field Direct Costs	1.087.327	362.443	1.449.770
Field Indirect Costs	187.673	62.558	250.230
<i>Subtotal Field Costs</i>	<i>1.275.000</i>	<i>425.000</i>	<i>1.700.000</i>
<b>Total HQ and Field Costs</b>	<b>1.500.000</b>	<b>500.000</b>	<b>2.000.000</b>

**Table 5: Summary of project budget. All amounts in US Dollars.**

A breakdown of the direct costs in total project budget is shown in

Table 6. The main cost item of salaries and benefits is to be expected. Remarkably is the relatively low budget provision on equipment (motorcycles and lab equipment) and supplies (incentives for volunteers and program supplies & materials). It may be indicative of the priorities established in the project design<sup>14</sup>.

Total field salaries/benefits	70%
Total travel:	6%
Total equipment	2%
Total supplies:	5%
Total contractual expenses	1%
Total training	4%
Total other (mainly office expenses and vehicle maintenance):	16%
Total direct charges: @ \$ 1.449.769,74	100%

**Table 6: Direct costs breakdown**

According to KIIs held with WR staff, expenditures have been in line with annual financial plans. In August 2014, almost the entire budget was spent.

#### 4.3.2 Human

The inputs in human resources were described in section 4.2: Process. A well-structured management set-up was created. During KIIs the LE got the impression that the day-to-day management and the strategic decision making went well during the project period. Frequent contact with World Relief headquarters in Baltimore was perceived as useful from both sides. The volunteer structure was also described in section 4.2.1 of this report. During the implementation of the project, a new, secondary layer of volunteers (the FPV) was deemed necessary. This adaptation proved to be useful to establish an effective liaison between the volunteers and the health services.

<sup>14</sup> "Don't tell me where your priorities are. Show me where you spend your money and I'll tell you what they are." ([James W. Frick quote](#))



#### 4.3.3 Project design

In retrospect, several findings during the evaluation led to the conclusion that the implementing organization was relatively new to tuberculosis control:

1. Systematic contact examination of tuberculosis patients is part and parcel of most tuberculosis control programmes in the world for decades. Recently, the provision of Isoniazid Preventive Therapy (IPT) for eligible contacts is recommended. The project did not follow the recommendation of the mid-term evaluation; no clear reasons were given.
2. In the project HMIS, non-standard terminology was used to classify results of treatment. The English names of these categories (cured, treatment completed, defaulted, died, transferred) have been recommended by WHO since the nineties, and are universally applied.
3. Sustainable health system strengthening, how complicated this may be in the Mozambican context of extremely poor financial and human resources, could have been given much higher priority. This could have improved the outcomes.
4. More technical input in the project design would have benefitted the project potential. In an interview with the World Relief staff, they stated they had learnt a lot about tuberculosis control during the project.

#### 4.3.4 Time

Event	Date
Start of project	30 September 2009
Date the DIP was submitted	14 August 2010
Date of Mid Term evaluation submission	22 June 2012
Date of Draft Final Evaluation submitted	1 September 2014
Date of End-of-project	30 September 2014

**Table 7: Administrative timelines**

Key dates in the project are shown in Table 7. Remarkable is the extended period between the start of the project and the submission of the implementation plan (DIP): 11 months). Work plans showed that activities had started already before submission of the DIP, however. At the time of the Mid Term Evaluation, the training of the volunteers had just been completed, also an extended preparatory period. Question arises if the project could not have progressed more quickly. Results of interventions, especially involving behavior change in a target population, take time to become visible. End-of-project outcomes might have been better if more implementation time would have been realized.



## 5 Conclusions

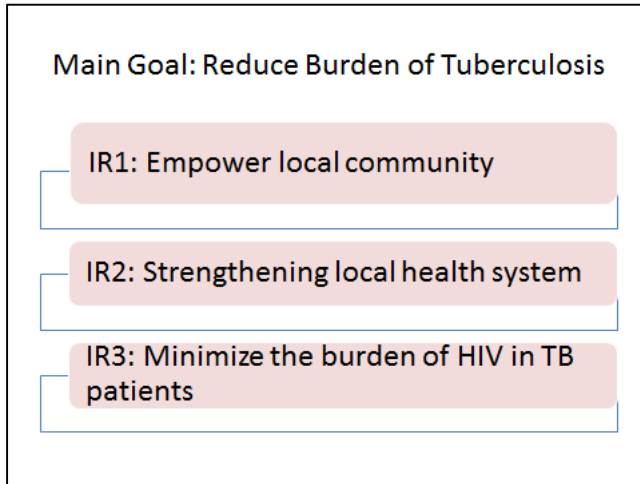


Figure 10: Project Goal and Intermediate Results

### 5.1 Outcomes

The Vurhonga Community Based TB DOTS Project has not reached its intended goal to reduce the burden of TB in the project area. Its primary objectives and targets: 1) to increase the case notification rate by 50% to 165 per 100.000 pop. and 2) to achieve 85% treatment success rate in project areas fully implementing Community-Based DOTS were not achieved. Figure 4 and Figure 5 show graphically the indicator values for these top-level indicators. The reasons are not clear, but external factors are likely to have contributed to this lack of success. The target may have been set unrealistically high, as the resident population may not have been as large as estimated. A more profound situational analysis at the onset of the project might have clarified this issue. The government referral system for diagnosis and adequate treatment is weak, and was not strengthened significantly during the project period. Third, health seeking behavior of persons with signs and symptoms suspect for pulmonary TB may not have changed enough to cause an increase in finding new cases.

Of the three planned Intermediate Results, *the first IR* is to be considered the most successful, as measured by the defined indicators:

1. The KPC surveys show a remarkable increase in knowledge among the target population on essential features of tuberculosis disease and possibilities for effective care.
2. The expansion of the existing Care Group (CG) volunteer network has resulted in a fine mesh of operational village volunteers. The volunteers were assisted by patient-indicated treatment observers (*padrinhos*). During the project period, a crucial liaison volunteer cadre was created (Focal Point Volunteer) who proved to be essential in the referral of persons with suspect symptoms and for the promotion of adherence to tuberculosis treatment by villagers. Figure 7 shows the increase in project contribution of new tuberculosis cases from 0 % at the start of the project to 45% in Year Five.

*The second IR*, aiming at strengthening the government peripheral tuberculosis services was partially successful, as measured by the defined indicators for this IR. The project provided valuable assistance in providing supplies and means of transport. It strengthened supervision

activities in the project area. The project has facilitated training of health personnel in tuberculosis care. It created a village volunteer network that functions as the extended arm of district tuberculosis services, in IEC, in referral of suspects and as strengthening of adherence measures. Its Focal Point Volunteers are the liaison between the village and the Tuberculosis services. In the short run, these cadres will probably continue to function well. With reduced or absent supportive supervision, the medium term prospects are poor. With the withdrawal of project district supervisors, and a current insufficient means of transport for 50% of the district tuberculosis supervisors, sustainability of project support is limited. The project could have done more, if designed differently by strengthening health services in a more sustainable way. Diagnostic tuberculosis services are one of the weak links in the chain of tuberculosis control and care.

*The third IR*, aiming to reduce the burden of HIV in tuberculosis patients, had only a small intended priority (10% effort). The project provided learning inputs to IEC and training activities on HIV and tuberculosis/HIV collaborative activities. The recent government One Stop policy, aiming to provide HIV-positive tuberculosis patients with both DOTS and ART treatment in the health centers was supported by the project. As suggested in the Mid-Term evaluation, the project could have done more for dually infected individuals to provide a One Stop Approach in the village by expanding the role of volunteers to promoting adherence to Antiretroviral Therapy.

## 5.2 Process

Volunteer network: Using and adapting an existing Care Group Volunteer network was a valuable strategy. The volunteers were already operational in mother and child health activities, mainly IEC and referral. The project adapted to the need of mobilizing volunteers for IEC and referral of person with signs and symptoms suspect for tuberculosis. The probability of encountering a suspect tuberculosis case is much rarer than providing IEC for mother and child care. The project adapted by creating a Focal Point Volunteer, catering for 1500-2500 villagers. The FPVs functioned well as liaison between village and health services.



Strengthening health services. The indicators defined for this IR are mostly process indicators. The results were outlined in the section above (Section 5.1). The LE is of the opinion, that more emphasis on sustainable health services strengthening in the design and the implementation of the project would have improved project results.

Strengthening village volunteer networks without providing effective referral structures and good service performance limits project effectiveness (“A chain is only as strong as its weakest link”).

## 5.3 Inputs

The project budget showed priority for human resources as inputs to provide results. Provision of equipment and supplies for health service improvement seems to have had low priority in the project design. Limited sustainable health service improvement may have restricted project achievements.

Development of a volunteer network and a supervisory structure has been successful for project management. The adaptation during the implementation, in the form of development of a Focal Point Volunteer, was proof of a good and flexible management practice.

## 6 Recommendations

The recommendations provided here focus on improvement of project design for future community DOTS interventions.

In the LE's opinion, extensive involvement of an expert in tuberculosis control and community DOTS in the design of community tuberculosis projects is essential. Limitations of the Vurhonga project seemed partly due to insufficient expert inputs in the DIP. For example, systematic contact tracing and examination is part and parcel of any high-quality DOTS programme. Although it was mentioned in strategy 1.2, concrete activities were not mentioned in the reports. With the development of a village-based volunteer network, opportunities were missed to find more tuberculosis cases by not emphasizing systematic contact examination.

The second dimension of the recommendations is a preferred strategy of integrated development. Two aspects are mentioned here:

1. Sustainable health service development is necessary for a community-DOTS intervention to succeed.
2. In Mozambique, due to the large proportion of dually infected patients, tuberculosis control and care need to be integrated with HIV interventions.

Table 8 shows the recommendations as function of the findings and conclusions in this report.

	Finding	Conclusion	Recommendation
1	Project design showed deficient knowledge on priorities in standard tuberculosis control project.	Project could have benefitted from more tuberculosis expertise at design stage	Involve tuberculosis experts in community DOTS project design
1a	Systematic contact examination (including referral by village volunteers and provision of IPT was not part and parcel of project	An important case-finding strategy was not fully implemented on community level	Include instruction and administrative procedures to include SCE and IPT on community and health service level
1b	WHO standard terminology was not used in design and HMIS	Insufficient tuberculosis control knowledge present in project design	Involve tuberculosis experts in community DOTS project design
2a	No increase in case notification	Weak government diagnostic services as one of the causes of sub-optimal case finding	All CB-DOTS projects need to incorporate sustainable Health Service Strengthening as a major strategy.
2b	No increase in case notification	Targets may have been set too high because of incorrect population estimates	Ensure realistic estimations for populations and adapt targets to realistic levels.
2c	No increase in success rates; no reduction in mortality	Project did not succeed in finding and treating tuberculosis patients earlier	Consider external factors, such as mining migrant patients
3	Patient with double infection (tuberculosis and HIV) were addressed only for community-based tuberculosis treatment adherence support	In spite of government “One-Stop Strategy” to improve care for TBHIV patients, project did not adapt community strategy to incorporate ART support	All CB-DOTS projects in Mozambique should use “One-Stop Approach” on all intervention levels
4	A successful Care Group Approach in MCH project was not very effective in this community DOTS project	A strategy for one problem does not always serve for another health problem. The project adapted the strategy (Focal Point Volunteers)	Critically assess at design stage if a successful strategy has potential in other circumstances.
5	Health system strengthening activities were not very effective or sustainable	A chain is only as strong as its weakest link.	Community-based interventions need to be matched with effective health system strengthening

Table 8: Recommendation table