



Assessment Report for the Development of Harmonised Minimum Standards for the Prevention, Treatment and Management of Tuberculosis in the SADC Region

Acknowledgements

This work was made possible through the collaboration of the Southern African Development Community (SADC) Secretariat with Member States and various stakeholders. The Secretariat would like to acknowledge all the contributions. Firstly, Member States of SADC, through their programme managers and other focal points for Tuberculosis provided information about Member States programmes, and coordinated discussions with other stakeholders during the field assessments. Additionally, programme managers reviewed drafts and provided valuable technical input and guidance to the report.

Senior government officials in the Communicable Diseases Project Steering Committee reviewed the final draft.

This work also benefitted from collaborating partners including the United Nations Organisations, namely WHO. The SADC Secretariat would like to thank them for their technical inputs in reviewing various drafts of the document as well as participating in technical meetings to discuss the work.

The consultant for this work was University Research Council who collected data from the Member States and produced a situation and response analysis report. Additionally, the consultant provided valuable technical inputs and drafted various drafts of the report.

Lastly, this Assessment would not have been possible if it were not for the financial support provided by the African Development Bank for funding this work through their grant to the SADC on Communicable Diseases (HIV and AIDS, TB and Malaria). Furthermore, the Secretariat would like to acknowledge financial assistance by the Joint Financing and Technical Collaboration for co-funding of the Consensus building workshop.

ISBN: 978-99968-0-124-2

The contents for this publication are the sole responsibility of SADC. The designations employed in the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the SADC Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitations of its frontiers or boundaries.

The mention of specific companies, organizations, or certain manufacturers products does not imply that they are endorsed or recommended by the SADC Secretariat in preference to others of a similar nature that are not mentioned.

For more Information

**Directorate of Social and Human Development
And Special Programs
SADC Secretariat
Private Bag 0095
Gaborone, Botswana
Tel (267) 395 1863
Fax (267) 397 2848
Email: registry@sadc.int
Website: www.sadc.int**



Table of Contents

ACKNOWLEDGMENTS	1
ACRONYMS AND ABBREVIATIONS	4
EXECUTIVE SUMMARY	4
1. INTRODUCTION	7
1.1 TB situation in the Southern African region	7
1.2 SADC efforts to harmonise policies	9
2. OBJECTIVES	10
3. METHODOLOGY	11
4. RESULTS AND FINDINGS	12
4.1 Current status of TB control	12
4.2 Development of policies and guidelines	12
4.3 Capacity building	12
4.4 Ongoing supervision and mentoring	12
4.5 Cross-border issues	13
4.6 Private sector and work-based programmes	14
4.7 Monitoring and evaluation	14
4.8 Laboratory services	15
4.9 Drugs and supply chain management	15
5. ANALYSIS OF TB CONTROL IN THE SADC REGION	16
5.1 Policy gaps	16
5.1.1 Are the policies available, comprehensive and updated?	16
5.1.2 What are the capacities for operationalising TB control policies?	17
5.1.3 Coordination and partnerships to improve TB control	17
5.2 Positive practices	19
5.2.1 Availability of TB services	19
5.2.2 TB/HIV collaboration	20
5.2.3 Training and human resources	20
5.2.4 Private sector collaboration	21
5.2.5 New technology and tools	21
5.2.6 MDR-TB management	21
6. RECOMMENDATIONS	22
6.1 TB/HIV collaboration	23
6.2 Diagnosis and availability of laboratory services	23
6.3 Cross-border and regional TB control	23

6.4 Infection control	23
6.5 Monitoring and evaluation	24
6.6 Management of drugs for TB and MDR-TB	24
6.7 Training and human resources	24
6.8 Private sector collaboration	24
6.9 Incorporate gender-sensitive TB control policies	25
6.10 Focus on special and vulnerable populations	25
6.11 Encourage advocacy and communication efforts for TB	25
6.12 Integrate use of appropriate new technologies and tools	25
REFERENCES	26
APPENDICES	26
Appendix I: Data tables	26
Table A.2: TB case finding (2007-2008)	28
Table A.3: TB treatment outcomes (2007)	29
Table A.4: TB treatment outcomes (2008)	30
Table A.5: Case notification for MDR-TB and XDR-TB (2007)	31
Table A.6: Case notification for MDR-TB and XDR-TB (2008)	31
Table A.7: TB and HIV data (2007 & 2008)	32
Appendix II: Country assessment schedule	34
Appendix III: List of country officials interviewed	35



ACRONYMS AND ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
ART	Antiretroviral therapy
ARV	Antiretroviral
CDC	United States Centers for Disease Control and Prevention
DOTS	Directly observed therapy, short-course
HIV	Human immunodeficiency virus
IOM	International Organisation for Migration
MDG	Millennium Development Goals
MDR-TB	Multidrug-resistant TB
MRC	Medical Research Council
NGO	Nongovernmental organisation
NHLS	National Health Laboratory Services
NICD	South African National Institute of Communicable Diseases
PCR	Polymerase Chain Reaction
PEPFAR	United States President's Emergency Plan For AIDS Relief
SADC	Southern African Development Community
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively drug-resistant TB

EXECUTIVE SUMMARY

In 2009, the Southern African Development Community (SADC) Secretariat awarded a contract to University Research Co., LLC to review the current status of tuberculosis (TB) control in the region. The goal of the country assessments was to:

- Examine the existing policies, guidelines and treatment protocols for prevention, management and control of TB, including the management of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB, and TB/human immunodeficiency virus (HIV) co-infection in each Member State;
- Assess the capacities (including infrastructure, technical, human and financial resources) available to implement the approved policies, strategies and protocols; and
- Identify critical gaps in the implementation of the policies and guidelines.

In order to gain the necessary background information to assist in developing minimum standards for the prevention, treatment and management of TB in the region, the SADC Secretariat commissioned University Research to conduct a rapid review of international and regional declarations and standards on TB control.

The University Research teams visited each Member State over a five-month period from October 2009 to February 2010 to conduct field assessments and interview key informants. Due to political instability in Madagascar, the assessment visit to that Member State was postponed. No current plans are underway to conduct this assessment, but information from World Health Organization (WHO) documents on the TB status in that country have been incorporated into this review.

The individual country assessments were compiled into this report, and formed the basis for the development of a set of regional minimum standards which were reached in collaboration with the SADC Secretariat and representatives from Member States.

The SADC assessment teams found that the majority of SADC Member States have made strong progress towards enacting a comprehensive range of necessary TB policies.

In many countries the gaps are slight and plans are already in place to rectify omissions. However, the assessment team found that national TB programmes frequently struggle to maintain accurate and up-to-date policies and guidelines.

Despite progress, many Member States' TB policies are not linked to effective operational plans, and implementation is consequently inconsistent. As the TB epidemic has grown, many Member States have incorporated an increasing number of partners into their TB programme activities, including community groups, faith-based organisations, work-based programmes, donors, multinational nongovernmental organisations (NGOs), and the private sector.

The influx of activity around TB control has created both logjams as national TB programmes struggle to coordinate among the multiple priorities of different partners, as well as strong examples of what can be achieved when effective coordination is achieved.

There is an increase in TB/HIV co-infection rates in the SADC region. Although Member States have initiated TB/HIV collaborative activities, the communications between TB and HIV programmes need strengthening.

All Member States (with the exception of Seychelles) are reporting cases of MDR-TB. The increasing MDR-TB case load in the region shows that TB case management and infection control remain a challenge.

Since the introduction of the directly observed therapy, short-course (DOTS) strategy, major progress has been made in the treatment and control of TB disease. However, due to poor implementation and the increasing burden of HIV, the TB programme outcomes are less than satisfactory. Key conclusions include:

- In many Member States, progress has been made to integrate TB and HIV activities, but this effort needs further strengthening and streamlining. The integration between TB and HIV is working better in most countries on the TB entry side, but major gaps exist on the HIV entry side in many countries;
- The response to MDR- and XDR-TB in the region varies depending on the extent of the challenge posed by drug-resistant TB and the burden of the disease in each Member State. Some Member States have made progress in developing guidelines, recording and reporting tools and conduct training on drug-resistant TB. Most Member States are sensitised



towards responding to the serious threat of drug-resistant TB and have developed separate guidelines which are in draft format, and in some instances they are already in use. There is acknowledgment in all Member States of the importance of conducting regular surveillance on drug-resistant TB;

- TB infection control needs considerable strengthening in all Member States in terms of developing separate TB infection control guidelines, conducting training, and implementing TB infection control measures, particularly in TB and HIV settings;
- Cross-border movement of TB patients is a significant problem, as all countries are experiencing some degree of population movement across their borders. However, with few exceptions, there is very little collaboration between Member States to quantify the extent of the cross-border movement of TB patients, or to ensure availability of standardised TB treatment services or prevention;
- Since many Member States are also receiving United States President's Emergency Plan For AIDS Relief (PEPFAR), Global Fund to fight AIDS, Tuberculosis, and Malaria, and other donor funds, it is critical that national TB programmes coordinate the efforts of the implementing partners funded by these donors to further improve the TB programme outcomes.

Based on the assessment findings and the status of TB and TB/HIV in the region, as well as the increasing rates of MDR-TB and the high cross-border movement across the region, Member States recognise the need for developing minimum standards for TB prevention and treatment across the region. All Member States are committed to the regional and global declarations for the control of TB. However, to meet the objectives of these declarations, it is recommended that Member States address at a minimum the following points:

- Member States must follow programmatic strategies that enhance compliance with basic TB DOTS, as well as MDR-TB and TB/HIV treatment and prevention;
- TB is a disease that affects the most vulnerable segments of the population, especially in combination with AIDS. Member

States should review their TB control protocols to ensure that they are gender sensitive and are designed to achieve maximum coverage of hard-to-reach or vulnerable groups where cases may go unrecorded;

- Since the SADC region also experiences significant population movement in the region, Member States need to develop cross-border TB prevention and treatment strategies that enhance continuity of care across the region;
- Based on the assessment findings, it is recommended that SADC provide technical support and guidance to Member States for undertaking harmonisation and standardisation of policies and guidelines across the region.

1. INTRODUCTION

Southern Africa is the region most severely affected by TB. Among the 15 Member States (Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe) of SADC, eight have TB prevalence rates higher than the African average. Five countries (Democratic Republic of Congo, Mozambique, South Africa, Tanzania, and Zimbabwe) are considered by WHO to be among the 22 global high-burden countries.

The TB epidemic in the region is being driven by HIV, with TB infection rates as high as 80% in some Member States, in persons living with HIV. Multidrug-resistant (MDR) and extensively drug-resistant TB (XDR) are emerging concerns in the region, shedding light on weaknesses in treatment, case management, infection control, and diagnostic capacities. SADC countries account for half of the MDR-TB cases in Africa, with high numbers of cases particularly in the Democratic Republic of Congo and South Africa. (1) Due to population movement and the duration of treatment regimens, TB has increasingly become a cross-border issue in southern Africa, requiring additional cooperation between Member States and necessitating the leadership of SADC Secretariat to facilitate the strengthening of regional TB control systems. There are a number of international and regional declarations and standards on TB control which guide the TB programmes in Member States. These include documents such as the Regional Indicative Strategic Development Plan (2), the SADC Protocol on Health and its Implementation Plan (3), and the Strategic Framework for the Control of TB in the SADC Region. (4) In addition to those policies and protocols, Member States also follow international guidelines, such as the WHO and Stop TB, including Implementing the Stop TB Strategy – A Handbook for National Tuberculosis Programmes (2008), Guidelines for the Programmatic Management of Drug-resistant Tuberculosis: Emergency update (2008), and Promoting the implementation of collaborative TB/HIV activities through public-private mix and partnerships (2008).

Member States also subscribe to the SADC Gender Protocol (2008), which aims to harmonise national legislation, policies, strategies and programmes with relevant regional and international instruments related to the empowerment of women and girls for the purpose of ensuring gender equality and equity. (5) The Gender Protocol also aims to ensure gender sensitive, appropriate and affordable quality health care to women in the region.

1.1 TB situation in the southern African region

In 2005, the Maputo Resolution declared a TB emergency in Africa. Particularly in the context of HIV, the SADC Regional Indicative Strategic Development Plan recognises TB as one of the key challenges to improving human development in the region. (2) The high-burden TB countries in the SADC region together account for 80% of the world's TB cases, and they have been targeted for increased funding and support from major donors and the Global Fund to fight Tuberculosis and Malaria.

Indeed, all the high-burden countries in Africa (except Ethiopia and Kenya) are in the SADC region. However, among those countries in the SADC region not characterised as "high-burden", there is also a wide variation in incidence and programmatic support for anti-TB initiatives. For example, although Botswana, Lesotho, Namibia and Swaziland are not identified by WHO as high-burden countries, they are among the 10 countries with the highest TB incidence per capita. (1) In contrast, Seychelles benefits from a relatively robust health system supported by a regionally high standard of living. The overall TB burden and the corresponding financial and programmatic support for anti-TB activities are low.

The SADC region also has some of the highest HIV prevalence rates in the world, and accounts for more than 37% of all people living with HIV. (6) There is a wide variation in national adult HIV prevalence among countries, which exceeds 20% in some countries (such as Swaziland) but is under 5% in a few (such as Madagascar). In many SADC countries, HIV has been a strong driver of expanding TB epidemics. Each country in the world with an estimated HIV prevalence in new TB cases higher than 50% is in the SADC region. In addition, poor service delivery, limited capacity to ensure adherence and long duration of treatment has contributed to an increase of MDR- and XDR-TB in the region. The Democratic Republic of Congo and South Africa and among the 27 global high-burden MDR-TB countries. (1) Improved surveillance data would likely reveal higher numbers of MDR-TB and XDR-TB cases in the region.

There is scant information on TB among children in the region, though there is reason to believe that paediatric TB will become a growing problem as children are increasingly exposed to infection. The estimated risk of infection for children in high-burden countries who are exposed to an infected adult is 30-50%. (7) Alarming, as HIV infection among children increases, there is growing concern about the efficacy of the Bacille Calmette-Guérin vaccine to protect HIV-positive children. Routine TB screening or diagnostic tests have proved to be less effective



for detecting TB among children, and standardised guidelines for treatment, including for treating HIV co-infected children and infants, are lacking in many facilities. Similarly, relatively few studies have been done on drug resistance and infection control among paediatric patients, although in South Africa some studies have highlighted the increased risk of MDR-TB to hospitalised children. (8)

TB has increasingly become a cross-border issue in Southern Africa. The traditionally high level of population mobility between the countries in the region has been encouraged by SADC policies to promote cross-border trade and economic cooperation, by variations in countries' wealth and employment possibilities, and the by existence of conflict and refugee flight. In this sense, the SADC region experiences both stable, predictable population mobility (for example, along the trucking and transport routes between Mozambique and South Africa) and precipitous population flight (for example, the movement of people from Zimbabwe associated with the economic crisis). In some cases mobility is circular (miners from other SADC Member States find work in South Africa but return home frequently), and in other cases mobility may be permanent (in the case of citizens from other SADC Member States who find work in Seychelles' tourist industry).

Mobile populations are frequently at a higher risk for all communicable diseases, due to poor integration with host country health services, language and cultural barriers, and generally lower levels of income. Women and those experiencing forced migration may be at an elevated risk. (9) The high level of all types of population mobility within the SADC region has been one of the key drivers in the resurgence of TB, along with HIV/AIDS. In relation to TB, the risk experienced by mobile populations is further compounded by the length of time required to successfully administer TB treatment (typically, six months for a standard course of treatment, and up to 24 months for MDR-TB) and differing cross-border standards of care for TB. The difficulty of supervising long-term treatment for unstable or mobile populations has been one of the factors associated with the rise of MDR-TB in the region.

The SADC region has adopted the Stop TB Strategy and is committed to reaching the target of at least 70% of new sputum smear-positive cases detected and at least 80% of these cured, leading to a 50% reduction in prevalence and death due to TB by 2015. All of the SADC high-burden countries reported 100% DOTS coverage in 2007. Some of the main challenges to effective TB control programmes in the region include:

- Poor surveillance data to guide strategic planning;
- Lack of funding and resources, including diagnostic and treatment supplies;
- Inadequate numbers of qualified health workers to oversee screening, diagnosis, and treatment;
- Insufficient health sector infrastructure, including lack of health facility sites or transport, as well as poor physical infrastructure of clinic facilities;
- Low national management capacity to support scaled up interventions;
- Poor access to services for mobile populations;
- Poverty and food insecurity; and
- Adherence difficulties associated with long-term TB treatment regimens.

As much as 50% of the population in the SADC region lack regular access to "affordable, quality, safe and efficacious medicines." (10) These factors impact Member States in different ways to produce varying levels of effectiveness among national TB programmes, as measured by case detection and treatment success rates. At more than 10%, Mozambique (along with Nigeria and Uganda) has one of the highest death and default rates in Africa – in contrast with the Tanzania, which had a treatment success rate of about 85% in 2006 (1) and a treatment success rate of 88% in 2007, with a default rate of 2.5%. Malawi has also been able to achieve treatment success rates of about 85% with a default rate of 1%, followed by Namibia with a treatment success of about 83% and a default rate of 4.8%. Lower treatment success rates were frequently experienced by HIV-positive individuals, although comparative data on treatment outcomes are often lacking. Of the high-burden countries, Mozambique, South Africa and Zimbabwe had the lowest proportion of screened patients with sputum-smear microscopy, and only South Africa had at least one culture laboratory per five million population. Similarly, South Africa has the strongest capacity to diagnose MDR- and XDR-TB in the region. (1)

There has been a steady increase in funding for TB activities from a number of sources, primarily bilateral and multilateral donors, although funding gaps remain and have increased from 2008 onward as the global health sector is impacted by the financial crisis.



However, estimating the dedicated requisite funding levels has been difficult for many countries. Similarly, the increased funding from external sources has strained the absorptive capacity of countries such as Mozambique and Malawi to implement increased activities and manage the constantly multiplying accounting and reporting requirements from donors.

1.2 SADC efforts to harmonise policies

Currently, in the SADC region, Member States' responses to TB control differ in relation to the country-specific burdens and service needs, as well as variations in implementation capacity between countries and among region or provinces in countries.

Recognising the importance of regional cooperation, the SADC Member States have been working collectively to strengthen TB control. The establishment of the Southern Africa TB Control Initiative in 1995 represented an important step forward, and assisted countries to assess the current status and needs of TB control in the region, to document current methods, procedures and indicators of performance used, to explore the possibility of standardisation in case definition, notification, registration and treatment regimens, and to synchronise operations research and TB surveillance.

Technical resources for activities, as well the organisational structure were initially provided mainly by the WHO. In 1997, the SADC Health Sector was established, providing a broad framework for collaboration on major health challenges, and the Southern Africa TB Control Initiative was integrated into the Health Sector Coordinating Unit. (4) The 1999 SADC Protocol on Health further articulated Member States' commitment "to offer a full range of cost effective and quality integrated health services through regional co-operation." (11) The Protocol lays out the region's key health objectives, related to the:

- Coordination of regional efforts to prevent and control communicable diseases;
- Progressive adoption of harmonised equivalent standards of care and provision of health services;
- Development of common strategies to address the health needs of women, children, and vulnerable youth; and
- Promotion and co-ordination of laboratory services for health, among others. (11)

The Protocol addresses TB and notes that Member States should "cooperate and assist one another: a) to develop strategies for the sustained control of TB, including the efficient supply and delivery of drugs; and b) to ensure, where appropriate, the harmonisation of TB control activities and HIV/AIDS programmes." (11) The emphasis on harmonisation between TB and HIV activities is a further positive step taken by the SADC Health Sector in addressing TB and TB/HIV in the region.

The Southern Africa TB Control Initiative had some success establishing routines of information sharing and comparing of work plans and successes between national TB programmes in the different Member States. However, as SADC continued to restructure, the functions of the Initiative were reorganised in 2005 under the SADC TB Managers' Committee. (4) In 2006, in response to the Maputo Declaration, a Regional Emergency Response Plan was drafted, which laid the groundwork for the Emergency Response Activity Plan and the Strategic Framework for the Control of TB in the SADC Region. The main goals of the Strategic Framework are to increase and ensure access to high-quality prevention, diagnosis and treatment of TB, TB/HIV, and MDR- or XDR-TB, and to support the development and adoption of new tools to combat TB.

To achieve those goals, three primary approaches have been adopted, including strengthening each country's health system capacity to support expansion of TB services and building stronger partnerships between service providers, TB and HIV programmes, civil society, nongovernmental organisations (NGOs) and other stakeholders in the SADC region. The final strategic approach is to coordinate and harmonise national TB control policies and guidelines to ensure quality and facilitate the accessibility of TB services to all TB suspects and patients, which is also the goal of this project. This approach is in line with the health and social development objectives of the Regional Indicative Strategic Development Plan, which instruct Member States to review and harmonise health policies, coordinate and monitor implementation of health interventions, and increase allocation of resources to TB programmes, among others matters. (2)

The harmonised policies will also be informed by the SADC Regional Policy Framework for Population Mobility and Communicable Diseases, which emphasises the need for "coordinated cross-border referral services and mechanisms for continuity of care for patients (particularly for TB and HIV patients requiring extended treatment regimens) and joint programming for communicable disease control along common borders." (12) The harmonised regional



guidelines will also build from the experience and technical expertise generated in the several countries, which have undertaken or are in the process of undergoing a review of their national TB management guidelines, as well as the joint external programme reviews on TB control and TB/HIV collaborative activities which have been conducted in Botswana, Lesotho, Malawi, South Africa, Tanzania, Zambia and Zimbabwe.

There are important challenges to the development of a set of harmonised minimum standards for TB control in the SADC region – at both the policy and operational levels. For example, although the SADC Protocol on Health provides a strong framework for guiding regional coordination of health interventions, the TB objectives are not articulated to the same degree as HIV and AIDS. As TB continues to spread alongside HIV and AIDS, the development of harmonised regional standards for implementing TB interventions will be an important step towards elevating national TB programmes to allow them to access a comparable level of funding and support as national AIDS programmes.

In addition, current information regarding Member States' TB policies and guidelines, as well as TB patient data, are not readily accessible for implementers from individual national TB programmes. As a result, Member States have become reliant on information and guidelines (including related to "best practices" on prevention and control) from international organisations such as WHO. While these organisations play an important role in developing evidenced-based TB responses, better information is needed on what regional and local approaches are currently being developed and implemented, closely linked to national plans and strong country-specific data on TB indicators. As there are currently no gender policies related to TB, many TB interventions are currently gender-neutral, reflecting insufficient knowledge of differentiated risk amongst men and women.

The SADC Gender Protocol emphasises that countries must implement policies and programmes which ensure a gender-sensitive, affordable and appropriate quality of health care. The Protocol recognises women's unique vulnerabilities to HIV and AIDS and stresses that Member States must develop gender-sensitive policies to prevent new infections, ensure universal access to treatment, and mitigate the social consequences of living with the disease. (5)

In the context of increasing collaboration between TB and HIV activities, these policies may serve as a basis for encouraging continued exploration into the need for implementing gender-specific TB interventions. (2)

Similarly, separate paediatric TB guidelines have still not been developed, though many Member States' national TB programmes have begun to place more emphasis on partnerships to tackle paediatric TB, giving the SADC region a potential role as a leader in the fight against paediatric TB. In general, the regional TB guidelines will integrate and reinforce the strong collaborations that have been forged among regional national TB programmes and between SADC, WHO, and technical partners and donors at the country and sub-regional levels.

The key challenges faced by Member States include:

- Health workforce capacity;
- Available health infrastructure for TB control (including tertiary care facilities, reference laboratories, infection control equipment, and drug supply mechanisms);
- Implementation status of existing national programmes (some countries have already implemented reviews of their national response while others are only getting off the ground); and
- Dedicated funding levels for TB control activities.

This underscores variations between Member States related to the level of TB risk, as well as the common challenges faced by countries in the region as they work to develop their health sectors. These difficulties are compounded by the emergence of MDR- and XDR-TB, as well as the cross-border movement of TB patients and the need for enhanced referral systems.

2. OBJECTIVES

The overall objective of the assessment was to determine the requirements and possibilities for the development and implementation of a harmonised minimum standard for TB control in the SADC region, by exploring the availability of and compliance with national/international TB guidelines on the part of individual Member States' national TB control programmes.

To that end, assessment teams were sent to each Member State over a five-month period from October 2009 to February 2010 (see table). The specific objectives of the country assessments were the following:

- To examine the current policies, guidelines and treatment protocols for prevention, management and control of TB, including management of MDR-TB and XDR-TB and TB/HIV co-infection;
- To assess the capacities (including infrastructure, technical, human and financial resources) available to implement the approved policies, strategies and protocols;
- To identify gaps in the implementation of the policies and guidelines; and
- To assess participation and linkages of key stakeholders in the management of the TB programmes.

This report is a compilation and analysis of the main findings of each country-level assessment, in order to present a picture of the status of TB control in the SADC region and determine the key requirements and constraints. The recommendations in this document should be used to inform the development of a harmonised set of minimum standards for TB control to be implemented by SADC and adopted by the individual Member States.

3. METHODOLOGY

This document is one component of a multi-phase assessment of the status of TB control initiatives in the SADC region.

The assessment began with a rapid review of the main policies relating to TB control at the regional and international levels, followed by the development of a framework for country assessments and standardised interview guides, leading to the submission of an inception report to the SADC Secretariat.

Several teams were sent to assess the challenges and requirements for TB control in the individual SADC Member States. The country level assessments occurred over a four-month period in 2009 and 2010. Appendix II provides a timeline of the country assessments. In each country, the assessment team conducted key informant interviews with relevant TB stakeholders. The selection of interviewees was done in collaboration with the national TB programmes. In most cases, the SADC team made the following visits to assess compliance with the national guidelines:

- Senior Manager of the National TB Programme/ Senior MOH official;
- HIV and AIDS Programme Manager;

- World Health Organization;
- An in-patient facility with TB patients on treatment;
- An out-patient facility where TB suspects and patients are screened, diagnosed and followed up;
- A senior representative from laboratories and pharmaceuticals;
- Other TB partners, as appropriate.

Appendix III provides an illustrative list of those interviewed, as well as the individual country reports for a more detailed list of persons met.

The purpose of the country visits was to gather information on the existing TB control policies, the status of implementation, and the successes and challenges faced by national TB programmes. The consultants also reviewed the current recording and reporting systems to assess their comprehensiveness and accuracy.

Subsequent to each country visit, the information gathered during the informant interviews was compiled into a country-level assessment which analysed each Member State's capacity to implement effective TB control by addressing factors such as:

- Existence of relevant policies and guidelines;
- Adequate budgeting and finance mechanisms;
- Drug supply and management;
- Laboratory access and quality;
- Cross-border referral mechanisms;
- Human resource and infrastructure constraints, and more.

Upon completion, the key findings of the country reports were compiled to develop this document, which also includes an analysis of the needs and challenges for regional TB control, and which makes several recommendations for the development of a harmonised regional TB control policy.

The thoroughness of this assessment was limited by several factors including the brevity of each assessment visit, the inability to secure appointments with relevant staff, limited numbers of facilities visited, and the lack of complete data in some Member States. In addition, the information provided by



some interviewees was subjective and at times contradictory. It was noted that staff were occasionally hesitant to discuss perceived shortcomings of TB control systems. Also, the facilities visited in each country may not have been a true representation of the overall facilities available.

The country and regional assessments formed the basis for the development of a framework for minimum standards for TB control in the SADC Region.

Upon submission of the draft assessment report and minimum standards documents, there was a review period during which the reports were examined by the SADC Secretariat. The SADC Secretariat organised a technical review meeting that was attended by representatives of five Member States, partners, WHO, and the SADC Secretariat on February 8-9, 2010, in Gaborone. The suggestions and comments were incorporated in a final draft to be shared with representatives from each of the Member States.

The assessment report on the status of TB control in the SADC region and the proposed framework for a regional set of minimum standards were presented during a consensus building workshop in Gaborone, Botswana over a two-day period from March 29-30, 2010. The workshop was attended by several representatives from each of the Member States, and provided a forum for stakeholders to share their experiences related to implementing TB control strategies in their respective countries, develop coordinated priorities for renewed efforts, and delineate the responsibilities for enacting the minimum standards at the country and regional levels.

4. RESULTS AND FINDINGS

This section presents the key findings of the country assessments and addresses the overall status of implementation of TB control in Member States. Data for each country is presented in Appendix 1.

4.1 Current status of TB control

The total number of reported TB cases reported in the SADC region in 2008 was approximately 802 000. The lowest TB case load was reported in Seychelles (eight TB patients) and the highest TB case load was reported in South Africa (359 000). Tables 2 through 7 in Appendix I provide data on TB case finding and treatment outcomes for 2007 and 2008. The tables also provide information on MDR-TB and TB/HIV data, where available.

4.2 Development of policies and guidelines

The region has made significant progress in the development of various TB, TB/HIV, and MDR- and XDR-TB policies, although Member States frequently experience difficulties implementing and adhering to policies once they are in place. There is a good deal of variation in policy coverage among the Member States, which reflects disparities in capability and relative need. Swaziland, one of the first countries to experience multiple cases of MDR- or XDR-TB, has made substantial progress towards developing standard guidelines for management of drug-resistant TB cases. Seychelles, which has experienced no reported cases of MDR-TB, has no specialised policy in place for management. In other countries (such as Zimbabwe), despite strong need, there has been slow progress toward drafting MDR-TB guidelines, due to resource and capacity restraints.

Since MDR- and XDR-TB and infection control have been recognised as key challenges to programme success, 12 Member States have developed drug resistance guidelines (although they were in draft form in five Member States). Only six Member States have developed at least a draft infection control policy with coordinated operational guidelines. However, the operationalisation of infection control policy at the facility level remains a challenge in all countries.

4.3 Capacity building

All Member States have national TB programme managers, as well as lead staff for managing and coordinating the TB programme with other health directorates and stakeholders. However, the number and the quality of programmatic staff vary by country. National TB programmes in the region have received technical assistance for capacity development through various donor funded initiatives including WHO, the Centers for Disease Control and Prevention (CDC), the United States Agency for International Development (USAID) (Tuberculosis Control Assistance Programme and bilateral projects), and the International Union Against TB and Lung Diseases, among others. However, transfer of skills from national TB programmes to service delivery continues to be a major problem in the region. This is further complicated by the high turnover of staff.

4.4 Ongoing supervision and mentoring

Member State documents clearly define the role of national TB programmes in supervising TB programmes. National TB programme managers make regular visits to lower-level administrative units to assess programme performance. National TB programme partners also play a major role in

supervising the programme implementation at the local levels. During the supervision, national TB programme staff are expected to provide mentoring, facilitative supervision, review records and check the accuracy of data, and assess the availability of drugs and access to microscopy. However, in practice the supervision remains weak due to the limited availability of funds for travel, staff capacity, and programme leadership.

4.5 Cross-border issues

All Member States are experiencing significant movement of populations across their borders. However, very few of them have initiated formal linkages with their neighbours to ensure the availability of standardised TB treatment care and prevention services to migrant populations. The types of migrations commonly seen in the region include:

- Seasonal workers who return home periodically for short or long stays;
- Daily migrants who cross borders to work and return home after work;
- Displaced persons who move into a country for long term and often are undocumented in their host countries; and
- Long-term migrants who seek better economic opportunities.

The majority of migrants arrive in the host Member States by crossing borders from neighbouring Member States. In contrast, the majority of migrants in Mauritius and Seychelles arrive from countries further afield, such as China and India. It is currently estimated that 5-10% of TB cases in Mauritius occur in migrant workers, the majority of whom come from high-burden countries (such as Bangladesh, China and India).

The major challenges faced by Member States in dealing with TB in migrant populations include:

- Lack of formal coordination with neighbouring Member States, which leads to missed opportunities for screening, treatment and providing information about TB and other cross-border conditions to migrants. There seems to be no proper coordination in place to be able to monitor these patients. Many of the migrants periodically return to their home countries and those who are on TB treatment stop taking the drugs during those periods;

- The issue of cost and how to standardise and harmonise TB management with neighbouring Member States to ensure continuum of care is a challenge. There are concerns that migrant workers are subject to different treatment regimens and treatment schedules between host and native Member States;
- Language barriers pose a problem as patients may arrive with previous medical records or referral forms in a language different to that used in their new host country. Sometimes patients arrive with no documentation or previous records of TB treatment;
- Due to shortages of diagnostic services and drugs (especially second-line medications) in the host Member States, TB suspects sometimes travel to other Member States to seek medical attention;
- There were concerns that in some Member States, on TB suspicion or MDR-TB suspicion, patients are not initiated on treatment and are asked to leave the country, thus encouraging defaulting of treatment. It was also noted that a significant number of migrants, especially mine workers, return from their places of work with TB and HIV to their native Member States;
- Some tribal areas straddle borders, making it difficult to identify patient until after treatment registration; and
- Lack of studies investigating the movement of TB patients to and from the Member State. For example, some Member States reported no issues relating to TB control resulting from cross-border migration from other Member States.

To overcome these problems, some collaborative interventions are being implemented in the SADC region:

- Cross-border TB control is addressed during annual discussions between neighbouring Governments along with a range of other cross-border health issues. For example, signing a Memorandum of Understanding with neighbour Member States or working to strengthen existing cooperation between the Ministry of Health, AIDS council and corporate bodies (such as mining enterprises);



- Attestation of all migrant mine workers by the Ministry of Labour;
- Few Member States have policies for conducting pre-employment chest X-rays and random health checks among employees;
- In some Member States, TB services and antiretroviral (ARV) treatment are offered free of charge and are accessible to all persons, including non-citizens; and
- Partnerships between Member States and international organisations such as the International Organisation for Migration around MDR-TB treatment to individuals deported from other countries after being diagnosed with MDR-TB.

4.6 Private sector and work-based programmes

All Member States have recognised the importance of including private sector in TB control. This includes work-based programmes, as well as partnership with private sector health groups to ensure availability of TB screening and/or provision of TB treatment and follow up. The following are examples of some of the key activities of private sector and work-based programmes that are being implemented in the region:

- The private sector receives drugs from the national TB programme and also participates in coordination meetings, supervision and training. It also receives recording and reporting tools and it is supposed to report to the national TB programme. The priorities for public-private mix DOTS are coordination, mapping public-private mix activities, providing them with guidelines, and understanding what they are doing and how they are doing it;
- Formal agreement between the Government and private practitioners, including medical associations, to provide antiretroviral therapy (ART) and TB treatment. Private centres contribute to case detection and treatment activities as per national policy and guidelines. They maintain referral link to public systems, which ensures that all their patients are registered with the national TB programme and that all training conducted by national TB programmes include personnel involved in TB/HIV from private institutions;
- Conducting TB training for health care workers in the private sector. Private practitioners are then involved in the provision

of DOTS: identifying suspects, referring sputum for testing in public facilities, initiating treatment and patient follow-up;

- Procurement of TB drugs free of charge upon request from private pharmaceutical companies;
- Involvement of faith-based NGOs in TB management;
- Developing operational guidelines on public-private mix, which guides private providers on how to manage TB cases;
- On-going health education is provided to the community in general;
- In some Member States, TB drugs are mainly provided in the public sector and the private sector is not encouraged to offer them. Private practitioners are encouraged to identify TB suspects and refer patients to the public sector for further care;
- Encouraging collaboration with established HIV and AIDS work-based programmes.
- National TB programme works with the traditional health practitioners council to train traditional care providers in DOTS. Traditional health practitioners have been engaged as DOTS supporters and engage to detect and refer TB suspects for diagnosis and treatment under the DOTS programme; and
- Collaboration with industries (such as the mines and the sugar industry) that have their own health facilities and that provide treatment to their employees.

4.7 Monitoring and evaluation

Monitoring and evaluation is one of the key elements of the DOTS strategy. Most Member States have established monitoring and evaluation frameworks. TB tools, patients' cards, referrals forms, lab registers, etc. have been introduced as part of monitoring and evaluation. All Member States do quarterly case finding and treatment outcomes cohort analyses. In some Member States smear conversion analysis is also done. In the past decade, Member States have also initiated monitoring and evaluation activities for tracking TB/HIV coordinated activities. As part of this initiative, new tools have been developed. Most Member States have also developed recording and reporting tools for MDR-TB.

The common monitoring and evaluation practice in most Member States is that the TB registers are available in facilities that diagnose and treat TB. The TB focal persons at facility levels aggregate data on a monthly basis and submit them to the district TB coordinator. After that, the aggregated data are entered into the electronic TB register, and the data are sent to the national TB programme (central level) electronically. Data collection tools at facility level are mainly paper-based. The zonal or district officer usually goes back to verify district data before they are adopted at national level. At that level, both electronic and paper based data systems are being used, although some Member States use paper-based systems only. In Member States with lower populations, there is one central, manual reporting register at the health clinic where case finding and treatment outcome reports are collated. Data are generally of good quality and very accurate.

However, challenges in monitoring and evaluation systems were noted, including:

- There are delays in transmission of data from the facilities to the national TB programme central unit limiting timely use of data for decision making;
- Some Member States using national electronic registers reported good quality, accurate data, but others reported delays in transmission of the data from the facilities to the national TB programme central unit;
- Reports of "data crashes" and disparities between paper and electronic data were also noted;
- For some Member States, data published in the WHO annual global report differ markedly from the data provided by the national TB programme.

4.8 Laboratory services

The SADC Secretariat has already taken an initiative to conduct an assessment of laboratory capacity in the region. The laboratory network and its distribution are described in that report. This assessment confirms many of the conclusions reached by that report. Key challenges related to laboratories include:

- Access to microscopy for TB case identification in all Member States. In many Member States, access to microscopy could be further improved;

- With few exceptions, access to culture and first- and second-line drug sensitivity testing remains inconsistent due, among other factors, to the lack of qualified personnel (including those that conduct microscopy services);
- Long turn-around time for lab results, difficulties in communicating results to facilities and external quality assurance of labs;
- None of the Member States with the exception of South Africa have the capacity to diagnose XDR-TB in country. Specimens need to be sent to specialised labs for culture and drug sensitivity testing for second-line drugs. This creates further delays in initiating appropriate treatment for patients who are suspected of XDR-TB;
- Most Member States have yet to initiate the introduction of new diagnostic tools including line probe assays which reduces the time to confirm resistance. The introduction of rapid susceptibility testing for rifampicin remains in the pilot stages.

4.9 Drugs and supply chain management

The majority of Member States have adopted the recommended WHO treatment guidelines for new and retreatment cases. The only Member State that still uses a continuation phase of Rifampicin & Ethambutol for new cases is Angola, although the national TB programme in Zambia is still in the process of moving from a six-month continuation phase regimen of Isoniazid and Ethambutol to a shorter continuation phase of Rifampicin and Isoniazid.

All Member States provide funding for TB drugs, with the exception of the Democratic Republic of Congo and Zimbabwe. Some Member States receive funding from other sources, such as the Global Fund to fight HIV/AIDS, TB and Malaria (Democratic Republic of Congo, Lesotho, Malawi, and the Tanzania).

With the exception of Mauritius, the majority of Member States reported some difficulty maintaining adequate and consistent stores and avoiding stock outs. The usage of expired drugs was noted in some cases. Many Member States also receive drugs from the Global Fund to fight HIV/AIDS, TB and Malaria, Global Drug Facility and Green Light Committee for second-line drugs. Namibia reported sustained availability of second-line drugs.



5. ANALYSIS OF TB CONTROL IN THE SADC REGION

5.1 Policy gaps

Regional guidelines for minimum standards for TB screening, treatment, and care need to build on and reinforce the current efforts of Member States' national TB programmes, incorporate key recommendations from international TB control policies, and reflect the needs and capabilities of existing TB control infrastructure in the region. As such, it is necessary to examine the challenges faced by Member States in the development and implementation of TB control policies in order to assess their capacity to incorporate regional guidelines in an effective manner that can be tied to progress at the operational level. In order to be considered comprehensive, each Member State's national TB programme should have addressed at a minimum the following:

- TB treatment (including treatment of adult cases, paediatric cases, and pregnant mothers);
- TB/HIV;
- Infection control;
- MDR- and XDR-TB; and
- Advocacy communication and social mobilisation.

National policies and timelines for implementation should be supported by appropriate guidelines targeted towards relevant stakeholders (i.e. clinician, community health worker, microscopist, TB manager).

Each Member State should have in place a five-year strategic plan, which is linked to a budget plan and strategy for securing funding for implementation and which includes a framework for coordinating stakeholders, monitoring and evaluating TB data (including standard indicators and responsibilities for reporting and recording), management and procurement of TB drugs (including an Essential Drug List), and collaboration with the private sector. TB policies should be gender sensitive, should take into consideration the needs of special and vulnerable populations, and should promote equity of coverage. Other framework guides such as collaborations for cross-border TB control should be included as appropriate to the Member State. Gaps in policies and guidelines may reasonably be analysed in the following terms:

5.1.1 Are the policies available, comprehensive and updated?

In recent years, the policy environment for TB control has experienced some important changes. Improvements in treatment regimens and the emphasis by the WHO on the "Three Ones" in TB/HIV collaboration, as well as interventions to increase DOTS coverage, require that national TB programmes be flexible and responsive to communicate changes to stakeholders.

Although many Member States have developed key TB policies, the assessment team found that national TB programmes frequently struggle to maintain up-to-date policies and guidelines and ensure they remain up-to-date. In Swaziland, for example, the TB treatment guidelines are from 2006 and need updating. The same is true for Lesotho where many key policies exist only in draft form and have not been finalised, printed or disseminated.

Similarly in South Africa, although there are no major gaps in the current policy, and most policies and guidelines were recently updated in line with major international guidelines, the draft MDR- and XDR-TB guideline was still awaiting approval and had not been shared with facilities and partners.

The example of South Africa also demonstrates the need to re-examine the admissions policy of patients diagnosed with MDR-TB, since the current policy states that all confirmed MDR-TB cases should be admitted to hospital for the intensive phase of treatment or until culture conversion. With the increase in the number of MDR-TB cases, South Africa's national Department of Health has plans underway to construct more MDR-TB hospitals. However, there might be a need in the future for the Ministry of Health to establish a small unit for the admission of TB patients.

In addition, it is important to highlight the need for low-burden countries to update their TB policies, some of which may have been in place for 10 or more years, in order to respond effectively to current and future needs. The current guideline from the Seychelles, for example, is still in draft form and contains few references to HIV. Finally, Member States need to flexibly respond to new and emerging TB control strategies with adequate policy guidance. For example, Malawi has developed a guideline for public-private mix, which will assist the involvement of private practitioners in TB control. In order to address the accessibility of TB diagnostic services, Malawi has developed a plan to implement universal access to TB diagnosis in Malawi, although implementation of this plan has not yet started due to a lack of resources.

5.1.2 What are the capacities for operationalising TB control policies?

Despite progress, many Member States' TB policies are not linked to effective plans of action. Consequently, implementation is inconsistent.

In Namibia, for example, the team encountered a strong need to monitor and supervise adherence to national guidelines. In Malawi, a system to monitor and reward adherence to guidelines with financial incentives collapsed due to lack of funding. Adherence to standards was found to be difficult, especially in relation to infection control and MDR- and XDR-TB policies. In Botswana, infection control is not regularly maintained in public facilities and the TB programme has struggled to implement high quality or standard MDR-TB services. These difficulties are related to and compounded by challenges with collecting routine and accurate data, and managing and ensuring the quality of drug and material stores.

In Zimbabwe and the Democratic Republic of Congo, even though key policies have been developed at the national level, implementation is a major challenge due to staff shortages and the limited partners available in the country to support the programme. This underlines a recurring issue observed by the assessment teams: implementation of TB policies and guidelines is limited by severe human resource challenges in most Member States. The associated challenges relating to the lack of qualified personnel for TB control include the lack of adequate or reinforced training (including updated or in-service training), high turnover of staff (which renders training and staff development programmes unsustainable), and insufficient salary or benefits to encourage career TB personnel. These difficulties are especially apparent in the laboratory services in many Member States, as laboratory human resources including sufficient high-quality microscopists are underdeveloped.

5.1.3 Coordination and partnerships to improve TB control

Effective TB control requires the participation of a diverse array of personnel and partners, much of it beyond the clinic site. The links between the TB and HIV epidemics, and the growing rates of co-infection, increase the number of stakeholders and the levels of coordination that are required to provide long-term services to patients.

As the TB epidemic has grown, many Member States have incorporated an increasing number of partners into their TB programme activities, including community groups, faith-based organisations,

supra-state companies and service providers, donors, multinational NGOs, and the private sector. In order to successfully implement a harmonised regional TB control policy, it will be necessary to ensure a high level of coordination between the multiple stakeholders currently involved in TB control throughout the region.

Currently, SADC Member States demonstrate a variety of different approaches to increasing coordination, with varying levels of success. The requirements and challenges for effective coordination experienced by SADC Member States' TB Programmes are influenced by factors such as the quality of available data, variations in systems for collecting data (such as overlapping or conflicting indicators and reporting schedules), local HIV prevalence and rates of co-infection (reflected in subsequent treatment and prevention needs), and geography and labour system (such as reliance on large-scale labour intensive industries which are staffed by migrant workers). Some of the key findings from the SADC assessment teams on the progress and achievements in coordinating TB activities, as well as ongoing challenges are described below:

Coordination between the national TB programme and other Government sectors, including the HIV programme

The assessment examined the extent to which national TB programmes have created effective links between TB activities and other Government sectors. As was seen in Botswana, strong commitment and leadership at the national level is an integral part of good coordination. In that country, the collaborative environment established between the national TB programme and the HIV programme has facilitated the coordination of donor-supported TB and HIV activities. Similarly, Zambia's participation in the initial implementation of the ProTEST initiative to promote voluntary counselling and testing as the entry point for HIV care and support (including TB screening for HIV positive individuals) was facilitated by effective coordination between the national programmes. This initiative has now been expanded countrywide and has been incorporated in national policy.

In South Africa, although there has been some improvement in the integration of TB and HIV services, much better coordination is needed at the facility level and between TB and HIV programmes in many districts. There is also an ongoing need to improve collaboration between TB facilities and the laboratory services that country. Coordination has been hampered by data problems. The national TB programme has adopted the use of an electronic TB register, but is still struggling with



data quality and timeliness issues, which limits the use of data for decision-making. There are delays in transmission of data from the facilities to the national TB programme central unit, and the data are sometimes incomplete and of poor quality. Often there are disparities between the paper-based and the electronic TB register data. Cross-sector coordination is also required to facilitate tracking and managing TB cases among migrant workers. Mauritius has achieved very high screening of migrant workers due to the strong collaboration between departments backed by accurate and reliable data. In Lesotho, there have been difficulties of coordination between the Ministries of Labour and Health in relation to attestation of migrant mine workers.

Coordination between the national TB programme and other TB partners, including donors and private sector institutions.

Difficulties of coordination between local or government-run TB activities and other TB partners, including NGOs, multinational TB control agencies, and donors, may stem from pressures and influences beyond the control of national TB programme management. In many Member States, however, the proactive engagement of the national TB programme to guide project priorities has resulted in stronger and more sustainable TB interventions, tied to long-term improvements in the health system's service delivery capacity. The progress made in improving treatment outcomes in Mozambique has been facilitated by coordinating the technical expertise and financial support provided by several international agencies and NGOs, including WHO, the Tuberculosis Control Assistance Program, CDC, Health Action International, USAID, Mozambique RED CROSS, LEPR, and KNCV. All of them are important partners and have contributed to improvements in TB control in recent years.

Similarly, in Zambia, the effective use of partnerships with donors has been a factor in improving coordination between the TB and HIV programmes. The TB programme has appointed a full time clinician responsible for TB/HIV with funding and support from the CDC. With this support, clinical guidelines on TB/HIV management have been developed. In South Africa, there is still much work to be done to increase coordination around the strategic objectives in the National Plan between the many donors and partners that are active. However, due to the scope of the epidemic and size of the country, coordination effectiveness can also be examined at the individual provincial and district levels and there have several key examples of collaboration between district TB programmes and stakeholders.

Tanzania's difficulties in absorbing additional funding for TB control highlights a key potential challenge of coordinating multiple TB agencies. In 2008 the National TB and Leprosy Programme was only able to utilise 25% of the total budget and funds were moved to 2009 financial year. Part of the difficulty lies in the different planning cycles for the implementing stakeholders (i.e. the central government, local government and partners). There is a need for greater transparency in the accounting system, and stronger pressure needs to be placed on donors and partners to assist in coordinating their efforts.

In several countries, including South Africa, improvements have been made in strengthening coordination with the private sector including collaborating with industries and large employers; this is also a factor in improving cross-border collaboration. In Seychelles, although cross-border movement of TB is not a large concern, all migrant workers are required to submit pre-employment chest X-rays and coordination is ensured through partnership with the fishery industry and random checks amongst the employees. In Botswana, collaboration with private organisations that provide TB services (such as mining companies) has been a growing part of the TB programme, and assisted in the establishment of procedures for sharing information and monitoring, as well as the procurement of supplies and drugs to private sector from the central medical stores through district health management teams.

The national TB programmes in Botswana, Lesotho, Swaziland and Zambia have undertaken ongoing outreach to formalise public-private mix with private practitioners. In Tanzania, the National TB and Leprosy Programme has made strides to improve coordination with private sectors and faith based organisations providing TB services. Private centres maintain referral links to public systems, which ensures that all their patients are registered with the Programme and that all training conducted by it include personnel involved in TB and TB/HIV from private institutions. Similar activities are underway in other countries, although as was seen in Namibia, in many cases much progress still needs to be made to operationalise agreements. In Zimbabwe many proposed partnerships are in the works to address major gaps, such as the lack of MDR-TB treatment. Partnerships with TB CAP (Union), the Green Light Committee, the International Organisation for Migration, and Zimbabwe Medical Association should be promoted and encouraged to assist in bridging gaps and gathering stronger data.

Coordination among SADC Member States TB programmes

An increasing number of Member States are starting to investigate the problem of cross-border management and tracing of TB patients. But there are currently no formal agreements in place between any Member States, and only Mozambique and Swaziland have had formal discussions on what interventions may be enacted to deal with this issue. The lack of coordination often results in conflicting treatment policies for migrant and cross-border TB patients. For example, in Namibia the current policy states that TB treatment is free for all, but ARVs are offered to Namibian nationals only. This issue needs to be a strong component of future planned TB control activities, and national TB programmes should be encouraged to prioritise collaboration around it. In other sectors, good examples of collaborations were found between Member States' TB programmes, especially in the coordination of laboratory services to fill gaps in capabilities and combat MDR-TB. For example, there is a good level of coordination between the Botswana National Reference Laboratory and South Africa's National Health Laboratory Service. Currently, the majority of the countries rely on South Africa to assist in the diagnosis of XDR-TB; there is one supranational laboratory in the region, based at the Medical Research Council of South Africa, which assists countries in conducting second-line testing. It is evident that the work load is huge and that the Medical Research Council laboratory is not always able to cope. The National Health Laboratory Service has also provided support to several countries, including Botswana and Swaziland. However, the turnaround time of results for second-line testing in Swaziland is frequently longer than three months.

5.2 Positive practices

There are considerable challenges to building and maintaining an effective TB control programme in the SADC Region, including the complexity of TB treatment regimens, the continual pressure of a growing epidemic, human, equipment, and infrastructure constraints, population movements, and fluctuating economic and political climates. Nevertheless, the assessment teams identified many examples of best practices and success stories. Among the key successes is the adoption of the DOTS strategy by every Member State, in many cases through the assistance of enablers provided by partners such as the USAID Tuberculosis Control Assistance Programme. In response to increases in the number of TB/HIV co-infected patients, many Member States have also moved towards increasing collaboration between their TB and HIV programmes.

5.2.1 Availability of TB services

Strong political commitment in expansion of TB services

Thanks to the strong political commitment in Namibia to prioritise TB and strengthen the Ministry of Health and Social Services, the TB programme has made steady improvement in recent years. This is reflected in the treatment outcomes for the 2007 cohort, including a cure rate of approximately 73%, treatment success of about 83% and a defaulter rate of 4.8%. The Diagnostic Services Programme offers functional TB/HIV integration at the national level. Despite challenges related to long distances and uneven infrastructure, the national TB programme has achieved expansion of DOTS throughout the whole country, with the establishment of the DOT points through strong collaboration with partners and coordinated technical support.

Improvement in laboratory services to reduce turn around time.

Namibia's national TB programme has prioritised improvement of laboratory services and installed biological safety cabinets in 34 of the 37 laboratories. The existence of a daily courier service for specimens to Windhoek has improved the turn around time. The development of formal partnerships between regional research institutions, such as the Medical Research Council of South Africa and central and referral laboratories in Lesotho, Malawi and Swaziland have aided in the improvement of laboratory services by conducting trainings for microscopists and enabled second-line testing.

Establishment of DOT points for improving patient's access to care and default rates.

The DOT points in Namibia were established in 2003 in order to strengthen and expand DOTS in communities. Prior to the DOT points, the defaulter rates had been high, due to patients not returning to clinics for daily anti-TB drugs. Treatment success was low, since patients had to travel long distances to clinics. The DOT points were introduced to make DOTS more accessible to patients by reducing the distances they had to travel to clinics.

The assessment team visited the DOT points of Kuisebmond clinic in the Erongo region, Namibia. The staff at these DOT points were volunteers who worked without a salary or stipends. Health promoters are now receiving a salary supported by one of the partners, KNCV. In 2006, more DOT points were established at other clinics. Currently, there are four DOT points in the Erongo region. Each DOT point has



a health promoter that oversees all activities. Patients are assigned according to the streets they live on. Newly-diagnosed TB patients start at the Kuisebmond clinic for clinic DOTS for two months and thereafter are referred to the nearest DOT point for continuation.

Upon completion of the intensive phase at the clinic, a patient is discharged with a "patient identity card". The field supervisor who oversees the DOT points compiles a list of patients who have completed the intensive phase at the Kuisebmond clinic. A community DOT form is completed at the clinic and taken by the field supervisor to the health promoter at the DOT points, and patients are then allocated to a health promoter.

If a patient fails to present at the designated DOT point, the field promoter starts tracing the patient. Patients are traced at home and at work, they are also sent text messages to their mobile phones as reminders. The DOT points are prefabricated structures or containers. The health promoters start work at 6:30 am to accommodate patients who work. They also visit the households of referred patients to educate the families and patients on TB and conduct contact tracing. The education given includes infection control precautions. There is standardised check list which serves as a guide for health promoters used during health education.

Health promoters attend four-day training courses on TB, which are conducted by the clinic. Monthly data are submitted to the field supervisor who takes the data to the clinic. Standardised forms are used for collecting data.

The initiative of the DOT points has contributed in the reduction of the defaulter rate in Erongo region.

5.2.2 TB/HIV collaboration

Development of partnership for improving TB/HIV integration.

Zambia has embraced several partnership models that have assisted in raising treatment success rates and improving TB/HIV integration. A collaboration with the Japanese Research Institute for TB began in 2008 and has led to the training of community health care workers who are responsible for case detection and DOTS at community level. The Institute has started a project at community level that could be shared as a good practice model in the region. The programme has been able to achieve high treatment success rates (> 87%), since treatment is provided closer to the patient homes. Health education and diagnostic HIV testing is also provided at the active case-finding management centre.

Research studies to support TB/HIV programme management

ZAMBART, the Zambia AIDS Related TB Project, a local NGO formed through partnership with the School of Medicine of Zambia and the London School of Hygiene and Tropical Medicine, has been supporting the TB programme of Zambia for the past 11 years. The main focus of ZAMBART is to conduct research that will support TB control programme activities. Key projects supported by ZAMBART include the ZAMSTAR study under the Consortium to Respond Effectively to the AIDS/TB Epidemic, which focuses on active case finding in the community, the Isoniazid Preventive Therapy study, and the prevalence study.

Close communication between TB and HIV programmes

Several SADC Member States have demonstrated strong proactive approaches to manage the epidemic. In Mauritius, for example, there is very close collaboration between the TB and HIV programmes, backed by regular communication between the managers of both programmes, a clear TB/HIV policy, and a good referral system. The TB and HIV programmes are assisted by a strong centralised reporting system and highly accurate data.

5.2.3 Training and human resources

Many TB programmes in the region are faced with serious human resource challenges. In order for the TB programmes to succeed, staff needs to be appointed at all levels to implement the DOTS strategy. Discrepancies between staffing patterns in the TB and HIV programmes are evident in all countries. It is imperative that the Ministries of Health in all Member States promote integration and stronger collaboration between the two programmes as a means to resolve this issue. It is also important to ensure that staff who are appointed are well-trained. There are limited training programmes in the region to train staff on TB management. Training should also include laboratory and pharmaceutical staff.

Development of partnerships for human resources capacity raising

Partnership models such as BOTUSA between the Government of Botswana and the US Centers for Disease Control and Prevention have aided coordination of TB and TB/HIV activities at the national level. This support is being translated into interventions to improve human resources for TB control, such as refresher courses and training for microscopists. The high level of collaboration between

the national TB programme, the HIV programme, and donors has led to the large scale provision of isoniazid preventive therapy in Botswana. The country has also successfully integrated partners such as African Comprehensive HIV/AIDS Partnership, which supports the TB programme through the appointment of TB district coordinators in each district, appointment of additional staff in the laboratories and purchase of microscopes. Support also comes from URC through the appointment of a MDR-TB advisor.

Tanzania has achieved the global target of an 85% treatment success rate since 2006, although case detection continues to lag. The National TB and Leprosy Programme has also made significant progress in implementing community-based DOT. This has reduced the burden on health facility staff and it has also offered patients choice of care. A training programme is in place, which uses standardised curricula and training materials of high quality. Master trainers are trained in facilitation skills and almost all received training in TB/HIV.

Responding to the critical need for stronger laboratory capacities, the National Health Laboratory Services in South Africa have started an initiative called the African Centre for Integrated Learning in collaboration with the National Institute for Communicable Diseases. The aim of the new centre is to develop a new generation of laboratory experts across Africa, particularly in the fields of HIV, TB and malaria. Various public and private sector partners, including representatives from industry groups and donors, have contributed to the establishment of the Centre, and provide management and technical assistance. Courses focus on TB culture and drug sensitivity testing, microscopy and molecular diagnostics, HIV early infant diagnosis polymerase chain reaction, laboratory management and accreditation, quality management systems, and commodity management. In order to share best practices, a limited number of participants are included from other high-burden countries, including non-African countries.

5.2.4 Private sector collaboration

Engagement of non-government organisations and traditional health practitioners to sustain and extend TB interventions.

The national TB programme in Lesotho has improved its service delivery model for TB through strong engagement of private sector and faith based groups such as the Christian Health Association of Lesotho and the Lesotho Traditional Health Practitioners Council, which trains traditional care providers in DOTS. This collaboration has empowered traditional care providers to detect and refer TB suspects for

diagnosis and treatment under the DOTS programme, and has allowed them to serve as points of referral and also be involved in community TB care activities. The TB programme in Lesotho has also benefitted from a strong partnership with Partners in Health, which fills critical gaps through the provision of MDR-TB services, construction of a MDR-TB hospital, and community MDR-TB care.

Seychelles has also made strong achievements in integrating private practitioners within TB control systems, with high levels of diagnosis and referral from private doctors.

Involvement of private companies to provide workplace TB interventions

Several provincial TB programmes in South Africa have targeted private companies and large employers in high risk and crisis districts to form partnerships for TB control, including coordination between community DOTS supporters and company clinics, workplace education and awareness programmes, and company tracer teams. This should be monitored as an important method to sustain and extend TB interventions.

5.2.5 New technology and tools

Use of an electronic patient card for efficient patient management

The national TB programme in Zambia is investigating innovations in data management including the establishment of an electronic clinic card to capture both the TB and HIV data of an individual patient (SMART CARD). This process should be closely monitored by other national TB programmes in the region.

5.2.6 MDR-TB management

Initiation of community-based model

In Malawi, MDR-TB patients are initiated on treatment and managed in the community. Malawi has developed a good model of community management of MDR-TB. Teams have been established at the various levels from the central level to the health facility level. In ascending order, the teams are established as follows:

- At the health centre level, the MDR- and XDR-TB management team is comprised of the sister in charge, the TB focal person and the professional nurse in the clinic;



- At district level, the district management team is comprised of the district health officer, the district TB officer, a clinical officer, nurse and social worker;
- At zonal level, there are no MDR-TB management teams; and
- At central level, the MDR-TB management team is comprised of the national MDR-TB desk officer, an officer at the national reference laboratory, a drug management logistics officer, research coordinator, TB technical advisor, medical officer at a central hospital, and WHO representative.

The central-level team is responsible and involved in the training of the district teams on MDR-TB management. The district teams are responsible for cascading the training to the health centres; one central team member is invited to the training session for assistance where necessary. The process of sending specimens is as follows:

- Health centres send the specimens for culture and first-line drug sensitivity testing;
- The officer in the national reference laboratory receives all results of MDR-TB patients and forwards them to the central national MDR-TB desk coordinator;
- The national MDR-TB desk officer contacts the district TB officer and informs him/her of the newly-diagnosed MDR-TB patient;
- Tracing of the patient begins, and once the patient is found, the district team visits the patient to provide health education to the patient and the family;
- The health education includes information about drug-resistant TB and infection control measures at home. The initial visit is also used to conduct the initial assessment and evaluation of the household;
- The district TB officer contacts the drug management logistics officer to make arrangements for second-line drugs for the patient; and
- A three-month drug supply is sent from the central medical stores to the district pharmacy. The drugs are received by the district TB officer and taken to the health centre.

Involvement of nurse practitioners for closer monitoring of patients on treatment

The following procedure is used:

- A nurse from the health centre who is part of the health facility MDR-TB management team visits the patient daily to give the injections and other drugs;
- After visiting the patient, daily feedback is given to the TB officer and the doctor at the facility. A form is used to record the clinical status of the patient and side effects;
- If side effects are noted, the nurse reports to the health centre doctor, who is also a member of the MDR-TB management team;
- On the next visit, the nurse is accompanied by the clinician from the health centre to assess the patient for side effects to the second-line drugs; and
- There are weekly feedback sessions by the district TB officer to the national MDR-TB desk coordinator on MDR-TB cases in his/her respective district.

The central MDR-TB management team holds weekly meetings to discuss the management of the cases. If there are any changes in the management of a particular case, the national MDR-TB desk coordinator informs the district TB officer and the health centre of the changes. Smear and culture are done monthly.

6. RECOMMENDATIONS

Member States in the SADC region have made tremendous progress in the development of policies and guidelines to manage TB, but implementation is lacking in too many places. National TB programmes and TB partners need to monitor closely the status of implementation to identify what works and why it works, as well as facilitate channels of communication to address barriers in a timely fashion.

Major progress has also been made in increasing funding from donors for TB and TB/HIV activities, yet the majority of the Member States have not been able to reduce the incidence rates of TB, or greatly improve case detection rates. There is still a long way to go to reduce TB/HIV co-infection rates and improve collaboration between TB and HIV programmes at the facility levels. Drug-resistant TB unfortunately continues to increase in the region.

Unless it is more forcefully addressed, it has the potential to reach epidemic proportions. Based on the findings of the country assessment teams, the following recommendations are made for prioritising areas for improvement as TB programmes move forward. Obviously not all recommendations are equally relevant for all Member States. The critical need is for all national TB programmes to continue to build on and improve the many successful screening and treatment programmes currently underway, while continuing to stress effective integration of partners and resources. With that in mind, the target areas for more consideration include the following.

6.1 TB/HIV collaboration

- The significant improvements made to date to increase integration of TB and HIV services need to be consolidated and developed by TB partners.
- A regional TB/HIV policy should be promoted, including inputs and commitments from major donors and international partners.
- TB and HIV managers at the national and sub-national levels need to identify best practices and concrete ways to effectively extend TB screening and treatment services to HIV-positive patients. This is true equally for countries like Madagascar, Mauritius and Seychelles, which are not yet experiencing large HIV-led TB epidemics but wish to avoid further infections.
- Training in TB management for HIV programme staff should be standardised and implemented on a routine basis.
- Member States should be encouraged to explore adoption of provider-initiated testing and counselling at TB screening sites.

6.2 Diagnosis and availability of laboratory services

- Diagnostic capacity for MDR-TB must be improved urgently.
- A priority for TB partners in the region should be upgrading and extending laboratory networks and improving skills to reduce turnaround time for samples.
- It is recommended that routine and transparent external quality audits be conducted in all Member States on a regular basis.

- Standard operating procedures should be developed to lay out the processes of conducting the audits.
- There is a need to address TB lab network for sputum microscopy.

6.3 Cross-border and regional TB control

- It is recommended that the SADC Secretariat facilitates the development of formal agreements between Member States to streamline referrals of patients from one country to another. Especially in the case of migrant workers, the burden of dealing with cross-border TB is felt primarily by the country receiving rather than exporting TB cases.
- The dialogue currently underway between some Member States should be encouraged, and other Member States should explore potential activities to expand treatment options for patients who travel between countries, especially patients with routine and predictable patterns of mobility, such as miners and agriculture workers.
- Tools such as regional standardised patient information cards should be explored further as a means to reduce treatment interruption. As appropriate, these should be developed in collaboration with Member State national HIV and AIDS programmes to facilitate management of patients co-infected with HIV.
- In order to raise awareness about regional and cross-border TB control issues and strengthen collaborations for TB control among Member States, SADC should facilitate regional advocacy, communication and social mobilisation activities. Events such as World TB Day may provide opportunities to spotlight regional successes and good practices among Member State TB Programmes.

6.4 Infection control

Many Member States still need to finalise infection control guidelines and link them to action plans for implementation, including identifying materials, infrastructure and training requirements. This should be a high priority for all national TB programmes.



- As the TB epidemic expands, the status of infection control systems needs to be monitored closely and best practices identified. It is important that infection control policies are adapted to meet emerging needs, such as including a stronger focus on health care workers and DOTS providers.
- Implementation of infection control activities should also be strengthened at the regional level and the SADC Secretariat may take a role in advocating for better infection control practices to minimise transmission of TB.

6.5 Monitoring and evaluation

Monitoring and evaluation was found to be a challenge for the majority of Member States, especially in light of the increases in funding opportunities and the multiplication of TB partners.

- As integration of services for MDR-TB and TB/HIV co-infected patients improves, national TB programmes should be encouraged to prioritise strengthening of data collection systems to guide programme planning and identify funding requirements.
- Better collaboration is needed among TB partners to establish standard and predictable indicators and reporting schedules to reduce the burden on facilities created by multiple data registers.
- Strong emphasis is need on improving capacities (especially at the facility level) to capture and record TB data.
- Guidelines for providing feedback on TB data should be established to improve accountability at screening and treatment sites.

6.6 Management of drugs for TB and MDR-TB

- As drug supply systems become more complex to meet expanding treatment needs, national TB programmes must focus on improving drug management capacities to ensure routine and consistent supply and avoid stock outs.
- Most countries also now have the ability to obtain drugs from the Global Fund to fight HIV/AIDS, Tuberculosis and Malaria and from the Green Light Committee for the management of MDR-TB. Member States are encouraged to work closely with partners to maintain an up-to-date Essential

Drug List, establish and adhere to drug management guidelines, collaborate with Green Light Committee and Global Fund to fight HIV/AIDS, Tuberculosis and Malaria partners to determine monitoring indicators and schedules, and build capacities to ensure rationale use of first- and second-line drugs.

- All Member States should use fixed drug combinations for first line treatment of TB for both adults and children.

6.7 Training and human resources

- Each Member State should develop a strategy for human resource development that focuses on streamlining positions and responsibilities, recruiting adequate personnel, and providing refresher and in-service training using standardised tools and training manuals.
- National TB programmes should seek partnerships to develop the required materials or share best practices and materials from other Member States' TB training programmes.
- It is recommended that the SADC Secretariat take a role in facilitating refresher courses in the region, especially around laboratory quality improvement, TB/HIV management, clinical training programmes for MDR-TB, and management of paediatric TB, as well as advocacy, communication and social mobilisation for TB control.

6.8 Private sector collaboration

- National TB programmes should continue to seek ways to work with private health service providers, including faith-based organisations, to increase and standardise TB treatment programmes and further integrate TB/HIV services.
- Public-private mix partnership models such as those established in Botswana should be encouraged and extended.
- Guidelines like those developed in Malawi to manage public-private mix should receive further attention. TB managers should facilitate the expansion of workplace programmes to increase awareness of TB, with an emphasis on extending partnerships beyond large industries to include small and medium enterprises, as well.

6.9 Incorporate gender-sensitive TB control policies

TB is traditionally seen as a disease which strikes men the hardest, and control programmes have been designed accordingly. With the resurgence of TB linked to HIV and AIDS, however, an increased number of cases are occurring among women, although information is currently lacking on the extent of the TB burden among women or gendered responses to TB control strategies.

- Member States should promote data capturing and evaluation to shed light on women's interaction with TB services and the types of barriers experienced, which can assist in developing gender sensitive approaches to promote adherence and access to screening and support.

6.10 Focus on special and vulnerable populations

- Member States should seek to expand the availability of TB services to prisoners, refugees and other vulnerable groups.
- National TB programmes should examine methods to modify existing successful practices to target at-risk populations.
- Efforts should be made to establish partnerships with organisations providing health services to vulnerable populations.

6.11 Encourage advocacy and communication efforts for TB

- Member States should address gaps in advocacy, communication and social mobilisation policies relating to TB.
- National TB programmes should seek to link with and capture best practices from national and regional HIV and AIDS advocacy initiatives to raise awareness about TB services and reduce stigma relating to the disease.
- Cross-border and regional advocacy, communication and social mobilisation project should be encouraged.

6.12 Integrate use of appropriate new technologies and tools

- Member States should facilitate the standardised use of the new tools becoming available for TB control.

- As new tools and approaches become accessible and are endorsed by WHO, SADC Member States should explore appropriate partnerships with organisations such as the Foundation for Innovative New Diagnostics to develop the necessary practical checklists and/or guidelines and increase capacities to introduce and utilise new technologies.
- Participation in forums such as the STOP TB Partnership's newly created sub-working group on "New Tools and Approaches", under the auspices of the Partnership's DOTS Expansion Working Group, is one way to allow Member States to play an active role in the development of new TB control technologies.
- For many Member States, TB is only one among many health and service areas requiring attention. In order to sustain momentum going forward, TB partners should seek ways to integrate TB control into broader efforts to build service delivery systems and strengthen health systems, with an emphasis on building human capacities, increasing transparency and accountability, and redirecting the focus of services to become more client-centred.



REFERENCES

1. WHO. Global TB Control Report 2009. Geneva: WHO; 2009.
2. SADC. Regional Indicative Strategic Development Plan (RISDP). Gaborone: SADC Secretariat; 2003 March.
3. SADC. Protocol on Health. Gaborone: SADC; 2004.
4. SADC. Strategic Framework for the Control of TB in the SADC Region, 2007-2015. Gaborone: SADC; 2007.
5. SADC. Protocol for Gender and Development. Gaborone: SADC; 2008.
6. UNAIDS. AIDS Epidemic Update 2008. Geneva: UNAIDS; 2008 December.
7. Nakaoka H, Lawson L. Risk for Tuberculosis among Children. *Emerging Inf Dis.* 2006 Sept;12(9):1383-1388.
8. Eastwood H. Children in rural South Africa may be at increased risk of acquiring MDR-TB in hospitals. [Internet]. 2009 [April 8]. Available from: <http://www.aidsmap.com/en/news/DE695EA8-8A42-4882-84DE-F081B4F1CFE8.asp>
9. SADC. Situation Assessment for Policy Framework on Population Mobility and Communicable Diseases in the SADC Region. Gaborone: SADC; 2009 February.
10. Lloyd M-P. Draft statement to the World Health Assembly by Honourable Mrs. Marie-Pierre Lloyd, Minister of Health of the Republic of Seychelles on behalf of the SADC Health Ministers; 18-23 May 2009.
11. SADC. Protocol on Health: Preamble. Gaborone: SADC; 1999 August.
12. SADC. Policy Framework for Population Mobility and Communicable Diseases. Gaborone: SADC; 2009 April.

APPENDICES

Appendix I: Data tables

Table A.1: TB case finding (2007-2008)

	2007							2008						
	New PTB smear +ve	New PTB smear -ve	New PTB no smear results / unknown	New EPTB	Relapse smear +ve	Other relapses	Total	New PTB smear +ve	New PTB smear -ve	New PTB no smear results / unknown	New EPTB	Relapse smear +ve	Other relapses	Total
Angola*	21,422	14,733	Not captured	2,911	2,226	1,091	42,383	22,562	16,490	Not captured	3,287	2,237	1,347	45,923
Botswana	3,229	984	2,151	1,376	335	384	8,459	3,051	953	2,479	1,585	447	605	9,120
DRC	66,099	10,963	Not captured	18,737	4,006	1,033	100,838	69,682	11,411	Not captured	19,702	4,003	2,224	107,022
Lesotho	3,723	3,044	3,111	2,853	829	740	14,300	3,905	2,667	2,113	2,692	736	1,050	13,219
Madagascar*	15,344	1,321		3,973	1,219		21,857							
Malawi*	7,608	10,704	Not captured	5,195	954	0	24,461	7,627	10,155	Not captured	5,369	778	1,755	25,684
Mauritius	86	12	0	4	4	0	106	85	14	0	5	3	0	107
Mozambique	18,214	10,675	2,389*	5,020	1,353	393	38,044	19,025	11,870	2,535	5,044	1,317	479	40,270
Namibia	5,114	2,278	2,674	2,687	1,433	1,058	15,244	4,928	1,862	1,852	2,582	1,439	1,074	13,737
Seychelles	9	0	0	1	0	0	14	4	0	0	2	0	0	6
South Africa	135,604	34,057	67,305	45,090	29,562	10,413	322,031	138,803	48,397	84,575	48,527	23,829	14,822	358,953
Swaziland	2,764	1,146	2,824	1,839	335	748	9,636	3,108	1,518	1,862	1,766	438	964	9,656
Tanzania	24,520	20,521	Not captured	12,526	1,804	24,22	61,793	24,171	21,935	12,784	12,784	1,600	2,585	75,859
Zambia	13,378	21,189	Not captured	10,015	1,738	4,095	50,415	13,173	19,344	Not captured	9,580	1,551	3,685	47,333
Zimbabwe	10,853	21,964	Not captured	6,381	1,349	529	41,076	9,830	10,809	Not captured	9,190	936	2,706	3,3471

* Data from WHO Global TB Control Report, 2009



Table A.2: TB treatment outcomes (2007)

	New PTB positive					Relapse PTB positive						
	Cured	Completed	Died	Failed	Defaulted	Transferred out*	Cured	Completed	Died	Failed	Defaulted	Transferred out*
Angola [§]	10,224	5,589	618	478	3,849	604	1,436	719	162	135	702	109
Botswana	1,460	1,079	245	56	255	376	111	68	36	28	37	70
DRC [§]	51,790	2,947	3,404	798	2,765	1,412	2,874	122	311	107	155	85
Lesotho	2,053	455	371	72	162	92	279	82	121	29	32	19
Madagascar [§]	11,437	783	783	156	1,723	626	1,166	67	118	50	202	101
Malawi [§]	6,287	81	980	81	245	408	784	20	120	10	20	40
Mauritius	73	0	3	0	7	3	3	0	1	0	0	0
Mozambique	14,248	184	1,852	195	847	305	257	7	41	4	25	9
Namibia	72%	11%	5.4%	3.3%	4.8%	3.5%	53%	12%	10%	11%	10%	4.4%
Seychelles	9	6	3	0	4	2	0	0	0	0	0	0
South Africa	91,653	14,209	10,816	2,599	12,136	7,302	13,645	2,240	1,033	2,424	4,058	948
Swaziland	695	384	162	114	321	400	66	42	41	28	27	50
Tanzania	19,835	1,114	1,954	61	780	980	3,358	279	554	30	188	192
Zambia												
Zimbabwe												

*Transferred out plus not evaluated

§ Data from WHO Global TB Control Report, 2009.

Table A.3: TB treatment outcomes (2008)

	New PTB positive					Relapse PTB positive						
	Cured	Completed	Died	Failed	Defaulted	Transferred out*	Cured	Completed	Died	Failed	Defaulted	Transferred out*
Angola	9,985	5,237	783	459	3,985	660	1,333	603	133	127	635	102
Botswana	1,667	795	165	50	211	447	111	68	36	28	37	70
DRC	55,348	2,802	3,017	767	2,499	1,277	2,927	166	308	105	157	137
Lesotho	1,875	267	594	65	122	58	299	71	87	27	22	4
Madagascar	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	6,707	124	739	247	116	132	764	21	92	19	20	16
Mauritius												
Mozambique	15,568	249	1,835	249	741	272						
Namibia (2008 cohort)	3,533	502	278	205	195	218						
Seychelles	8	4	1	0	1	0	0	0	0	0	0	0
South Africa												
Swaziland	1039	632	188	174	329	300	106	75	38	31	35	52
Tanzania	20440	1041	1533	58	622	826	1373	56	178	9	69	69
Zambia	7145	769	621	48	265	498	840	143	104	15	36	63
Zimbabwe	7,597	910	1,014	22	791	961	575	81	187	17	64	120





Table A.4: Case notification for MDR-TB and XDR-TB (2007)

	New PTB		PTB previously treated with first-line drugs		PTB previously treated with second-line drugs		Extra pulmonary		Other		Total	
	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR
Angola	Data not available											
Botswana	Data not available											
DRC	1	0	146 (75*)	0	0	0	0	0	0	0	147(76*)	0
Lesotho	2	-	18	-	19	-	-	-	4	-	43	-
Madagascar	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	0	0	25	0	0	0	0	0	0	0	25	0
Mauritius	0	0	0	0	0	0	0	0	0	0	0	0
Mozambique	0	0	142	0	0	0	0	0	0	0	142	0
Namibia	0	0	109	0	7	3	0	0	0	0	116	3
Seychelles	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	425	24	2,341	110	0	0	118	147	873	206	3,757	493
Swaziland	0	3	11	3	1	1	60	0	1	1	111	5
Tanzania	1	0	20	0	0	0	0	0	0	0	21	0
Zambia	Data not available											
Zimbabwe	Data not available											

* Democratic Republic of Congo Laboratory confirmations
0 = no cases notified



Table A.5: Case notification for MDR-TB and XDR-TB (2008)

	New PTB		PTB previously treated with first-line drugs		PTB previously treated with second-line drugs		Extra pulmonary		Other		Total	
	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR	MDR	XDR
Angola	Data not available											
Botswana	Data not available											
DRC	5 (3)	0	192 (79)*	0	0	0	0	0	5 (2)*	0	202 (84)*	0
Lesotho	10	-	63	-	47	-	-	-	30	-	150	-
Madagascar	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	0	0	16	0	0	0	0	0	0	0	16	0
Mauritius	2	0	0	0	0	0	0	0	0	0	0	0
Mozambique	0	0	295	0	0	0	0	0	0	0	295	0
Namibia	13	1	170	0	16	19	2	0	0	0	201	20
Seychelles	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	789	75	3,026	168	0	0	59	33	661	142	4,535	418
Swaziland	1	0	140	0	0	0	2	0	36	0	179	0
Tanzania	6	0	16	0	0	0	0	0	0	0	22	0
Zambia	Data not available											
Zimbabwe	Data not available											

* Democratic Republic of Congo Laboratory confirmations
0 = no cases notified



Table A.6: TB and HIV data (2007 & 2008)

	2007								2008							
	# of TB patients tested for HIV	# of TB patients tested HIV +	# of co-infected TB patients started on CPT	# of co-infected TB patients started on ARV	Total # of HIV+ clients	# HIV+ clients screened for TB	# HIV clients diagnosed with TB	# HIV+ clients started on IPT	# of TB patients tested for HIV	# of TB patients tested HIV +	# of co-infected TB patients started on CPT	# of co-infected TB patients started on ARV	Total # of HIV+ clients	# HIV+ clients screened for TB	# HIV clients diagnosed with TB	# HIV+ clients started on IPT
Angola*	3,800	450	280	60												
Botswana*	5,106	3,493	N/A	670		N/A	N/A	23,479	6,199	4,209	N/A	855		N/A	N/A	12,802
DRC	2,681	339	305	258	0	0	0	0	19,538	3,641	1,671	724	0	0	0	0
Lesotho	6,223	4,974	3,490	907	??43	All		0	9,330	7,083	6,040	1,719	45	All		0
Malawi*	22,744	15,491	13,779	4,765	169,395	N/A	N/A	N/A					159,888			
Mauritius	104	7	7	6	3,284	36	7	0	101	10	5	5	3,841	40	10	0
Mozambique	26,548	12,563	11,667	4,105	N/A	3,039	2,265	676	32,182	19,330	17,733	5,816	N/A	4,880	439	724
Namibia	8,186	4,803	1,495	749	N/A	N/A	N/A	4,257	9,188	5,425	5,289	2,019	N/A	N/A	N/A	6,153
Seychelles	14	1	1	0	43	All	0	0	6	0	0	0	45	All	0	0
South Africa	136,247	87,764	58,801	20,689	37,967	150,095**		5,642	150,542	89,950	64,348	22,107	668,414	364,261***		15,355
Swaziland	3,135	2,626	2,552	128	3,597	0	0	0	3,406	2148	4,693	474	5,562	3,883	553	0
Tanzania	31,305	14,699	10,541	4619	NACP data	No data	No data	No data	47,843	19,488	16,173	584	NACP data	29,019	No data	No data
Zambia	23,574	16,240	6,434	6,595	No data	No data	No data	No data	3,654	2,839	9,645	8,604	No data	No data	No data	No data
Zimbabwe	10,711	7,373	5,824	1,727	No data	No data	No data	226§	13,832	10,311	No data	No data	No data	No data	No data	No data

* Data taken from WHO Global TB Control Report 2009
 ** Number initiated on TB treatment in 2007 was 15,521
 *** Number initiated on TB treatment in 2008 was 27,391
 § Number of children under 5 years provided with IPT



Appendix II: Country assessment schedule

	Assessment schedule
Mauritius	21-25 September, 2009
Seychelles	28-02 October, 2009
Namibia	05-09 October, 2009
Lesotho	26-30 October, 2009
South Africa	16-20 November, 2009
Mozambique	23-27 November, 2009
Tanzania	23-27 November, 2009
Zimbabwe	30-4 December, 2009
Botswana	07-11 December, 2009
Malawi	07-11 December, 2009
Swaziland	14-18 December 2009
Democratic Republic of Congo	28 December - 1 January 2010
Angola	15-19 February 2010
Madagascar	Assessment suspended*

*Due to political instability, the assessment scheduled for Madagascar was suspended.

Appendix III: List of country officials interviewed

	Name of person	Organisation / Programme	Position
Angola			
	DR. PIERO BERRA	CUAMM/GF	Consultant/Deputy Programme Manager TB Global Fund
	DR. VICENT KUYVCUKOVEN	KNCV	Consultant KNCV
	MS. MARIA LUCIA M. FULTADO	INLS- HIV Control Programme	Deputy Director
	MR. MARQUES JOSE GOMES	INLS- HIV Control Programme	Chief Economic Planner
	DR. MUNZALA N NGOLA	WHO	NPO-MPN: Focal Person for TB
	MR. MNISES FRANCISCO	National Institute for Public Health	Director of Social Welfare
	DR. MARIA EUGENIA RAMOS	National Institute for Public Health	Lab Scientist
	MS. CAROLINA FERREIRA GONOSLVES	National Institute for Public Health	Lab Technician
	DR. PAUL ABD	PNCT/CUAMM/Global Fund	DOTS
	MR. JORGE DE JESUS JOSE	PNCT/CUAMM/Global Fund	Proocal De Saude
	MR. JOAO RAFEAL CHIJIQUITA	PNCT/CUAMM/Global Fund	Training and Supervision
	DR. MARIA DA C PALMA CALDAS	PNCT/MINSA	Coordenadora Nacional PNCT
	DR. FILIPE ZINZE	PNCT/MINSA	Financial/ Administrator
	DR. ARLINDO AMARAL	PNCT/MINSA	Monitoring and Evaluation
	DR. FRANCISCO ERNESTO	PNCT/CUAMM/Global Fund	Program Manager
Botswana			
	Dr. Godfrey Musuka	African Comprehensive HIV/AIDS Partnership	Director: Monitoring, Research and Evaluation
	Binagwa Beyamia		Director Programmes
	Dr. Vonai Bernadette Teveredzi	African Comprehensive HIV/AIDS Partnership	TB/HIV Specialist
	Dr. May Kestlen	Botswana Upeun Partnership	Adult TB/HIV Programme
	Koofoiditse Radisoma	National Tuberculosis Reference Laboratory	Principal Medical Laboratory Scientist
	Kitumetse Sekhute-Segokotlo	National Tuberculosis Reference Laboratory	Principal Medical Laboratory Scientist



	Eva Kavahematui	Kgothatso AIDS Care and Prevention	Programme Coordinator
	Margaret Kobue	Kgothatso AIDS Care and Prevention	Deputy Chair Management Committee
	Dr. Joconiah Chrenda	Ministry of Health	NTP Manager
	Dr. Khumo Seipone	Ministry of Health	Director: HIV/AIDS prevention and care
	Tom Brown	CMS	Chief Operating Officer
	Dr. Mualakwe	Debswana / Jwaneng Mine Hospital	Medical Officer
	Elizabeth M Maruping	Debswana / Jwaneng Mine Hospital	Acting Matron
	Kaonitso Comfort Maruping	Debswana / Jwaneng Mine Hospital	Acting TB Coordinator
	Matsiri T Ogotste	Debswana / Jwaneng Mine Hospital	TB Coordination Nurse
	Seolamolora Ramantsima	Jwaneg Town Council - EU7 Clinic	RNM
Democratic Republic of Congo			
	Dr. JP Okiata	Ministry of Health	Director: NTCP
	Dr. Fonolacaro Teto	Ministry of Health	NTCP
	Dr. Nicolas Nkiere	WHO	NPO-TUB
	Dr. JP Kabuayi	PNLT	Director
	Dr. Colette Kinkela	PNLT	PPM DOT
	Dr. Marie Leopoldine Mbuwla	PNLT	Monitoring and Evaluation
	Pharmacien Chislain Magata	PNLT	Pharmaceutical Services
	Dr. Jose Bafoa	PNLT	
	Dr. Christine Msenga	PNLT	Social Mobilisation
	Lionbo Umengo Anastisia	PNLT	
	Georges Kabuya	Ministry of Health	NTP
	Fondacaro Teto	Ministry of Health	NTP
	M Shoma	Ministry of Health	NTP
	Esther Kasi	CS Bondeko	Infant TB
	Suzane Okako	CS Bondeko	Infant TB
	Dr. Mamie Shoma	PNLT	
	Dr. Fonolacaro Teto	PNLT	MDR Services
	Dr. Valentine Bola	PNLT/CPLT/LIE	Medical Coordinator

	Martin Musumadi	CS Bondeko	Information, Education and Communications
	Arnee Mseya	CS Bondeko	
	Jeanne Kansele	CS Bondeko	
	Dr. Emmanuel Kiangala	Union - Bureau	TB Cap Focal Point
	Augustin Okenge Yuoia	PNLS	Director
Lesotho			
	Dr. Karabo Makobocho-Mahlokoona	MOHSW	Permanent Secretary
	Dr. Piet Mcpherson	MOHSW	Acting Director General/ Director Clinical Services
	Lisele Matlanyane	MOHSW	Acting Director, Human Resources
	Ms M. Khoele	MOHSW	Chief Economic Planner
	L. Chisepo	MOHSW	Deputy Permanent Secretary
	Moliehi Khabele	MOHSW	Director of Social Welfare
	Mabaene Mefane	MOHSW	Private Secretary to Hon. Minister Of Health & SW
	Makhotso Romechela	MOHSW	Financial Controller
	'Molaoa Maqhama	MOHSW	Financial Controller
	Dr. Lugemba Budiaki	MOHSW	Director of Primary Health Care
	Dr. Llang Maama	MOHSW	NTP Manager/ Acting Head, Disease Control
	Ms. Maud Boikanyo	MOHSW	STI/HIV/AIDS, Director
	Ms. M. Ntsekhe	MOHSW	Director Pharmaceuticals
	Ms. M. Matsoara	MOHSW	Pharmaceuticals, Head, Medicines Regulation Unit
	Ms. G Mphoso	MOHSW	Pharmaceuticals, Drug Regulation Inspector
	Ms. L Melao	MOHSW	Disease Control, Pharmacy Technician
	Dr. G. Kubendiran	Central Reference Lab Queen II Hospital/FIND	Consultant
	Ms. M Phalatse	Central Reference Lab Queen II Hospital/FIND	Lab Technician
	Mr. M. G. Sefali	National Drug Service	General Manager
	Ms. Mantle Ntšohi	National Drug Service	Assistant Logistics Manager
	Mr. Sello Khelethu	National Drug Service	Logistics Manager
	Mr. David Mothabeng	MOHSW	Director, Lab Services
	Dr. Hind Satti	PIH	Country Director



	Dr. Gani Alabi	WHO	Acting WHO Representative
	Multi	MDR-TB Hospital	Clinic Staff
	Not Available	NA	TB Patient
Malawi			
	John Kwanjana	National TB Control Programme	Deputy Programme Manager
	Isaias Dambe	National TB Control Programme	Research Officer
	Cornelius Kangombe	National TB Control Programme	Research Officer
	Henry Kanyerere	National TB Control Programme	TB/HIV Officer
	Israel Myasuku	WHO	National Professional Officer - TB/HIV
	Dr. Frank M Chimbwandra	Ministry of Health - HIV/AIDS Department	Head of HIV/AIDS Department
	Henderson Mgawi	National TB Control Programme	Drug management and logistics officer
	Isaac Chelewani	National TB Control Programme	Drug management and logistics officer
	Chisamba Wright	National TB Control Programme	Central Reference TB Laboratory Officer
	Clement Mbetseksa	TB Registry Lilongwe DHO	District TB Officer
	Alice Mwike	TB Patient	Bwada Hospital
	Mercy Maenje	Area 18 Health Centre	TB Officer
Mauritius			
	Dr. M F Rujeedawa	Ministry of Health	Consultant: Chest Physician
	Dr. H Peeroo	Ministry of Health	Consultant: Chest Physician
	Dr. M I Issack	Ministry of Health	Consultant: Microbiologist
	Dr. A Saumtally	Ministry of Health	Officer in charge AIDS Unit
	Dr. Ponnosamy	Ministry of Health	AIDS Physician
	F Gyhee	Ministry of Health	Pharmacist
	B Seetul	Ministry of Health	Manager (Procurement and Supply)
	M Moheepus	Ministry of Health	Ass. Manager Procurement and Supply
	C Narrinen	Ministry of Health	Senior Pharmacy Dispenser
	Emmanuel Chin	Ministry of Health	Chief Pharmacy Dispenser
	Dr. Rajiv Kumar	Ministry of Health	Chest Physician
	Dr. Ramgulah Shyan	Ministry of Health	Chest Physician
	MC Supporayer	Ministry of Health	Acting Nursing Administrator

	A Beebeejaw	Ministry of Health	NO
	Dr. D	Ministry of Health	Medical Superintendent
	Dr. Reesaul Prakash	Ministry of Health	Senior Specialist
Mozambique			
	Paula Samo Gudo	Ministry of Health	NTCP Manager
	Egídio Langa	Ministry of Health	NTCP TB/HIV focal point
	Elizabeth Coelho	Ministry of Health	NRL Manager
	Ema Chuva	Ministry of Health	NACP Manager
	Emilia Juliana	Maxaquene Health Center	TB Supervisor
	Fernanda Campos	Maxaquene Health Center	Director
	Ahmadova Shalala	WHO	TB Medical Official
	Roberta Pastora	WHO	TB and Health Information Systems
	Dario Sacur	FHI	TB CAP Official
	Anna Scardigli	ICAP	TB/HIV Consultant
	Brigida Cossa	ICAP	Supervision Focal Point
	Hanifa Raman	CDC	TB/HIV and OI specialist
	Alda Menete	Private Clinic	TB/HIV Focal Point
	Benedita Madalena		TB Patient
Namibia			
	Dr. Nunurai Ruswa	National TB Control Programme	MO for DRTB (National level)
	Dr. Panganai Dhlwayo	KNCV Tuberculosis Foundation	Country Director
	Dr. Ndapewa Hamunine	Ministry of Health and Social Services	Senior Medical Officer
	Dr. Philippe S K Tshiteta	Ministry of Health and Social Services (Erongo Region)	Chief Medical Officer
	Mirjam Valombola	Ministry of Health and Social Services (Erongo Region)	Senior Health Programme S/P
	Dr. JPI Musasa	Ministry of Health and Social Services (Walvis Bay Region)	Principal Medical Officer
	Mr Malakia Matlus	KNCV Tuberculosis Foundation (Erongo Region)	TB/HIV & Infection Clinical Control Coordinator
	Dr. Baluti	Ministry of Health and Social Services	Medical Doctor (TB/HIV)
	CK Vejorerako	Cadilu Fishing	Registered Nurse
	EW Martins	Etale Fishing	Assistant Clinic
	L Strauss	Etale Fishing	Sister



	C van den Heever	Hangana Seafood	Sister
	Alli Taapopi Gotthlieb	Hangana Seafood	Enrolled Nurse
	Dr. Amir Shaker	Walvis Bay Hospital	Medical Officer
	Mary N Iyambo	NIP - Walvis Bay	Technologist in charge
	Dr. F. M. Shiweda	Ministry of Health and Social Services	Principal Medical Officer
	RE Abimana	Ministry of Health and Social Services	Pharmacist
	H Lema	Ministry of Health and Social Services	Procurement & Tender Pharmacist
	Ms Jennie Lates	Ministry of Health and Social Services	DD: Pharmaceutical Services
	Mr Gilbert Habimana	Ministry of Health and Social Services	Chief Pharmacist
	Mr Harold T Kaura	Namibia Institute of Pathology	General Manager
	Mrs Tangeni Angula	Namibia Institute of Pathology	Chief Executive Officer
	Ms Selma Shiyamba	Namibia Institute of Pathology	Technical Advisor
	Mr Esegiel Gaeb	Namibia Institute of Pathology	Senior Manager
	Mr Boniface Makumbi	Namibia Institute of Pathology	Quality Assurance
	Dr. Farai Mavhunga	National TB Control Programme	Chief Medical Officer
	Ms Sarah Tobias	DSP / HIV	STI Programme Coordinator
	Ms Wilhelmina Kafitha	DSP / HIV	OIs and PC Programme Coordinator
	Ms Penny Uukunde	National TB Control Programme	TB Combi Coordinator
	Ms Naita Nghishekwa	Ministry of Health and Social Services	Pharmacy Coordinator
	Mr Souleymane Sawadogo	CDC	
	MS Claudia Mbapaha	Ministry of Health and Social Services	HIV Qal Officer
	Ms Benetha Bayer	Ministry of Health and Social Services	SHPA
	Ms Hilma Ipinge	National TB Control Programme	National TB Coordinator
	Dr. Omer Ahmed Omer	KNCV TB Foundation	TB/HIV Technical Advisor
	Ms Gertrude Platt	National TB Control Programme	SHPA

Seychelles			
	Abdul Aziz Ebrahim	Clinical Lab, Microbiology Unit	Principal Laboratory Technician
	Asihok Inamdar	Clinical Lab, Microbiology Unit	Director
	Luzile De Domarmond	Pharmaceutical Services	Director
	Rosie Bistoepeut	HIV/AIDS Control Programme	Director
	Mr Justin Freminot	CDCU	NTP Manager
	Dr. Louine Morel	CDCU	Senior Medical Officer
	Mr Daniella Lare	Health Services Agency	Chief Executive Officer
	Georgette Fyrneal	CDCU	Nurse Manager
	Dr. Hareh Jivan	Private Practitioner	Consultant Physician
	Ms Winnie Course	CDCU	Senior Staff Nurse
	Mary Khan	CDCU	Nursing Officer
	John florentine	CDCU	Pharmacy Technician
	Dr. Jastin Bibi	CDCU	Director of Communicable Diseases / Epidemiologist
	Jeanine Foure	CDCU	Nursing Officer
South Africa			
	Dr. Lindiwe Mvusi	NDOH	Director DOTS (NTP Manager)
	Mr Loykissonbd Dayanund	NDOH	Director HIV Prevention
	Dr. Norbert Njeka	NDOH	Director MDR-TB Control
	Heleane Zeema	NDOH	Director Affordable Medicines Pharmacist/ Procurement officer
	Khadidja Jamaloodien	NDOH	Chief Pharmacist
	Phuti Moloko	NDOH	Deputy Director, Pharmacy Office
	Dr. Thuthula Balfour-Kajija	Chamber of Mines	Medical Director
	Dr. Linda Erasmus	NICD	Deputy Director NHLS/ NICD hospital
	Dr. Kaplesh Rahelar	WHO	TB Medical Officer
	Dr. Kgomotso Vilakazi	NDOH	TB/HIV Medical Doctor
Swaziland			
	Rejoice Nkambule	Ministry of Health	Deputy Director of Health Services (Public Health)
	Themba Dlamini	Ministry of Health	NTP Manager
	Tibuyile Sigudla	Ministry of Health	Pharmacist



	Prudence Gwebu	Ministry of Health	Pharmacist
	Dr. Mohammed Kamal	TB Hospital	Acting SMO
	Dr. Kefas Samson	WHO/TB	Medical Officer
	Sr KM Nkhabindze	TB Hospital	Nursing Sister
	Matron AK Motsa	TB Hospital	Matron
	Sr Nqobile Shabangu	TB Hospital	Nursing Sister
	Sr Thandie Zikalala	TB Hospital	Nursing Sister
	Sister Nkosinathi Mawanyana	TB Hospital	Nursing Sister
	Happy Tsabedze	TB Hospital	Administrator
	Nwalanla Nhlabatsi	Ministry of Health	Epidemiologist
	Thembisile Khumalo	Ministry of Health	Chief Nursing Officer
	Dr. Ching Ching Dlamini	Ministry of Health	Director: Health Services
	Dr. Zerihun Tefera	Doctors without borders	Medical Coordinator
	Makhosazana Makhanya	CDC / PEPFAR	Laboratory Specialist
	Yoannes G. Ghebreyesas	URC	MDR-TB Advisor
	Samson Haumba	URC	Country Director
	Various	MSF	Project Staff
	Various	Red Cross	Mahwalala Red Cross Clinic
	Various	Ministry of Health	Procurement in Central Medical Stores
	Various	Ministry of Health	Mbabane TB clinic in the hospital
Tanzania			
	DR. S. Egwaga	NTPL	Manager
	Dr. N. A. Singano	RTL	Not Available
	Mr. Jerome Ngowi	MUHAS	Pharmacist
	Ezekiel D. Wilddemart	T/N	TB
	Hadija L. Masila	S/N	Midwife/Dot Nurse
	Mohamed Kunami	Kibaha District Hospital	TBL officer
	Dr. Johnson Lyimo	NTLP	Programme Officer
	Mr. Beatus Msoma	MSD	Co-coordinator Vertical Programmes
	Dr. Kaganda Onesmo	Mission Mikochei Hospital	Chief Medical Officer
	Timothy Chonde	National TB Reference Lab	Chief Lab Technologist

Zambia			
	Cathy Thompson	FHI / ZPCT	COP
	Amos Nota	FHI / TB CAP	TB/HIV Community Mobilisation Technical Officer
	Seraphine Kabanye	FHI / TB CAP	Project Director
	Chitambeya Mykwangde	FHI / TB CAP	Programme Officer
	Malukutu Forrat	MOH HQS	TB/LEP Programme Officer
	Peter Chunguld	ZAMBART	Programme Manager (STAMPP)
	Helen Ayles	ZAMBART	Director
	Rosemary Kabwe	CHAZ	Acting
	Dhally Menda	CHAZ	Health Programmes Manager
	Alwyn Mwinga	CDC	Adjunct Director
	Namushi Mwananyambe	CDC	TB/HIV Specialist
	Maurice Mwanza	CDC	Laboratory Specialist
	Victoria B Sibale	Mateso Main Clinic	ART in charge
	Shellina Mwansee	Matero Main Clinic	TB Nurse
	Nawina Dimona	Kanyama Clinic	TB Focal Person
	Victoria Ndhlovu	Kanyama Clinic	Sister in charge
	Lutinala Nalomba Mulenga	Chest Disease Laboratory	Biomedical Scientist
	Davies Chisenga Kalunga	Chest Disease Laboratory	Biomedical Scientist
	Nweemba Muvwimi	Chest Disease Laboratory	Principal Biomedical Scientist
	Dr. Callistus Kaayanga	Ministry of Health	National TB/HIV Programme Medical officer
	Rose Masilani	Ministry of Health	Health Education Officer
	Albert Mwango	Ministry of Health	National ARV Programme Coordinator
	David Syamutondo	RIT/JATA	Project Assistant
	Aya Kayebeya	RIT/JATA	Office Representative
	Alice H Nyumba	RIT/JATA	ACFM Nurse
	Rosenah S Chisampa	RIT/JATA	ACFM Nurse
	David Mondoka	RIT/JATA	ACFM Nurse
	Pascalina Chanda	Ministry of Health	Principal Surveillance and Research Officer



Zimbabwe			
	Jonathan Whande	Ministry of Health	Deputy Director: Laboratory Services
	Barnel Nyathi	TB-CAP/The Union	Senior Technical Officer
	Dr. D Rios	CDC	Senior Technical Officer
	Dr. SN Zichawo	ZIMA	National Treasurer
	Dr. T Bwakura	ZIMA	Secretary General
	C Mwaramba	NATPHARM	Operations Manager
	C Kaseke	City Health: BRIDH	Sister in charge
	P Matimbe	City Health: BRIDH	Acting Hospital Matron
	Paolo Barduagni	European Commission	Health Adviser
	Dr. G Gwinji	Ministry of Health and Child Welfare	Permanent Secretary
	Dr. H Madzorera	Ministry of Health and Child Welfare	Minister of Health
	Mrs R Hove	Ministry of Health and Child Welfare	Director: Pharmacy
	Dr. O Mugurungi	Ministry of Health and Child Welfare	Director: AIDS and TB
	Mr R Chiteure	CCM-Secretariat	Coordinator
	Misheck Ndlovu	Ministry of Health and Child Welfare	Supply Chain Management Coordinator
	Evangelista Chisakaitwa	Ministry of Health and Child Welfare	TB Data Officer
	N Siziba	Ministry of Health and Child Welfare	TB Monitoring and Evaluation Officer
	Dr. GN Mutetse	Ministry of Health and Child Welfare	TB/HIV and DR-TB



Directorate of Social & Human Development & Special
Programs SADC Secretariat

Private Bag 0095

Gaborone, Botswana

Tel: (267) 395 1863

Fax: (267) 397 2848

Email: registry@sadc.int

Website: www.sadc.int

ISBN: 978-99968-0-124-2

