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Abbreviations and acronyms:

ACSM - Advocacy Communication and social Mobilization
ACSM - Advocacy Communication and social Mobilization
AFB - Acid Fast Bacilli
AFB - Acid Fast Bacilli
ART - Antiretroviral Therapy (and ARVs, Antiretroviral Drugs)
ART - Antiretroviral Therapy (and ARVs, Antiretroviral Drugs)
BCG - Bacille Calmette Guerin vaccine
BCG - Bacille Calmette Guerin vaccine
CDR - Case detection Rate
CDR - Case detection Rate
CHEWS - Community Health Extension Workers
CHEWS - Community Health Extension Workers
CHW - Community Health Worker
CHW - Community Health Worker
CNR - Case Notification Rate
CPT - Co-trimaxazole Preventive Therapy
CPT - Co-trimaxazole Preventive Therapy
CRL - Central Reference laboratory
CRL - Central Reference laboratory
CSO - Civil Society Organizations
CSO - Civil Society Organizations
CXR - Chest X-Ray
CXR - Chest X-Ray
DHMT - District Health Management Team
DHMT - District Health Management Team
DLC - District Laboratory Coordinators
DLC - District Laboratory Coordinators
DLLC - District Lung and Leprosy Coordinators
DLLC - District Lung and Leprosy Coordinators
DLTLD - Division of Leprosy, Tuberculosis and Lung Disease
DLTLD - Division of Leprosy, Tuberculosis and Lung Disease
DOTS - Directly Observed Treatment Short course
DOTS - Directly Observed Treatment Short course
DRS - Drug Resistance Surveillance
DRS - Drug Resistance Surveillance
DR-TB -Drug Resistant TB
DST - Drug Sensitivity Testing
DST - Drug Sensitivity Testing
DTLC - District Tuberculosis and Leprosy Coordinator
DTLC - District Tuberculosis and Leprosy Coordinator
EPTB - Extra-pulmonary Tuberculosis
EPTB - Extra-pulmonary Tuberculosis
GFATM - Global Funds for AIDS, Tuberculosis and Malaria
GFATM - Global Funds for AIDS, Tuberculosis and Malaria
GOK - Government of Kenya
GOK - Government of Kenya
HMIS - Health Management Information System
HMIS - Health Management Information System
HSSP II - Health sector Strategic Plan I
HSSP II - Health sector Strategic Plan I
IC - Infection Control
IC - Infection Control
ICF - Intensive Case Finding
ICF - Intensive Case Finding
INH - Isoniazid
INH - Isoniazid
IPC - Infection Prevention Control
IPC - Infection Prevention Control
IPT - Isoniazid Preventive Therapy

IPT - Isoniazid Preventive Therapy
KEMSA - Kenya - Medical Supplies Agency
KEMSA - Kenya - Medical Supplies Agency
Ksh - Kenya Shilling
LMIS - Logistic Management Information System
LMIS - Logistic Management Information System
M&E - Monitoring and evaluatiom
MDR TB - Multi Drug resistant Tuberculosis
MDR TB - Multi Drug resistant Tuberculosis
MMR - Maternal mortality Rate
MMR - Maternal mortality Rate
MOMS - Ministry of Medical Services
MOMS - Ministry of Medical Services
MOPHS - Ministry of Public Health and Sanitation
MOPHS - Ministry of Public Health and Sanitation
NASCOP - National HIV/AIDS and STI Control Program
NASCOP - National HIV/AIDS and STI Control Program
NVP - Nevirapine
NVP - Nevirapine
OR - Operations Research
OR - Operations Research
PAL - Practical Approach to Lung Health
PB - Pauci Basciliiary
PB - Pauci Basciliiary
PDA - Personal Data Assistant
PDA - Personal Data Assistant
PI - Protease Inhibitors (anti retroviral drugs)
PLHA - People Living with HIV and AIDS
PLHIV - People Living with HIV and AIDS
PTLC - Provincial Tuberculosis and Leprosy Coordinator
PTLC - Provincial Tuberculosis and Leprosy Coordinator
RLLC - Regional Lung and Leprosy Coordinator
RLLC - Regional Lung and Leprosy Coordinator
SLDs - Second Line Drugs
SLDs - Second Line Drugs
SO - Sub objectives
SSM - Sputum Smear Microscopy
SSM - Sputum Smear Microscopy
USD - United States Dollar
ZN - Ziehl-Neelsen staining
ZN - Ziehl-Neelsen staining

Abbreviations of anti-tuberculosis drugs

Ami	Amikacin
E	Ethambutol
Eth	Ethionamid
H	Isoniazid
Lfx	Levofloxacin
Ofx	Oflaxacin
PAS	Para-ammosaligahaacid
Pt	Prothinamude
R	Rifampicin
S	Streptomycin
Z	Pyrazinamide

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The Division of Leprosy, Tuberculosis and Lung Disease (DLTLD) has provided the framework on which many stakeholders have worked to produce a new five year comprehensive strategic plan. This plan is the national response to leprosy, tuberculosis and lung disease, which will go into effect from 2011 to 2015. Many individuals and organizations have contributed immensely to the development of this plan by providing time, technical expertise and finances. In particular the following organizations deserve special mention and deeply felt thanks for their contribution in the development of this strategic plan:

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- Tuberculosis Control Assistance Programme (TBCAP) - Kenya
- United States Agency for International Development (USAID)
- ICF MACRO International
- Royal Netherlands Tuberculosis Foundation (KNCV)
- International Medical Corps (IMC)
- Management Sciences for Health (MSH)
- African Medical Research Foundation (AMREF)
- Malteser
- Programme for Appropriate Technology in Health (PATH)
- Kenya Association for the Prevention of Tuberculosis and Lung Disease (KAPTLD)
- Kenyatta National Hospital (KNH)
- Kenya AIDS NGOs Consortium (KANCO)
- Kenya Medical Research Institute (KEMRI)
- Medicin's San Frontieres – France (MSF- France)
- Centers for Disease Control and Prevention (CDC)
- International Organization for Migration (IOM)
- Japanese Agency for Cooperation (JIC A)

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September **2010**

PREFACE

Kenya is looking at a new dawn of Tuberculosis and Lung Disease control. How the "day" progresses will determine how the nation suffers or is spared from the diseases. As a country we have made good progress on many of the targets we set five years ago, and for that many thanks and congratulations are due. But we must not be too satisfied. There is a very serious situation in relation to HIV and TB continuing in this country. Multi-drug resistant tuberculosis is growing but can still be slowed with effort, resources and determination from everyone.

Leprosy may be at its sunset, but this too will depend on how intensive we can all work towards the elimination of this disease from the areas where it is still common. Leprosy post elimination activities will be rolled out much more aggressively so as to ensure that pockets of leprosy still available are mopped up in an effort towards eradicating leprosy in Kenya. Since leprosy is only endemic in less than 15 districts in Kenya and the cases are less than 300 per year, increased efforts is expected to yield much fruit.

This Plan builds on all previous Plans as implemented in Kenya over the past 20 years. It continues work of the last generation and adds significant new areas including: childhood TB, Special Groups, Poverty and Gender, Public Private Patient Partnerships Mix, and Lung health.

A major new focal area for Kenya will be streamlining and mainstreaming management and control of lung diseases and in particular, laying the ground work for control of Asthma, COPD and tobacco related diseases. These will be defined and we will build on existing goodwill, expertise, resources and previous achievements towards ensuring that she moves closer to meeting the Millennium Development Goals.

The tasks contained in this Plan will require immense effort from many individuals, communities and institutions. These are not activities that can be accomplished without strong cooperation and team work. Kenya will need all the support from friends and partners over the coming years if we are to avoid a catastrophe.

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EXECUTIVE SUMMARY

Kenya has a large burden of TB. Over the period covered by the strategic plan 2006-2010, there were more than 110,000 cases of TB notified every year, and about 44 per cent of these cases were HIV infected. The WHO estimated that there were at least 2000 cases of MDR-TB in 2009, of whom only 7.5% (150) cases have been identified and notified. Kenya has identified and notified one case of XDRTB who was initiated on treatment but unfortunately died of the disease while on treatment. Among the MDR-TB cases, a total of 110 patients have been initiated on treatment. Of these 19 have been cured, 20 have defaulted or died, and the remainder are still on treatment. Children continue to carry a large burden of TB morbidity and mortality (about 12% of the total burden is in children under 15), and yet specialists available to treat them are few and the capacity to diagnose them properly remains limited.

The optimal care and control of TB is dependent on functioning laboratory systems. Although the laboratory network in Kenya has been growing, Kenya needs many more facilities and well-trained staff to run them to provide an optimal TB care and control service. In support of the provision of quality TB care, attention must also be focused on improving laboratory management, adapting new technologies for speeding up and improving quality of culture and DST diagnostics, improving the laboratory logistics and commodity management chain.

Despite the many challenges, Kenya has made great progress in meeting TB control targets over the last few years. However many hurdles remain and the reduction of the TB disease burden will continue to be a challenge in the coming five years. Although leprosy is in the post-elimination stage, it continues to be a burden in certain parts of the country. Other lung diseases are becoming increasingly common, accounting for as much as 30% of outpatient care attendees as well as contributing to inpatient morbidity and mortality in all communities.

The previous DLTLD TB care and control strategic plan covered the period of 2006-2010 and was modelled around WHO's Stop TB Strategy. The vision was to work towards rendering Kenya a TB free country in which TB no longer poses a public health threat. The strategies outlined in the plan were aimed at ensuring that comprehensive, affordable and accessible packages of TB and leprosy interventions are offered to all Kenyans irrespective of age, gender and geographic location. The immediate priorities included ensuring that high quality DOTS services are universally accessible, so as to ensure early TB case detection, initiation of treatment and achievement of high treatment outcomes. This was expected to ensure interruption of transmission and reduced risk of development of drug resistant TB.

During the implementation of the previous strategic plan, Kenya attained the global targets of 70% TB case detection and 85% treatment success rates. Among the key targets of the previous TB strategic plan were to test at least 80% of all TB patients for HIV, to provide co-trimaxazole to at least 90% of HIV infected TB patients, to provide ART to not less than 50% of HIV infected TB patients and to screen for TB not less than 50% of HIV infected persons. All these targets were achieved except the targets related to ART provision to HIV infected TB patients and screening of HIV infected persons for TB. Another key was target was to keep MDR-TB at or below 1% of all smear positive PTB and provide standardized second line treatment to all identified MDR-TB patients with a success rate of more than 70% thereby preventing the emergence of XDR. It is unclear if this target was achieved.

This document contains the results of the Division’s effort to craft a vision, mission, strategic objectives and key activities for the care and control of TB, leprosy and lung disease for the next five years. The process of developing the National Strategic Plan began in late 2009 and has involved many players and organizations. The last plan (2006-2010) reflected the work of several new partners and required significant scale up of personnel to meet the plan’s objectives. Although the DLTLD and its partners believe the targets established in the

previous plan have been met or exceeded, much more needs to be done to sustain the gains made and to begin to move the country towards TB elimination. The control of non-TB lung disease was not covered in the previous plan and is now included in this plan.

Kenya will be guided by the Stop TB Strategy for its TB care and control activities. The Stop TB strategy is a continuously evolving TB care and control approach that identifies and target, vulnerable groups for TB care and control. Some of the strategies that this plan sees as vital to progress include community-based DOTS, more intensive and focused active case finding, increasing contract tracing and enhanced systems to support patient adherence to treatment.

The development of this strategic plan was based on a participatory approach by a large number of stakeholders. At the first of three large, participatory stakeholder meetings in March 2010, specific thematic areas were identified. Formal working groups focusing on these thematic areas may evolve in the future. Table ES1 lists the thematic areas.

Table Executive Summary 1

1	*Core TB Case Detection and Management*
2	*Laboratory*
3	*Logistics and Commodities*
4	*TB/HIV*
5	*MDR-TB*
6	*Childhood TB*
7	*Special Groups*
8	*Health System Strengthening and Human Resources*
9	*Lung Health*
10	*PPM*
11	*Health promotion*
12	*Community based TB care*
13	*Poverty and Gender*
14	*Leprosy*
15	*M&E and Operations Research*

Between 4 and 8 persons were selected to work in each thematic area with each group appointing a leader or coordinator. Each group worked on their specific thematic area throughout the development of the Plan. The development of strategic objectives (SO) began with brainstorming sessions by each group to critically identify the challenges facing each area and to formulate a draft upper level strategic objective which was then finalized in plenary discussions. The final SOs are presented in Table ES2.

Table Executive Summary 2: Strategic Objectives for 15 Thematic Areas.

1. To sustain high quality DOTS expansion and enhancement in case finding, case notification and case holding modalities to ensure all TB patients have access to optimal TB diagnosis, care and treatment.
2. To strengthen and sustain accessible, quality assured bio-safe TB bacteriology (including use of new technologies) for early diagnosis, monitoring, surveillance and management of tuberculosis and other lung diseases
3. To strengthen the TB, L &LD commodity management system and ensure access to and

	rational use of high quality medicines, laboratory supplies and equipment and other health related products.
4.	To ensure TB/HIV co infected patients and suspects receive quality and comprehensive TB/HIV care and treatment.
5.	To strengthen DR TB diagnosis, prevention, care, treatment and support.
6.	To strengthen the diagnosis and management of TB, TB / HIV, and chronic lung diseases in children so as to sustain high quality DOTS expansion and enhance case finding, case notification, case holding and improve care of other lung diseases.
7.	To improve access to TB, leprosy and lung health services for all special groups
8.	To contribute to the strengthening of the health system to improve TB, Leprosy and Lung Disease service delivery.
9.	To promote provision of quality, accessible and affordable health care for patients with respiratory illnesses including asthma, COPD and tobacco related lung diseases.
10.	To engage and network all health care providers and stakeholders for provision of standardized quality lung health care.
11.	To promote response to TB, leprosy and lung diseases by creating an enabling environment for behavior change, sustainable resource allocation and partnership at all levels.
12.	To increase the level of community involvement in provision of quality TB, Leprosy and lung health services
13.	To promote equitable access to tuberculosis care by implementing the TB & poverty / Gender initiative strategy
14.	To ensure early case detection, improved recording, reporting and treatment completion of all diagnosed leprosy cases.
15.	To improve, expand and use strategic information system to enhance linkages between all the program areas to strengthen program performance

Each team then developed more detailed sub-objectives and activities for each SO. Milestones and indicators were then developed to form part of the overall monitoring and evaluation plan. As part of the development of this strategic plan is the elaboration of an M&E Plan, which will be scheduled for launch a few months after this strategic plan has been accepted and launched in Kenya.

With the restructuring of the original MOH in 2008, the DLTLD was positioned within the Ministry of Public Health and Sanitation (MOPHS) with many formal and informal linkages to the Ministry of Medical Services (MOMS). The rapid growth of the Division means there are strains in terms of space and support staff, both in the regions and at headquarters in Nairobi.

The Division is adapting its focus to strengthening TB case finding and case holding of all TB cases in the country, while also working to raise the quality and efficiency of its services. To uplift the quality and efficiency of TB care and control services will require working within a strengthened health care system. Thus Health system strengthening is one of the 15 themes in this Plan. A major component of health care system strengthening revolves around human resource development including understanding and addressing the needs, of the growing workforce that is working on this epidemic.

Tuberculosis service provision is not limited to the public health care sector. The national health system includes private and faith based service providers. Linkages with these sectors are essential for the achievement of national TB care and control targets. As such there continues to be many efforts to bring private and faith based organizations into the network of providers offering TB care and control services that are in line with national policies. This effort will be aided by the formation of the National Stop TB Partnership expected to be fully operational by 2011. The membership of the national Stop TB Partnership will be wide to include the Kenya government agencies, donor agencies, international technical agencies, private health care institutions, communities and civil society organizations, the corporate sector and the media among others. It is hoped that this partnership will create a movement

of organizations with individuals committed to the elimination of TB as a public health problem in Kenya.

Included in this plan is a summary of the conditions that need to be present for the success and sustainability of TB care and control in Kenya. There are, naturally, concerns about the financial sustainability of a program of this size especially as the focus may be shifting from disease specific programmes to overall health care system support. The successful implementation of this strategic plan is expected to result in the decline in TB incidence in Kenya. This may result in shrinkage of the financial envelope available for TB care and control which could erode the gains made and lead to a resurgence of the disease. Continued optimal funding and technical support are two essential factors which will be needed for the successful implementation of this strategic plan. Other essential elements that will be needed for this plan to be successfully implemented include staff, national and regional stability, political will and support, a favorable organizational environment and leadership.

A final stage in the development of the plan involved a major costing activity. Using the WHO budgeting tool, the Division costed all relevant activities under each thematic group using current costs as the basis of the cost estimates. The summary budget showing each strategic objective and all sub-objectives is presented in Chapter 8. It is estimated that a total of Ksh 21.9 billion Shillings or USD 292 million (or USD 55 - 60 million per year) will be required over the five year period covered by this plan to mount the TB care and control interventions and achieve the outcomes outlined in this plan.

Kenya continues to be highly dynamic politically and administratively. In August 2010, the people of the Republic of Kenya voted, in a national referendum, in favor of a new constitution. The constitution created new administrative units in the form of Counties and will also lead to the creation of new electoral areas. The processes of development, enactment and implementation of the new constitution coincided with the development of this strategic plan and created challenges in the naming of administrative and electoral areas. It should be noted that as much as possible the terminology and names used in this plan are in tandem with the language of the new Constitution that governs Kenya. Where old terminology is used, this will be referring to older data that accrued before August 2010.

CHAPTER 1: Introduction and Background:

1.1 Introduction:

Kenya still faces considerable challenges in its efforts to reduce the burden of tuberculosis (TB), despite the excellent progress in meeting WHO targets over the last few years. While leprosy is in the "post-elimination" stage[1], it continues to be a burden in some endemic districts, and has the potential to re-emerge if support systems for efficient diagnosis and treatment of patients are not enhanced and sustained. Consequently, more focused resources are needed to further reduce the leprosy burden and sustain leprosy control activities.

Non-TB Lung diseases are rapidly increasing their grip on the country and have become a significant drain on the human and financial resources in the health sector. Diseases like asthma, COPD and other upper and lower respiratory infections may represent as much as 30% of outpatient care as well as contribute to inpatient morbidity and mortality in all communities. For example, it is estimated that about 3.6 million people in Kenya (10% of the population) suffer from Asthma. The scanty information available indicates that asthma is a common disease affecting up to 10% of urban children in the age group of 9-14 years. Some hospital studies indicate that asthma is the most common reason for emergency room visits among adults. Indeed, asthma is a chronic disease most commonly causing absence from school and is therefore a major public health problem in this country with individual, family and societal consequences. Despite this growing concern for lung diseases, not much is known and this forms one of the critical areas that this strategic plan will address.

Kenya has a large burden of TB. Over the period covered by the previous strategic plan there were more than 110,000 cases of TB notified every year and about 44 per cent of these cases were HIV infected. The WHO estimated that there were at least 2000 cases of MDR-TB in 2009, of whom only 150 (7.5%) cases have been identified and notified. Kenya has identified and notified one case of XDRTB who was initiated on treatment, but unfortunately died. Among the MDR-TB cases, a total of 110 patients have been initiated on treatment. Of these 19 have been cured, 20 have defaulted or died, and the remainder are still on treatment. Children continue to carry a large burden of TB morbidity and mortality (about 12% of the total burden is in children under 15), and yet specialists available to treat them are few and the capacity to diagnose them properly is limited.

The optimal care and control of TB is dependent on functioning laboratory systems. Although the laboratory network in Kenya has been growing, Kenya needs many more facilities and well-trained staff to provide an optimal TB care and control. In support of the provision of quality TB care, attention must also be focused on improving laboratory management and laboratory logistics and commodity management chain.

The Government of Kenya launched, through the NHSSP II (2005-2010), a Community Health Strategy in 2006. This document emphasizes the roles that communities must take for their own health and defines the need for Community Health Extension Workers (CHEWs) at this basic level (level 1) of care. However, many more resources will be necessary to fully implement this strategy.

Kenya has populations that are at higher risk of acquiring tuberculosis disease than the general population. This plan will address the needs of some of these groups that include – the prisoners, the prison wardens, nomadic communities, the migrant workers, the transport workers and those living in densely congregate settings (slum dwellers). Special resources

[1] Definition of post elimination phase: prevalence rate of less than 1 per 10,000

will be needed to support systems to increase identification, treatment and follow up of these challenging cases and prevent further spread of infection.
This document contains the results of the Division's effort to craft a vision, mission, strategic objectives and key activities for the care and control of TB, leprosy and lung disease in the next five years. The process of developing the National Strategic Plan began in late 2009 and has involved many players and organizations. The last Plan (2006-2010) reflected the work of several new partners and required significant scale up of personnel to meet the plan's objectives. DLTLD and its partners believe the targets established in that Plan have been met or exceeded, but there remains much more to be done to sustain the gains met and to begin to move the country towards TB elimination. The control of non-TB lung disease was not covered in the previous plan and is now included in this plan.

Kenya will be guided by the Stop TB Strategy for its TB care and control activities. The Stop TB Strategy is a continuous evolving TB care and control approach that identifies and targets vulnerable groups for TB care and control actions. Some of the strategies that this plan sees as vital to progress include community-based DOTS, more intensive and focused active case finding, increasing contact tracing and enhanced systems to support patient adherence to treatment.

Many Kenyans, particularly those in the upper wealth levels and who live in urban areas access their health care through the private sector, either via private providers or through private hospitals. In Nairobi, about 10% of the TB notifications come through the Private Sector, while the DLTLD estimates that approximately 2% of the rest of the country's TB care is delivered through the private sector. This number is not known exactly, but access to free treatment through the Public Sector facilities has certainly meant that many people who would otherwise visit the private sector first, are now coming through the public sector for their TB care and treatment, even if they were initially diagnosed in a private clinic or hospital. The Division intends to support the private sector's strengths and use a stronger mix of public- private collaborations to enhance TB care and control.

The Division will focus renewed attention and resources on advocacy and improved communication in all aspects of its work. This is needed at the national policy level as well as throughout society to engage decision makers, support behavior change and increase awareness of TB prevention, lung disease activism and elimination of leprosy at community level.

This plan has integrated operational research (OR) in most of the thematic areas. The OR is intended to have a positive role towards the evaluation of disease prevention, treatment and control.

The Strategic Plan (2011-2015) contains several sections: the Division's history, the national context and institutional framework sections and the central body which includes; 1. The Strategic Objectives which, if achieved will contribute to the overall mission of the country. 2. The Sub-objectives that support the strategic objectives and 3. The main activities which if implemented will make the sub-objectives achievable.

Attached to the sub- objectives and the selected activities are indicators which will be used to measure the progress of implementing this plan. Finally, using the plan and the activities listed as key to successful implementation is a summary budget (chapter 8). The first year's Annual Operating Plan (2011) is also linked to this document and its development is a function of the development of this National Plan. A final section of this plan contains a review of the conditions for success of the whole program and of its sustainability.

1.2 Background: The Country

The Republic of Kenya, a multiparty democracy, is a diverse and complex geo-political entity, with sections of the population still living in deep poverty (approximately 50%), but with a significant proportion of the population, mostly urban, clearly developing rapidly and emerging from poverty into middle class.

The recently released 2009 population census placed Kenya population at 38.7 million with most populous regions being Rift Valley (10 million), Eastern (5.6 million), and Nyanza Provinces (5.4 million). About 42% of the population is less than 15 years old. The urban population is rapidly increasing and is currently estimated at 22% of the population. Life expectancy is 52 for men and 55 for women and has continued to improve as AIDS and TB treatment and support has been strengthened in the country alongside other health improvements.

Table 1 General Summary Statistics on Kenya

GENERAL	**KENYA**
POPULATION DYNAMICS:	
Total Population:	38.7 million
% Under 15 Years Old	42%
% Female	51%
%Urban	22%
Births	1.5 million
Life Expectancy	53 years
Annual Population Growth	2.8%
SOCIO-ECONOMIC FACTORS	
Per Capita GDP	$360
Annual Economic Growth	10%
Adult Literacy	74%
HEALTH SYSTEM	
Financing:	
Total Health Expenditure Per GDP	4.6%
Health Facilities:	4767
Dispensaries	3514
Health Centers	691
Hospitals	562
Human Resources:	
Physicians	17 per 100,000 population
Nurses	120 per 100,000 population
HEALTH	
Total Fertility	4.6 per woman
Adult HIV Prevalence	7.1%
TB Incidence	353 per 100,000 population
Population At Moderate-High Risk for Malaria	5.6 million
Neonatal Mortality	31 per 100,000 live birth
Infant Mortality	52 per 100,000 live birth
Under-Five Mortality	74 per 100,000 live birth
Maternal Mortality	488 per 100,000 live births

Table 1: Kenya Data Snapshot[2]

[2] Sources of data

Ministry of Public Health and Sanitation (MOPHS), Division of Leprosy, Tuberculosis, and Lung Disease (DLTLD), *Annual 2008 TB report* ; National Bureau of Statistics (KNBS), Census 2009, Ministry of Public Health and Sanitation (MOPHS), and ORC Macro September 2009. *Kenya Demographic and Health Survey 2008/9 (preliminary report);* Kenya National Coordinating Agency for Population and Development (NCAPD), ORC Macro 2009; *Kenya Service Provision Assessment Survey 2004*. Nairobi, Kenya. National Coordinating Agency for Population and Development, Ministry of Health, Central Bureau of Statistics, and ORC Macro; NASCOP K*enya AIDS Indicator Survey* 2007; Noor AM, Gething PW, Alegana VA. Malaria infection risk in Kenya in 2009. *BMC ID* 2009; 9:180; *World Health Statistics: 2009*

1.3 Geography

Kenya's geography influences its settlement and development patterns, and in particular its rapid urban growth. These social factors contribute to the risk of TB transmission in various populations. They also determine the patterns of health care delivery, the nature of transport networks and the socio-economic status level within populations. Geography and climate also influence risks for acquiring leprosy and lung diseases.

There are approximately 9 million Kenyans living in urban areas, of these about 3.7 million live in Nairobi. It is predicted that this will increase to 6 million by 2025. Although Nairobi is large, the fastest growing areas in Kenya are the smaller urban cities such as Mombasa, Kisumu, Eldoret and Nakuru. In addition to these cities there are some rapidly urbanizing zones around towns such as Nyeri, Kajiado, Malindi, Kericho and Busia with a similar trend. Kenya's urbanization, estimated at about 8% per year, is due to various reasons, including the continuing high birth rates and the natural growth of the urban population. The rural-urban migration occurring in response to influences such as drought, conflict and rural poverty is also important. A majority of new migrants to the urban areas live in temporary or informal settlements which are densely populated - greatly contributing to the risk of TB transmission. Uncertain employment and poor wages among the migrants may also contribute to malnutrition leading to the risk of acquiring TB disease. In these urban set ups, behavioral risk factors such as those related to alcohol or drug use are common. This may lead to the risk of malnutrition, the increased likelihood of HIV infection and poor TB treatment adherence of patients involved in this behaviour. All these eventualities affect TB care and control.

Kenya has long and open borders. Cross-border migration for various reasons takes place at multiple points among legal and illegal groups looking for work or safety. Each of the countries bordering Kenya have different risk levels for TB transmission in their populations. The risk to Kenya from these diverse communities is considerable, resulting to efforts being directed towards provision of TB treatment among the migrants and the enhancing of strategies for preventing further deterioration of the situation.

Eighty percent of Kenya's land mass is classified as arid or semi-arid and is mostly the northern districts –the North eastern province,, upper Eastern Province, and the northern part of the Rift Valley province – Turkana and Samburu Districts. The communities that live in these areas carry approximately 10 percent of the country's TB burden. Their risk of TB is largely a function of their environment and their nutrition status (often poor or fluctuating with serious drought and security issues), but it is increasingly being influenced by HIV, which is generally low in prevalence now but rising in all these areas of the country. These hard-to-reach communities need tailored interventions.

Leprosy infection risk is elevated in two areas of the country – Coast and Western Provinces. The humid climate and poverty in these areas strongly influence the risk of leprosy (Hansen's Disease) being spread person to person, as well as spread from the natural source – armadillos. These are common in Coastal Province in particular.

1.4 Economy and Development

Kenya has a mixed market-based economy, and at present the country has one of the best-performing economies in the East African region. From the early 2000 and as reforms made at the macro and micro level started to take hold, the economy began to grow, moving from an average of 1.4 percent in 2003 to nearly 6 percent in 2006. Despite the global economic downturn Kenya retained a growth rate of about 4.5% in 2009. Although there are different interpretations and predictions for the country, if the growth stays on target, Kenya may achieve middle-income-country status within a decade or so. The Kenyan government, with a

variety of partners and donor organizations, is investing heavily in infrastructure development and in the provision of basic services. This appears to be paying dividends as the country is slowly, reducing its poverty levels, at least in parts of the country. Current estimates are that Kenya will not be able to meet all its targets for the MDG, but it is predicted that the country will make considerable progress towards some of them.

However, while the combination of growth and macroeconomic stability has led to some poverty reduction over the past 10 years, chronic and even deepening poverty persists in parts of the country. So while the statistics look impressive at one level, there are also worrying indicators of the widening gulf between the richer and poorer segments of the country. This is especially clear in the largely unplanned urban zones, but there are also several rural areas where poverty levels remain unchanged. These are the zones which continue to be high risk areas for tuberculosis.

Kenya's main income earners, according to the Central Bank, are tourism, telecommunications, transport and construction. There has been some recent recovery in agriculture. The Central Bank forecast for 2010 is for a growth rate of between 4 and 5 percent. The GDP composition by sector is: agriculture, 25.7 percent; manufacturing, 14.0 percent; trade, restaurants and hotels, 13.8 percent; transport and communications, 6.9 percent; government services, 15.6 percent; and other, 24.0 percent (2007). The country is often regarded as one of the region's main hubs for financial, communication and transport services.

By 2006, Kenya's labor force was estimated to include about 12 million workers, with almost 75 percent of those in agriculture. In 2004 about 15 percent of the labor force was officially classified as unemployed. Other estimates place Kenya's unemployment rate at a much higher level of up to 40 percent. Again, the variations across Kenya in terms of employment make any generalizations hard to make, but there is no doubt that many of the features of Kenya's large informal sector influences both the risk of TB and the problems associated with trying to treat the many cases that come form the informal sector. Full compliance with DOTS, for example, by a part time bus driver or a woman with a job in a market stall is extremely difficult and can explain some of the observed adherence challenges faced by those with temporary work.

1.5 Health Policy and the Kenyan Health Sector

In Kenya health care is delivered by both the public and private sectors with the public sector accounting for about 60% of outpatient services. The public health care system is organized in a hierarchical manner with two national referral hospitals to regional, district and sub district hospitals to health centers, dispensaries and health posts. Efforts are being made to strengthen community structures and to empower communities to take charge of their health needs. The National Health Sector Strategic Plan II (NHSSPII) outlines an essential health package that the health care system is meant to provide. The provision of the Kenya Essential Health Package (KEPH) outlined in the National Health Sector Strategic Plan II (NHSSP II) is however constrained by several factors. Among the major hurdles is the recruitment and retention of adequate human resources. There are still no adequate numbers of persons, with the correct skills, in the right places, and who are sufficiently motivated, to deliver quality health care as envisaged in the NHSSP II.

Kenya's health facilities are still unevenly distributed and in some parts of the country primary health care facilities remain too far from where people live. For example, while Nairobi has approximately 20 health facilities per 100,000 populations, in rural North Eastern Province there are only 8 facilities per 100,000.

There are still major gaps in the financial envelop available to deliver the Kenya Essential Package of Care (KEPH) outlined in the NHSSP II. While the Government of Kenya is making efforts to increase its domestic budget and has demonstrated its political will to do this by increasing the proportion of the overall GoK budget that is allocated to health from 4% in 2004/5, to 5.6% in 2005/6, 9% in 2006/7 through 2010/11 there is still underfunding of the health sector and external funding will continue to be required for the foreseeable future.

It is recognized that health gains will not be realized if the country continues to have a weak health management capacity. Financial resources alone are not the answer to the myriad of health service delivery challenges that Kenya faces today. There has been a lot of effort to expand the financial envelope available for health but there has been no equal zeal to pursue better health planning and health resource management. Although this is being addressed somewhat through initiatives like results based management, the scale of the initiatives remains small and the targets variable from time period to time period. It is critical that health planners and managers at district level are well versed with the complex issues of health prioritization, resource need assessment and allocation based on the availability of robust strategic information.

The GoK is committed to improving the health of its citizens, and it has established a number of policies and strategies to address these health problems. Despite the many challenges progress has been made in improving the health and well-being of Kenyans. As noted in the recent 2008/09 Kenya Demographic Health Survey (KDHS), Kenya has made progress in a number of health areas over the last five years but major hurdles remain to reach the MDGs by 2015.

The policy framework entitled *Kenya Vision 2030* provides a roadmap in meeting the health sector goal of "providing equitable and affordable quality health services to all Kenyans in order to continue reversing negative health trends." Kenya is making efforts to achieve the health related MDGs including MDG 6 target 8, which aims to halt and then reverse the incidence of TB by 2015. A related target is that set by the Stop TB Partnership which aims at reducing TB prevalence and mortality by 50% by 2015 in comparison to the levels in 1990.

Kenya has steadily pursued objectives in parallel with the WHO Stop TB Strategy and the Stop TB Partnerships' second global plan to Stop TB 2006-2015. At the global level the focus is switching from the short term World Health Assembly TB care control targets of 70% case detection and 85% treatment success to universal access. The metrics for measuring universal access remain hazy but Kenya needs to refocus to a new set of targets to measure universal access.

1.6 Recent key policy changes

There have been various recent policy changes or shifts that may have important impacts on TB:

- The Community Strategy under the NHSSP II, and the links to the various poverty reduction strategies announced by the Government since February 2008. This supports Community based DOTS (CBDOTS) and TB treatment adherence of patients.
- The increased attention to the situation for orphans and vulnerable children through the new OVC policy and the National Plan of Action for Children. Within this plan there is a cash transfer program which now covers 47 districts, benefiting about 70,000 households in 2008/9. These social sector support systems are intended to help families support orphans, but may also help to identify and treat those children with TB or at risk of TB.

- The Prison reforms are being implemented. One of the priority areas has been to improve the screening of all new prisoners for TB.
- There is a focus on urban slums which could increase funding for identifying TB cases in these areas, especially those in the new informal settlements
- There is a general recognition of the emergent nature of MDR-TB in the country especially within the health community. Beyond this community, there is a need educate and mobilize on the condition.
- Various medical training institutions across the country have included in their syllabuses the most recent information on tuberculosis.
- The TB program was made a division in 2007 with increased responsibilities that include lung health care
- Most recently the new Constitution will affect all areas and modes of operation in the country, including of course TB, Leprosy and Lung Health management.

CHAPTER 2. The Division of Leprosy, Tuberculosis and Lung Disease

2.1 Historical Perspective - NTP, NLP, NLTP and DLTLD

Tuberculosis control in Kenya has historically been linked to leprosy control. Before 1948, services for leprosy patients mainly consisted of small "leper settlements", in Malindi, Lamu, Kakamega and Tumbe. Systematic leprosy control work started in 1948 with the introduction of dapsone monotherapy. Between 1951 and 1957 a large leprosarium for 300 patients was built at Alupe in Busia district, Western Province. In the early seventies a number of leprosy control projects were initiated by the government with the assistance of the Netherlands Leprosy Relief Association (NSL/NLRA). These included the West Kenya Leprosy Control scheme, the Meru and Kitui Leprosy projects and the Coast Leprosy Control scheme. These projects were brought together in the National Leprosy Programme (NLP) in 1976 and subsequently absorbed by the NLTP, which was launched by the GoK in 1980 to combine and integrate leprosy and tuberculosis control activities in the health services.

The first project agreement between the GoK and NSL/NLRA regarding the NLTP covered the period 1980-1985 and aimed at the establishment of a leprosy and tuberculosis control programme nation-wide charged with the responsibility of training of staff, public education and provision of transport and development of a system of supervision. After an extension of two years, in which the programme was consolidated, this agreement was followed by a second agreement between the GoK and the NSL/NLRA covering the period 1987 to 1990. The most important objective of this project agreement was to have achieved by the end of the project period full coverage of multi drug therapy (MDT) regimen for leprosy, as recommended by the WHO, in the four provinces where leprosy was still endemic. This objective was attained by the end of the period.

Tuberculosis control in Kenya started in 1956 with the initiation of the National Tuberculosis control Programme (NTP). Through the MoH circular entitled "Control of Tuberculosis", issued in November 1973, procedures of diagnosis, chemotherapy, case-holding, bacteriological monitoring and recording and reporting to be implemented in all districts of Kenya were highlighted.

In 1986 an agreement was signed between the GoK, the Government of Netherlands (GoN), KNCV and the Netherlands Development Organization regarding the control of tuberculosis among the nomadic population of Kenya for the period 1987-1991. This included the implementation of short course chemotherapy (SCC) treatment of tuberculosis and the construction of small villages for accommodation for the nomadic patients known as, "Tuberculosis manyatta project for Kenyan nomads". The rest of the country continued to use standard regimen for TB treatment until 1991, when the GoK and GoN signed another agreement for the period 1992-1995 for TB control which was to include introduction of SCC for the non-nomadic patients. KNCV/NSL were contracted by the Ministry of Foreign Affairs and Development Co-operation of the Netherlands to assist and advise the Ministry of Health, Kenya regarding the implementation plan as per the agreement, as well as to take care of the administration of the inputs from the GoN.

An end-term evaluation of this project was carried out in March 1995; recommendations were made for continued support to the GoK by the Netherlands government for another five years. This was done and more funding was given 1996-2000. Short course chemotherapy (SCC) was started in 1993 for smear positive PTB patients and covered the whole country in 1997.

The funding agreement between the Netherlands and Government of Kenya (GoK) ended on 31st December 2000, with flow of funds ceasing on the 30th June 2001. The end of agreement ushered the era of multiple funding streams from sources such as CDC/Global

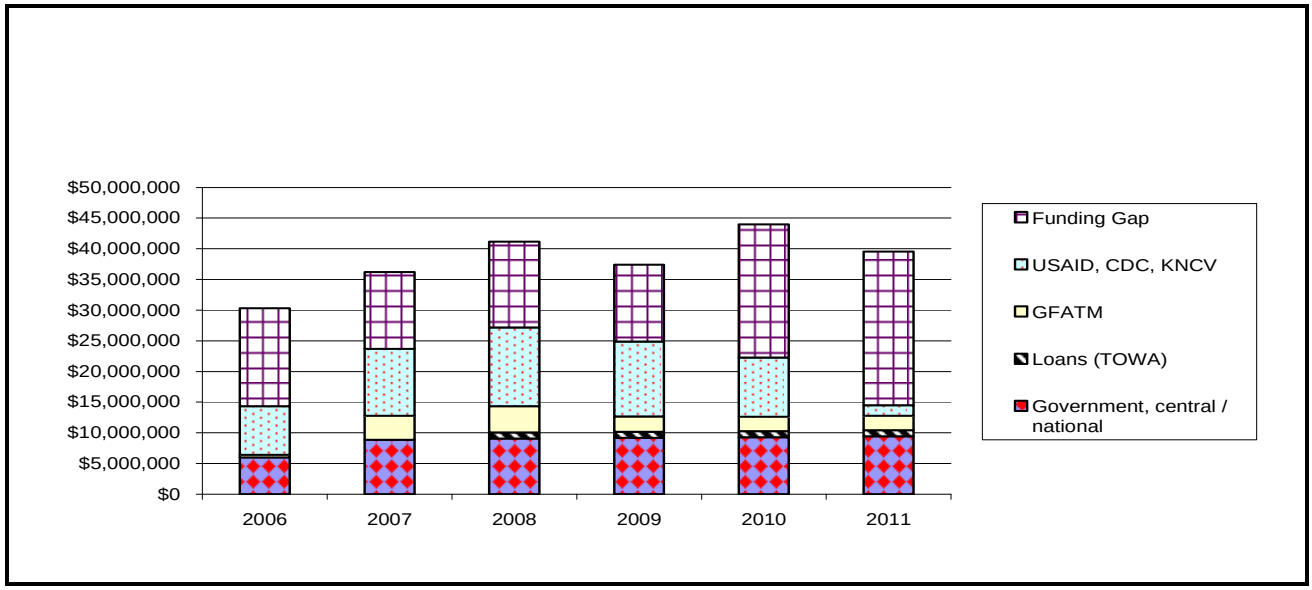
AIDS Programme (GAP), WRP and USAID (initially through the United States Government LIFE initiative, later continued under PEPFAR), CIDA, the Italian Government, WHO and the Global Fund to fight AIDS, TB and Malaria (GFATM). This remains the situation to date.

By 2002, in recognition of the influence that HIV was having on the TB epidemic, attempts were made to bring HIV and TB care and control into one administrative unit. This attempt did not work very well and both NASCOP and NLTP continued to work as independent programmes. However, close collaboration between the two programmes was encouraged and publicly acknowledged. Tuberculosis patients are derived from a pool of patients presenting to health care facilities with a cough. The majority of these patients do not in fact have TB. The focus on TB was thought to be denying the larger proportion of patients presenting with respiratory symptoms, but no TB, of appropriate care. Thus in July 2007, the mandate of the NLTP was expanded to include lung disease and the programme elevated to the Division of Leprosy, TB and Lung Disease (DLTLD).

Treatment wise TB was treated with long term regimens lasting a year or over until 1993. In 1993, Kenya piloted the use of short course chemotherapy which reduced the TB treatment period from 12 months to 8 months with the introduction of Rifampicin in the intensive phase of treatment. In the pre HIV era Thiacetazone, a cheap bacteriostatic drug was used as the drug accompanying Isoniazid in the continuation phase. As the HIV epidemic kicked in, it was noted that Thiacetazone was causing serious, and sometimes fatal cutaneous hypersensitivity reactions and thus the use of this drug was discontinued. In its place came in Ethambutol. Based on several studies that documented inferior responses (higher relapse rates) of EH as compared to RH in the continuation phase especially in HIV infected persons and in conformity with emerging international recommendations the DLTLD began to phase out EH in favor of RH in the continuation phase of treatment in 1997.

The last 6 years of funding is shown in Figure 1. The highest level of funding was reaching in 2010 – at about $42 million, and increase of $12 million from 2006. GoK has consistently supplied about 25% of the funding.

Figure 1. Spending by major partners since 2006 – 2011, including funding gap



In 2008, the Ministry of Health was split into two Ministries: the Ministry of Medical Services and the Ministry of Public Health and Sanitation. This split followed the formation of the grand

coalition government after the troubles and political impasse that resulted from the disputed election of December 2007. The two ministries are managed separately. The DLTLD lies within the Ministry of Public Health and Sanitation, but works closely with the Ministry of Medical Services.

2.2 The current Division

The current Division has a staff of 195 (as of August 2010). To illustrate how quickly the program has grown. The technical staff (which now number 18) at headquarters in Nairobi has grown rapidly in 10 years – much of that growth has been in the last 5 years. This is also a reflection of the seriousness of the TB epidemic. By 2009 TB and Leprosy services were delivered through 2,318 health units (see table 2) which are managed by a mix of public and private institutions. Smear microscopy services were available at 1,030 of these units.

Table 2: Provision of TB treatment services in 2009

	GOK	NGO	PR (Private)	Total
Hosp.	199	105	82	386
Health C.	544	118	60	722
Disp.	915	139	37	1091
AFB Lab facilities	753	172	105	1,030
Other	8	20	53	81
Total	**1704**	**382**	**232**	**2,318**

CHAPTER 3: The Burden of Tuberculosis and Leprosy

3.1 Trends of Tuberculosis over Time and by Region

Kenya has been in the group of the 22 countries that collectively contribute 80% of the global burden of TB disease for a long time. In 2009 the country was ranked 13th among the 22 TB high burden countries. The absolute number of TB cases notified increased more than tenfold since 1990 while the TB case notification rates for all cases increased from below 50 per 100,000 in 1990 to a maximum of 329 per 100,000 population in 2006. This massive increase in the burden of TB in Kenya which began in the 1990s is attributed to the HIV epidemic. In 2009, HIV testing amongst TB patients increased to 88% with 44% being dually infected.

In 2009, the DLTLD for the second consecutive year reported a decline in the number of notified cases. This may reflects a slowing down of the rate of growth of the epidemic or the beginning of the decline in the incidence of TB due to the efforts made over the past decade. At this stage with the information available it is impossible to know which of these options is true.

Figure 2 shows the increase in reported TB cases from 11,625 in 1990 to 110,065 cases in 2009. The average annual increase over the past decade is 7% for all forms of TB. Since 2006 the annual increase of notified cases has slowed to 1% per year. Case Notification Rate increased from 53/100,000 population for all forms of TB and 32/100,000 population for sputum smear-positive PTB cases in 1990 to 280/100,000 population and 95/100,000 population respectively in 2009 (See Figure 2). There are many reasons for the continued large burden of TB, despite the long presence of a strong programme. These factors include little change in poverty levels over, delays in TB diagnosis from both patient and health system related factors which facilitates TB transmission and as already mentioned the concurrent HIV epidemic. In 2005 the DLTLD introduced an integrated TB/HIV data collection system that enabled the collection of HIV related information within the TB diagnosis and treatment protocols. In 2009, the national average of HIV prevalence in TB patients was 44%, but with considerable variation across Kenya.

Case-finding reporting: The central unit receives case finding reports from all districts on a quarterly basis. These reports are submitted by DTLCs, through their PTLCs. Figure 2 shows how rapidly the epidemic grew in the mid nineties through the early 2000's, beginning perhaps to level off or even decline in 2007. Figure 3 shows the breakdown of the notifications by Province level reporting.

Figure 2: TB case notification DLTLD Kenya: 1990 – 2009

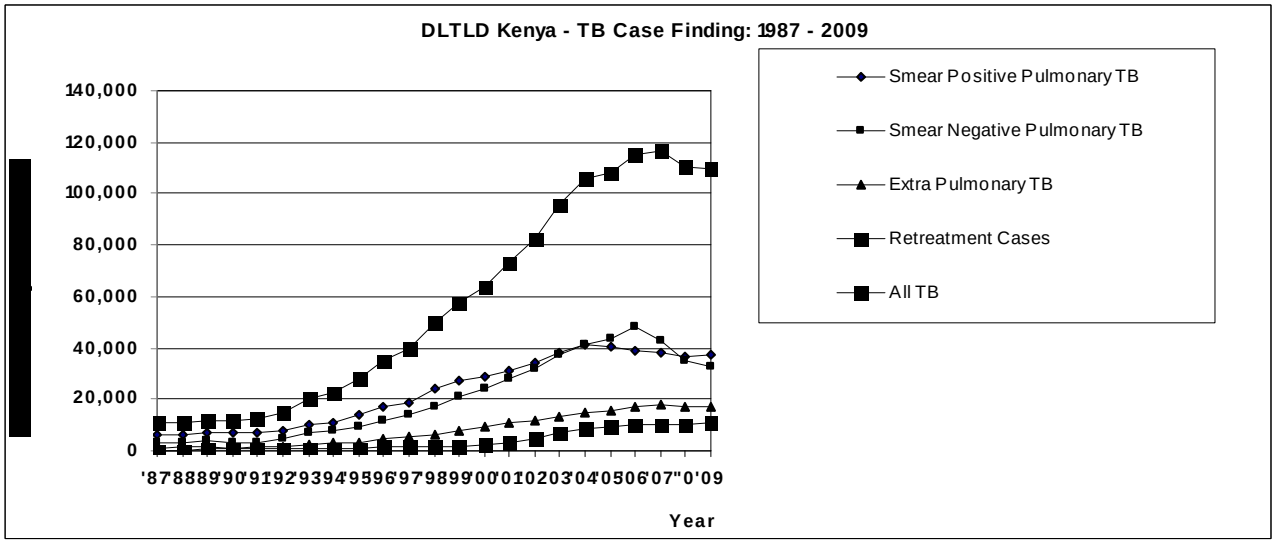
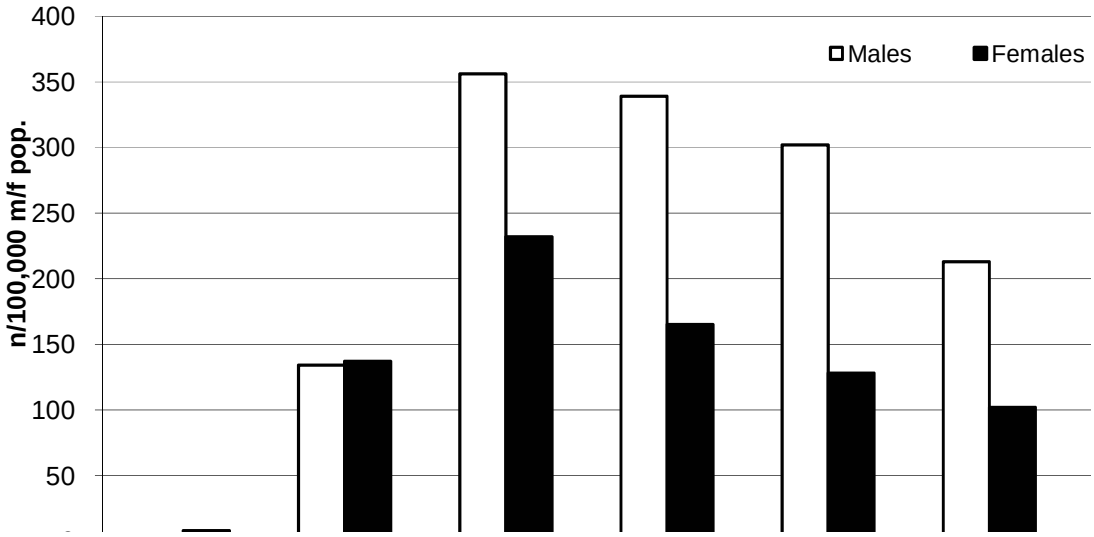


Figure 3: Provincial TB case findings 1987-2009

Distribution by type of tuberculosis, gender and age: In 2009, the proportion of sputum smear-positive PTB cases increased by 4% compared to 2008. There was a 17% increase in the proportion of sputum smear-negative PTB cases and adult PTB cases without sputum smear results. This may reflect poor TB management practices of clinicians or the higher rates of smear negative PTB in HIV-infected persons. The age group with the highest TB notification in 2009 remained 25-34 years in both males and females as has been the trend over the last decade. This is the same age group with high HIV sero-prevalence. Males continue to dominate after the age of 24 over the females who proportionately more below 24 (See *Figures 4)*.

Figure 4: Age Specific CNR New Male/Female PTB+ Cases 2009



The division partners with KAPTLD to ensure that TB control activities within the private sector meet the same standards as is in the public sector. In this regard, the program has introduced recording and reporting tools in the private sector since 1997. In 2009 the DLTLD surveillance system captured the contribution of the private sector in notifying a total of 2,115 TB patients who were all put on treatment. The private sector both for profit and not for profit provides significant care to TB patients. This sector has flourished since an agreement facilitated by the program between KAPTLD and a drug manufacturing company was signed in 1997. Through this agreement, a drug company provides high quality anti TB drugs to the private sector in Kenya at a highly subsidized price to patients seeking care in this sector. The sector is routinely supervised by program staff and all the policy and practice guidelines used belong to the Ministry of Health. To further ensure that quality and standards are acceptable, the M & E tools used in this sector are distributed to all partners.

In Nairobi the private health sector contributes about 10% of the TB patients notified to the DLTLD. Data is less robust for other cities. This contribution by the private sector may however be a gross under estimate since suspect identification and referral is challenging and other TB care and control tasks are not routinely being monitored. There may be challenges in the full implementation of the TB care package in the private settings as evidenced by the lower HIV testing rates among TB patients managed in this sector.

3.2 TB/HIV Dual Epidemic

The HIV epidemic is the major cause of TB epidemic in Kenya. It has significantly led to increased proportion of smear negative pulmonary disease which has surpassed notified cases of smear positive TB disease since 2005. HIV may also have contributed to the increase in cases requiring re-treatment especially those cases classified as other retreatment. Even though smear positive pulmonary disease remains the most important type of TB from a transmission standpoint, in situations where HIV prevalence is high as in Kenya smear negative and extra pulmonary forms of TB assume a great deal of importance because of their contribution to TB morbidity and mortality.

Kenya started TB/HIV collaborative activities in October 2004 when the Ministry of health released ‘Guidelines for HIV testing in clinical settings’. This policy document gave a road map and triggered the initiation of the National TBHIV steering committee which has been in place since November 2004. Consequently, the DLTLD started implementing TB/HIV

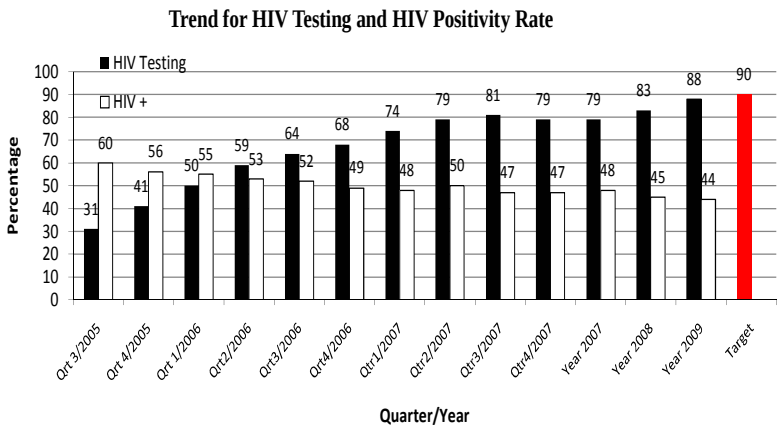
collaborative activities in 2004 with HIV testing amongst TB patients as the entry point to collaborative TB/HIV activities. A countrywide continuous HIV sero-prevalence surveillance system amongst registered TB patients began in the last half of 2005 (3rd quarter of 2005). From the 1st quarter 2006 onwards, the new system had been fully implemented in all 80 districts. In this way the DLTLD is able to monitor HIV prevalence amongst TB cases and to track the proportion of TB patients receiving HIV related interventions including HIV testing and counseling, cotrimoxazole preventive therapy and anti-retroviral treatment.

There was a vigorous pursuit of HIV Diagnostic Testing and Counseling (DTC) for all TB patients in 2007, resulting from the publication of the policy document on HIV testing in clinical settings in 2004 and availability of support from partners including PEPFAR and the Global Fund for visible results in TB/HIV collaborative activities, a clear strategic vision by the leadership of the DLTLD to provide comprehensive care to HIV infected TB patients and intensified technical support to the DLTLD provided by technical partners including KNCV and WHO. The results of all these efforts were the development and piloting of a TB/HIV training curricula, printing and distribution of the new recording/reporting (R&R) tools incorporating HIV related data in addition to routine TB data and the procurement and distribution of cotrimoxazole for the prevention of opportunistic infections in HIV positive TB patients.

It is important to note that since 2008 the cohort analysis for patients started on treatment has been stratified by HIV status. Figure 5 shows the proportion of TB cases tested for HIV and the HIV positivity rate amongst those tested. It shows that eight regions have reached the HIV testing target amongst TB patients of 80% while the rest of the regions are somewhat behind.

As expected, with increased coverage of HIV testing, the HIV prevalence amongst TB patients has declined. This is caused by a selection bias in the process of the original selection of who was sent for HIV screening by the health workers and the availability of HIV services at the different levels of the health care system. As the screening became more general (ie all TB patients) so the selection of those more likely to be positive drops relative to the whole group of patients.

Figure 5: Trend of HIV testing and HIV positivity rate



The refugee camps in Kenya, under the UNHCR mandate, participate in TB control activities under the overall guidance of the Division. There are four camps: Hagadera, Ifo and Dagahaley (Dadaab) in Garissa District and Kakuma, in Northern Turkana District. In 2009, a

total of 426 cases were reported by the Dadaab camps. All cases were tested for HIV and only 15 (4%) tested HIV positive. These cases are included in the national data. However it is important to note that most of the immigrants have integrated into the communities in North Eastern province and Nairobi and are served by the general health care system.

3.3 Multi-Drug Resistant Tuberculosis (MDR-TB)

Kenya is considered to be a low prevalence MDR-TB setting. This is related both to the strong TB care and control programme that has existed in Kenya for a long time and the fact that the use of Rifampicin for the routine treatment of TB is relatively new. In 1995, 2 years after the introduction of Rifampicin for the routine treatment of TB, Kenya undertook the national survey of drug resistance among TB patients, which was part of the WHO/UNION Drug Resistance Survey (DRS) surveillance project. The results of this study revealed an MDR-TB prevalence of 0%. However, smaller research projects in Nairobi and North Eastern Kenya, revealed pockets of MDR-TB mainly among refugees. A second DRS survey carried out in 2003 revealed an MDR-TB prevalence of just less than 1%. A third DRS is planned for 2011. The expectation is that MDR-TB prevalence will rise in tandem with the wide scale us of Rifampicin, however, it is known that a good TB care and control programme that ensures high adherence to treatment protocols by both providers and patients can considerably limit the burden of MDR-TB.

Kenya has undertaken routine DR surveillance for a long time based on culture and drug susceptibility testing of patients at risk of drug resistance. These patients include those returning to treatment after default, those failing initial treatment and those with recurrent TB. The routine surveillance for DR-TB was interrupted for many years as the CRL became dysfunctional following many years of neglect. In 2003 routine DR TB surveillance was restarted after the CRL was refurbished and strengthened through support from USAID.

In recent years the proportion of eligible patients whose sputum specimens are submitted to the CRL has increased to 65%, which has led to an increase in the number of MDR cases identified. The target is to have sputum samples from all eligible patients submitted to the CRL for DST. This will be aided by the decentralization of the TB DST service: a critical component of the laboratory capacity strengthening thematic area outlined in this Plan. The increase in MDR-TB cases in Kenya is worrying. At current costs Kenya may not be able to cope with a growing burden. Thus, in the last three years the DLTLD has intensified efforts to create a TB care and control environment that ensures that the threat of MDR-TB is contained. This effort has included elements such as stewardship, capacity building at all levels, laboratory infrastructure development, fund acquisition, patient care facility and infrastructure development and a general strengthening of the system (from identification, treatment, counseling and reporting). Whether this framework is sufficient to cope with this new crisis is not yet known.

In 2009 a total of 150 MDR-TB cases were identified and notified to the WHO. One XDR TB patient was identified and initiated on treatment at the Moi Teaching and Referral Hospital. Of the 150 MDR-TB patients identified, 110 patients have been initiated on treatment of whom 19 were cured, 20 defaulted or died, and the remainder are still on treatment. WHO estimates that there may be over 2016 drug resistant cases in Kenya at this time (2009), and projections are that this number will increase in the coming years.

To manage the threat of MDR-TB, the country is working closely with partners including the Green Light Committee (GLC) at WHO. Following the successful application to the GLC in 2004 to initiate programmatic management of MDR-TB, the number of patients to be treated through the GLC process has increased from 40 to 390 patients. After an initial lag period the first cohort of 40 patients had all been started on treatment by March 2004. At the same time

the number of treatment sites increased from 4 to 8 over the same period. A further fifty patients have since been put on treatment.

Table 3: Number of retreatment cases and samples submitted to the laboratory (2005-9)

Year	2005	2006	2007	2008	2009
Sputum Samples	1,460	2,511	4,403	5,135	6,569
Number of retreatment cases	8,975	10,299	10,462	10,444	10,676
Percentage submission	16%	24%	42%	49%	65%
MDR TB Cases		80	82	102	150

While this reflects considerable progress for MDR-TB care and surveillance, much more remains to be done.

3.4 Trends in Leprosy over time by Region

Leprosy control is currently in the "post-elimination" phase. This requires vigilance, public education, training of health workers working in the hot zones (Western and Coast provinces), intensification of both case finding and treatment and provision of quality care for those with disabilities. All of these endeavors require increased funding. The trend of the leprosy since the 1980s shows the registered prevalence of cases currently on treatment, and the notification of new cases. Since the introduction of Multi-Drug Therapy (MDT) in 1985, the registered prevalence decreased from 6,558 cases in 1986 to 204 cases by the end of 2009. The number of new leprosy cases detected decreased from 630 in 1986 to 157 in 2009 (DLTLD, Annual Report 2009).

Case holding, a vital element of successful control of leprosy, includes all activities directed at reaching the highest possible proportion of patients successfully completing their treatment. This is reported as the proportion of cases "released from treatment (RFT)". The proportion "out of control (OOC)" is an indicator of timely detection of defaulters, and an ability to find and motivate them to complete treatment.

The proportion of pauci bacillary (PB) leprosy cases of RFT for the 2008 cohort was 70% while 18% of patients went out of control. These results indicate that the DLTLD has yet to achieve the recommended treatment results for PB cases of RFT of 90% or higher. The Division is focusing on reducing these defaulter figures over the next 5 years. It is hoped that the shortening of the duration of treatment from two to one year should contribute to better outcomes.

CHAPTER 4: Selected Problem Analysis and development of the National Strategy

4.1 Selected Problem Analysis and challenges

Box 1 summarizes the main findings from the National Programme review held in August and September 2009. These were produced following an intensive data collection and observation period where a group of external and internal evaluators reviewed the entire programme from headquarters relations with the national ministries of health to the community level operation in all provinces. These key findings certainly contributed to the development of the national plan as presented below. In addition, however, the main stakeholders and actors involved in TB control in Kenya also drew on many other documents and experiences and created the list of main justifications which are presented in 4.2 below. See Annex 3 for the full Executive Summary of the Programme Review, Sept 2009. See also Annex 4 to understand the justifications given for each of the thematic areas listed below.

Box 1. Summary of the key findings of the Programme Review

Key strengths

1. There is a functional, well staffed programme with a well costed strategic plan aligned to NHSSP II and Global Plan to STOP TB & MDGs.
2. Services are decentralized and integrated within the Provincial and District Health Services in line with Ministry policy.
3. A robust M&E system for programme management is in place
4. There is capacity for Culture and DST at the Central Reference Laboratory
5. The drugs, reagents and supply distribution system managed in collaboration with Kenya Medical Supplies Agency - KEMSA is functioning.
6. Strong Partnership with stakeholders exists. This has mobilized resources for TB. Total budget now stands at KSH
7. Several operational manuals and Guidelines have been developed to facilitate expansion of interventions namely;

- Revised TB & Leprosy control manual June 2009
- Guidelines for TB Infection Control in Kenya February 2009
- TB/HIV Curriculum Participants manual August 2006
- MDR Monitoring tools and Register
- Advocacy, Communication and Social Mobilization (ACSM) Strategy
- Nutrition Assessment & Decision Matrix
- Human Resource Development Plan with a Revised DLTLD structure
- External Quality Assessment (EQA) Guidelines & Standard operating procedures (SOPs) for sputum smear microscopy network.

Key weaknesses

1. The Headquarters of DLTLD, in Nairobi, lacks appropriate office space considering its expanded mandate of lung health.
2. The HRD plan not finalized yet. This needs to be completed urgently so as to align functions and resources accordingly.
3. There are no Accounts staffs in DLTLD to support the technical officers. This causes strain considering the workload associated with accounting and reporting to multiple funding agencies.
4. There are many collaborating Partners providing TA to DLTLD but this is not coordinated very well and issues of equity and sustainability are not appropriately addressed.
5. Operational Research (OR) is taking place but is not coordinated so that findings are not shared and do not feed into policy and program implementation or design. Involvement of DLTLD staff in OR still very limited.
6. Procurement and distribution of drugs, reagents and supplies is not well coordinated. No budget lines for distribution in KEMSA or DLTLD. Inadequate regulation and quality control for anti-TB drugs. Drugs go to districts while reagents go to provinces.
7. DLTLD M&E system is not linked to the HMIS at any level. Data analysis and use at point of collection is rarely done.
8. Integration of services at lower levels of health service delivery is affected by high human resource shortages and this negatively affects quality of services. No funds for key functions like Technical Support Supervision (TSS) of district based control activities and EQA of the laboratory network countrywide.
9. Work space in most health facilities is inappropriate in terms of space, privacy and safety.

10. Infection control and waste management remain major challenges.
11. Operational guidelines for Infection Control, MDR-TB, Childhood TB not fully disseminated to periphery. This is limiting adherence to guidelines.
12. Scale up of TB/HIV collaborative activities is good at TB service points but there are no guidelines and M&E formats for ICF and Screening for TB *among HIV clients*.
13. EQA not fully functional, No transport for the District Laboratory Coordinators (DLCs), No timely feedback or Mentoring supervision.
14. The MDR-Surveillance among retreatment cases is improving but coverage is still low.
15. Programme is not adequately addressing TB in congregate settings. There is a need to institute TB services in large slums and prisons along with effective infection control procedures.
16. Leprosy control is under funded despite good progress. MOPHS needs to allocate resources and focus efforts in Western, Nyanza and Coast provinces to sustain post-elimination phase and reduce disabilities among the patients

.Following discussions around the key weaknesses listed above and the contributions from the stakeholders, fifteen thematic areas were identified as the focus areas for this plan. Each thematic area was assigned a working group that built their objectives for the National Strategic Plan around a set of justifications. Below are the thematic areas, with their justifications (see Annex 4). This led to sub objectives and activities listed in Chapter 6:

Box 2. Key Thematic Areas

1	*Core TB Case Detection and Management*
2	*Laboratory*
3	*Logistics and Commodities*
4	*TB/HIV*
5	*MDR-TB*
6	*Childhood TB*
7	*Special Groups*
8	*Health System Strengthening and Human Resources*
9	*Lung Health*
10	*PPM*
11	*Health promotion*
12	*Community based TB care*
13	*Poverty and Gender*
14	*Leprosy*
15	*M&E and Operations Research*

4.2 Review of the Process for Formulation of the National Strategy

The process of developing the National Strategic Plan (2011-15) followed several steps.

STEP 1: PROGRAMME REVIEW (August – October 2009)

STEP 2: First NAKURU MEETING – Feedback of the Programme Review, discussion of next steps. In addition, several ad hoc meetings have been held to move ahead in key areas for the Division such as the MDR-TB meeting (24- 28th March, 2010, in Nyali), and work on TB/HIV collaboration.

STEP 3: Nairobi STAKEHOLDER MEETING for the development of the Strategic Objectives, Sub objectives, Activities and basic indicators for the Strategic Plan. The purpose of this 4

day meeting was to bring together a group of senior Division implementers from HQ and the field, selected technical advisors and some of the main representatives of the donor organizations in a brainstorming session to develop a “zero” draft for the next Five year National Plan.

Key to the preparation for the next Five year Strategic Plan was the decision to develop thematic working groups. These are relatively informal technical advisory groups working on particular themes that are considered the main focal areas the Division. They are groups which are either working on existing important areas, or they emerged over the past few years as important for the future development of a strong programme. These areas were discussed and approved at the Nakuru Meeting, and were further discussed at the beginning of the Nairobi Stakeholder Meeting. The Thematic areas (listed above) for these working groups were important for the organization and process of the Stakeholder Meeting. They helped the facilitators arrange the meeting into small group activities or discussion groups.

STEP 4: BARINGO Meeting: The Zero draft was then reviewed and revised at a Stakeholder meeting in Baringo during two days, and the budget process was planned and begun.

STEP 5: NAKURU and THIKA provided venues for finalizing the five year budget, the indicator reference sheet and the near final draft of the Strategic Plan. A final edition was produced during 3 days in retreat in Nairobi 13-15th September.

CHAPTER 5: Institutional Framework

5.1 The Structure of DLTLD

Annex 2 provides the organograms of the Division and its place within the MOPHS. The overall management of the technical aspects of the DLTLD is provided by the Central Unit (CU) in Nairobi, which currently has 42 staff (both medical, technical/non-medical and administrative officers). Kenya is split administratively into 8 Regions and there are currently about 190 districts. But following the launch of the new Constitution this administrative arrangement will change. This Plan recognizes this dynamic situation at the moment, and thus describes future scenarios based on the large number of administrative units which will likely be in place by 2013.

5.2. Roles and Responsibilities

There are currently 149 operational districts (2009) for the management of tuberculosis, which are called TB zones. But there will likely be 290 constituencies which are effectively districts by the year 2013. The Division envisions a need for each of these zones to be administered by one District Lung and leprosy Coordinator (DLLC). These officers were formerly called TB and Leprosy Coordinator (DTLC). These DLLCs are supervised by the Regional Lung and Leprosy Coordinators (RLLCs) (formerly the Provincial TB and Leprosy Coordinators (PLTCs). Currently there are 12 coordinators but this is expected to increase to 18 by the end of the period of transition.

5.3 Collaboration/ Partnership

The history of the technical and funding support provided to the program is relatively simple. The first major financial support was provided by the Netherlands government in 1987 and followed by three consecutive multi-year agreements up to 2001. Initial financial support concerned the Tuberculosis Manyatta project for the nomadic populations but since the early nineties the picture of support for the program has become more complex. The partnerships between and within the supporters for TB and Leprosy are vital to the DLTLD. These have grown with the epidemic's size and complexity.

Recently, the number of organizations involved and interested in lung disease management in Kenya has increased especially because of the established link between TB and HIV. Many organizations that previously only worked in HIV programs have expanded their activities to include TB. The number of partner agencies supporting Kenya's TB control program has gone up and include the Royal Netherlands Tuberculosis Association (KNCV), GFATM, CDC/ PEPFAR, USAID, AMREF, FHI, AMPATH, IMC, PATH, MSF, JICA, WHO, Malteser, IOM, Pathfinder and others.

The increase in partners supporting the program is a welcome development that has also brought on challenges of coordination to ensure individual partner activities are in line with the national strategy. The TB Inter Agency Coordination Committee (TB-ICC), created by the Global Fund to Fight AIDS, TB and Malaria has helped a lot in that role and all major players in TB control are members of the TB-ICC. This committee meets at least quarterly and deliberates on all issues pertaining to TB control in Kenya.

Further coordination efforts are provided through several technical working groups including National TB/HIV steering Committee, Laboratory, M and E, MDR TB, Commodity, ACSM, community and gender, special groups, PPM and Lung Health. These technical working groups draw membership from both technical and financial partners including People Living with HIV/AIDS (PLHIVs). Some of these working groups have been cascaded to lower levels and hold meetings in stakeholders' forums where critical issues of implementation and

challenges are discussed and addressed. These working groups will be reorganized during the period and increased where necessary to take care of the evolving scenario.

Funding from the various donor agencies is used in a synergistic and supplementary manner to fund total control efforts and fill in identified funding gaps.

DLTLD has an elaborate and well-established network of partners through which the Division develops policies, advocates for increased and sustainable resources and ensures proper and efficient implementation of activities. Although the Division takes the lead in setting policy on matters touching on TB, leprosy and lung disease, policies are shaped by involvement and participation of all stakeholders in the TB inter-coordinating committee (ICC), which is made up of all key stakeholders. In addition, the policies are also shaped by what takes place internationally.

The partnerships for the division include both international and local and are mainly financial and technical. Financial partners include but are not limited to the government, USG organizations (USAID and CDC), GFATM and WHO. The technical partners are coordinated through the TB Interagency Coordinating Committee (TBICC) whose terms of reference include:

Box 3: Terms of Reference for Technical Assistance for TB prevention and control, Kenya (TBICC)

	Terms of Reference
1.	To advice and guide the Ministry on national TB policy, strategy and priorities, and on TB and Leprosy in Kenya, including cross-border issues
2.	To advise and support the DLTLD and Ministry in advocating resources for control activities
3.	To advise and guide the DLTLD and other participating partners on the content and organization of work plans
4.	To act as a forum for exchange of information on partners' control and research activities
5.	To identify and advise on areas for co-ordination nationally and internationally
6.	To define and review the output of technical working groups and sub-committees and take account of their findings in formulating advice and recommending action
7.	To receive and review reports from partners on progress against objectives
8.	To identify problems and obstacles to implementation of control activities and recommend solutions
9.	To report to the Ministry twice yearly on achievements and progress against objectives

The membership and composition of the ICC is currently as follows:

Category	Eligible partners	Representatives
Technical partners	CDC, WHO, KNCV	3
Development partners	USAID, DFID	2
Ministry	Chairman, NLTP, NASCOP, HR, finance, HSR	4
International NGOs	PATH, JHPIEGO	2
Local NGOs	AMREF, MALTESER,	2
Faith Based Organizations	CHAK, CRS	2
Research institutions	KEMRI,	1
Teaching Institutions	UON, KMTC	2
Special institutions	KNH	1
GFATM agents	FMA, PR	2
Professional organizations	KAPTLD, AKMLSO	2
Pharmaceutical sector	Sanofi Aventis	1
Communities	NEPHAK, TB action	2
Total		**26**

Technical and Financial partners

Several local and international organizations provide technical assistance to the Division. These partners provide advice on technical matters of disease control including actively participating in technical working groups where they shape policies. Additionally, the technical partners participate in other activities including support supervision in the field, review of divisions' policy guidelines and other important ad hoc meetings and committees. These organizations include: MSH, WHO, KNCV, KEMRI, CDC, KAPTLD, and TBCAP.

For effective implementation of activities, financial support to the Division is critical. Several partners play a big role in providing this necessary ingredient. Financial partners include: GoK, USAID, CDC, JICA, GFATM, WHO, GDF, UNITAID and others.

The divisions' partnership also extends to the more informal level, through many local and international organizations that work at the community level including the following: many civil society organizations, CBOs (including post test clubs and networks of people living with HIV/AIDS), Kenyan and international NGOs such as AMREF and faith-based organizations such as the Catholic, Protestant or Islamic missions.

CHAPTER 6: Vision, Mission, Strategic Objectives, Sub-Objectives & Activities

The vision and mission of the National Strategic Plan for Tuberculosis, Leprosy and Lung disease between 2011 and 2015 are as follows:

Vision: To reduce the burden of lung disease in Kenya and render Kenya free of Tuberculosis and Leprosy

Mission: To sustain and improve Tuberculosis, Leprosy and lung disease control gains in order to accelerate the reduction of Tuberculosis incidence, intensify post-elimination Leprosy activities and control lung disease.

Goal: To reduce Tuberculosis incidence, intensify post-elimination Leprosy activities and Control lung disease.

Programme Outputs: This table describes illustrative outputs for each Strategic Objective. The outputs are core measures of what the programme will be expected to reach or produce.

Table of Outputs for the National Strategic Plan

Strategic Objective	**Strategic outputs**
1. To sustain high quality DOTS expansion and enhancement through case finding, case notification and case holding modalities to ensure all TB patients have access to optimal TB diagnosis, care and treatment.	To increase case detection rate of bacteriologically confirmed TB from 72% to 80% by 2015
	To successfully treat 90% of registered TB cases by 2015
2. To strengthen and sustain accessible, quality assured bio-safe TB bacteriology (including use of new technologies) for early diagnosis, monitoring, surveillance and management of tuberculosis and other lung diseases	Universal access to quality assured TB bacteriology
	Adoption and use of appropriate new technologies in TB diagnosis
3. To strengthen the TB, L &LD commodity management system and ensure access to and rational use of high quality medicines, laboratory supplies and equipment and other health related products.	Ensure TB, Lung disease and Leprosy commodity security
	Ensure availability of quality commodities through regular quality controls
4. To ensure TB/HIV co infected patients and suspects receive quality and comprehensive TB/HIV care and treatment	Universal access to comprehensive package of TB/HIV services
5. To strengthen DR TB diagnosis, prevention, care, treatment and support.	Universal access to MDR surveillance amongst eligible DRTB suspects
	Universal access to care and support for DRTB patients
6. To strengthen the diagnosis and management of TB , TB / HIV, and chronic lung diseases in children so as to sustain high quality DOTS expansion and enhance case finding, case notification, case holding and improve care of other lung diseases.	Provision of new diagnostics for diagnosis of TB and lung disease in children
	Provision of IPT to children below 5 years exposed to index TB cases
7. To improve access to TB, leprosy and lung health services for all special groups	Expanded diagnostic and treatment facilities for special groups
8. To contribute to the strengthening of the health system to improve TB, Leprosy & Lung Disease Service delivery.	Contribute towards strengthening human resource capacity to deliver health services

9. To promote provision of quality, accessible and affordable health care for patients with respiratory illnesses including asthma, COPD and tobacco related lung diseases.	Adoption of standard approaches to management of lung diseases
10. To engage and network all health care providers and stakeholders for provision of standardized quality lung health care.	Improved reporting from all stakeholders
11. To promote response to TB, leprosy and lung diseases by creating an enabling environment for behavior change, sustainable resource allocation and partnership at all levels.	Increased financial resources available to DLTLD
12. To increase the level of community involvement in provision of quality TB, Leprosy and lung health services	Increased number of patients under community care
13. To promote equitable access to tuberculosis care by implementing the TB & poverty / Gender initiative strategy	Gender and poverty issues mainstreamed into TB and Leprosy control at all levels
14. To ensure early case detection, improved recording, reporting and treatment completion of all diagnosed leprosy cases.	Reduced disability grading to less than 5% of the reported cases
15. To improve, expand and use strategic information system to enhance linkages between all the program areas to strengthen program performance	100% of the facilities using strategic information for decision making
	Integrated web based surveillance system developed and in use

The tables below (6.1 to 6.15) show each thematic area with the Strategic Objective as defined by the working groups after the programme review and discussion of needs of the programme. Under each SO there are sub-objectives, activities and selected indicators which will be broadened in the forthcoming M&E Plan. Many of the groups have fairly complex overlapping objectives and activities. The working groups have tried to maintain as much clarity in activities, but inevitably there are overlapping sections. The group decided to move the OR activities as much as possible under the M&E section for coherence, but there are still a few pilot tests listed under specific thematic areas (e.g. Laboratory). Health promotion and ACSM activities also cross cut many of the thematic areas, but the groups felt that the Health Promotion group should be responsible for most of these activities. Finally, the newer thematic areas such as Childhood TB, Special Groups, and Poverty and Gender also contain overlapping activities and will have outcomes that contribute to each other. The Division recognizes this but retains the idea of keeping the groups as they are on a trial basis to explore the best way to meet the needs of these various sub-populations.

6.1. Core TB Case Detection and Management

Strategic Objective: To sustain high quality DOTS expansion and enhancement through case finding, case notification and case holding modalities to ensure all TB patients have access to optimal TB diagnosis, care and treatment.

Sub-objective	Activities/ Interventions	Indicators
1. To advocate for adequate budgetary allocation for TB control activities from the government of Kenya and partners.	a. Participate and incorporate the DLTLD strategic plan into the National Health Sector Strategic plans (NHSSPIII) b. Actively lobby for the financing of the strategic plan c. Hold Biennial meetings and develop Biennial plans d. Participate in Annual Operation Plans at provincial and district levels e. Disseminate the DLTLD strategic plan to all stakeholders. f. Participate and contribute in MOPHS/MOMS budgetary planning meetings g. Carry out annual Staff recruitment and rationalization meetings h. Conduct mid term and end term program review i. Undertake funding proposal development j. Develop the DLTLD 2016-2020 strategic plan.	• 2011-2015 strategic plan printed and disseminated via meetings and web postings • TB budget line maintained in MOMS and MOPHS annual budgets • Proportion of DLTLD budget financed by GOK • Mid term and end term DLTLD program reviews done • Number of proposals funded • The DLTLD 2016-2020 strategic plan developed
2. To support coordination of implementation of activities	a. Hold quarterly ICC meetings b. Provide support to national lung health scientific conference c. Hold quarterly partners review meetings d. Hold monthly CU staff meetings	• Number IIC meetings held /yr • Number of Partner review meetings held / yr
3. To enhance capacity of health care workers to offer quality TB case management including patient support and nutrition services	a. Refurbish TB Treatment facilities b. Carryout defaulter tracing of TB patients c. Carry out contact tracing of TB patients	• Number of TB treatment facilities refurbished • Proportion of TB cases detected by contact tracing • Proportion of defaulters traced and completed treatment or died
4. To strengthen support supervision of TB control services at all levels in Kenya	a. Conduct regular support supervision: DLLC (formerly DTLC) b. Conduct regular support supervision: National level visit to Regions c. Conduct regular support supervision to the RLLCs/Assistant RLLCs and PHRIO d. Conduct regular support supervision: RMLT e. Conduct regular support supervision: DMLT f. Support national RLLCs review meetings g. Support quarterly DLLC/DHMT/HRIO review meetings h. Conduct regular support supervision: DHMT to health facilities i. Procure transport to facilitate regular support supervision (vehicle, fuel) j. Procure office equipments and support its maintenance k. Procure office supplies l. Construction of new office space	• Proportion of scheduled quarterly national support supervisory visits undertaken quarterly • Proportion of scheduled Provincial support supervisory visits undertaken quarterly • Proportion of scheduled District support supervisory visits undertaken quarterly

6.2. Laboratory (National/Smear Microscopy and CRL for culture/ DST for DRTB)

Strategic Objective: To strengthen and sustain accessible, quality assured bio-safe TB bacteriology (including use of new technologies) for early diagnosis, monitoring, surveillance and management of tuberculosis and other lung diseases

Sub-objective	Activities/ Interventions	Indicators
1. To strengthen quality assurance AFB microscopy consumables	a. Procure and distribute laboratory AFB microscopy consumables b. Hold AFB and EQA refresher training for laboratory technologist c. Provide support for post graduate training mycobacteriology d. Establish and equip new TB laboratories e. Provide AFB microscopy equipments for new laboratories f. Carry our minor renovation of 10 % TB peripheral laboratories annually. g. Provide stain preparation equipments to district laboratories h. Procure and distribute binocular microscopes i. Procure and distribute LED microscopes j. Procure and installed Bio-Safety Cabinet I&II in high volume hospitals k. Procure and distribute laboratory gowns l. Procure and distribute slide drying racks to TB laboratories m. Procure and distribute oil droppers n. Procure and distribute slide storage boxes o. Service and maintain laboratory equipments p. Carry out quarterly AFB slide rechecking for EQA and feedback provision q. Carry out panel testing to all high volume hospitals r. Hold periodic meetings to review & update all sops for AFB microscopy s. Print and distribute all sops for AFB microscopy	• Number of laboratory technologist trained on AFB and EQA • Number of laboratory technologist trained on AFB and EQA • Number of Bio-Safety Cabinet I&II Procured and installed in high volume hospitals • Number of high volume hospitals that carried out panel testing to all high volume hospitals
2. To expand quality-assured TB culture and DST services	a. Establish new regional TB culture labs b. Upgrade existing culture capable labs c. Procure and distribute TB culture consumables and LPA kits d. Referral of QA samples from CRL to Supra-lab e. Establish regional DST laboratories f. Service and maintained TB culture and DST equipments g. Procure/distribute DST for first line and second line anti-TBs consumables h. Establish and equip regional laboratories to provide Line probe assay i. Procure and distribute sputum specimen cool box carriers j. Sputum specimen transportation to culture and DST centers k. Procure and distribute LPA reagents and consumables l. Service and maintenance of LPA equipments m. Supra-national mentorship of laboratory technologist in TB culture and DST n. Train laboratory technologist on TB Culture and DST o. Train laboratory technologist on line probe assay p. Implement WHO step- wise accreditation programme q. Pilot test new technologies for rapid diagnostics (e.g. MODS and other new TB culturing techniques)	• Number of laboratories with adequate TB culture consumables & LPA kits • Number of regional DST laboratories established • Number of Culture and DST laboratories with laboratory equipments serviced • Number of laboratory staff mentored by Supra-national on TB culture and DST • Number of laboratory technologist trained on TB Culture and DST • Number of reports showing Central Reference laboratory WHO accreditation • Pilot test results completed for MODS introduction (C.REF OR)

6.3. Logistics and Commodities

Strategic Objective: To strengthen the TB, L &LD commodity management system and ensure access to and rational use of high quality medicines, laboratory supplies and equipment and other health related products.

Sub-objective	Activities/ Interventions	Indicators
1. To ensure evidence based product selection – based on standard documents e.g. National, WHO and other approved guidelines	a. Develop TORs for commodity security sub-committee b. Hold quarterly TWG meetings	• Terms of Reference for commodity security sub-committee (developed) • Quarterly meetings held of commodity TWG
1. To improve the DLTLD commodity Forecasting & Quantification and the procurement system	a. Hold annual F&Q of DLTLD commodities meeting b. Develop annual procurement plan for the division c. Hold a meeting to develop a comprehensive specifications for all the DLTLD commodities for both procurement and donations d. Active participation of DLTLD technical officers in all tender adjudication and technical evaluation exercises	• Annual meeting held for forecasting and quantification • Annual F&Q reports published • Annual and costed DLTLD procurement plans
2. To strengthen the warehousing & distribution system for DLTLD commodities	a. Procure Drugs and Equipments b. Mainstream/integrate the distribution of all the DLTLD commodities with the essential medical supplies to the district stores c. DLTLD commodities distributed to the district stores	• The warehousing and distribution financing strategy in place • Amount of funds allocated for warehousing and distribution of DLTLD commodities (target=10% of the total value) • Revised Standard Order Form (SOF) • Number of districts with adequate DLTLD commdities
3. To strengthen the commodity data management information system	a. Revise and distribute the electronic TB-Commodity management tool for district consumption data reporting b. Conduct training of health care workers on commodity management information system	• Revised LMIS tools available at all levels • Number of district with the commodity management tool • % of districts reporting using the e-TB manager tool
4. To promote rational use of the TB, Leprosy & Lab supplies & equipment	a. Adopt and disseminate pharmacovigilance guidelines and tools b. Conduct training on pharmacovigilance to health care workers c. Conduct annual audit of TB Laboratory reagents & supplies utilization	• % of SDPs reporting on ADRs on monthly • Number of health care workers trained (pharmacovigilance) • Annual audit of DLTLD commodity utilization done
5. To assure high quality DLTLD commodities through collaboration with key stakeholders	a. Conduct batch testing for all the DLTLD medicines and laboratory commodities procured by KEMSA or donations b. Develop a system for effecting product recall in collaboration with other key stakeholders (PPB and KEMSA)	• Number of batch testing done for DLTLD medicines and laboratory commodities procured by KEMSA or donations • System for product recall in place by end of 2011 • Certificate of analysis for all batches tested
6. To expand OR activities to inform policy and regulation reviews and establish TB anti-microbial resistance surveillance system	a. Conduct anti-TB medicines utilization survey b. Develop and implement a policy in collaboration with other key stakeholders to have DLTLD as the only source of all anti-TB medicines in Kenya	• Anti-TB medicine utilization surveydone • Revised policy on anti-TB medicines in place by 2012

6.4. TB/HIV

Strategic Objective: To ensure TB/HIV co infected patients and suspects receive quality and comprehensive TB/HIV care and treatment.

Sub-objective	Activities/ Interventions	Indicators
1. To ensure at least 95% of TB patients are tested for HIV by 2015.	a. Revise the national TB/HIV training curriculum b. Print and distribute TB/HIV training curriculum c. Training of Health care workers on TB/HIV collaborative activities d. Provide rifabutin to TB/HIV co infected patients on Protease Inhibitor (PI) based ARV- commodity e. Provide co-trimaxazole preventive therapy (Dapsone)	• Number of TB/HIV curriculum printed and distributed • Number and proportion of Health care workers trained on TB/HIV collaboration • Proportion of TB patients tested for HIV
2. To ensure at least 80% of HIV infected TB patients receive ART by 2013 (KNASP) and at least 85% by 2015.	a. Training TB care providers in HIV management (IMAI) b. Mentorship of TB care providers on ART and TB/ HIV integration c. Infrastructural improvement to allow provision of ART in TB clinics d. Integration of ART into TB clinics e. Revise national policy to allow use of rifabutin in patients on PI ARV f. Develop protocol to pilot use of Rifabutin in patients on PI regimen g. Provide rifabutin to TB/HIV co-infected patients on PI based ARV	• Number and proportion of TB care providers trained in HIV case management (IMAI) • Number and proportion of TB care providers mentored on ART and TB/HIV Integration (IMAI for TB/HIV) • Number of Meetings held to revise national policy guidelines to allow the use of Rifabutin in patients on PI ARV
3. To provide HIV prevention methods to all TB patients including PWP for TB/HIV co-infected patients by 2015.	a. Procurement of condom dispensers for TB clinics b. Revise M&E tools to include reporting of HIV prevention methods c. Training of TB/HIV health care providers on PWP	• Proportion of TB clinics with condom dispensers using • Proportion of provided trained on PWP
4. To provide nutrition support to all TB/HIV patients	a. Revise and print nutrition guidelines b. Develop a training curriculum for nutrition in TB for training of HCWs c. Print and distribute nutritional management job aids d. Train HCWs in food by prescription e. Procure and distribute anthropometric equipment f. Recruit and retain nutritionists for TB 10 districts in hard to reach areas	• Nutrition guidelines developed and distributed • Proportion of eligible TB patients receiving nutrition support • Proportion of health care providers trained on food by prescription • Proportion of TB Manyattas with nutritionists
5. To strengthen and sustain TB/HIV coordination at all levels.	a. Revise and print national TB/HIV policy guidelines b. NASCOP& DLTLD hold joint partner meetings at all levels c. Conduct quarterly TB/HIV committee meetings at all levels d. Capacity building for focal persons at national and provincial levels	• Number of Planning meetings held jointly by NASCOP and DLTLD • Number of Quarterly TB/HIV committees meetings held • Number of focal Staff trained
6. To ensure that all eligible children under 5 years and PLHIV receive IPT by 2015	a. Conduct visits to 2 countries to share best practices in IPT b. Develop recording and reporting tools for IPT c. Sensitize Health care providers on IPT d. Provide INH to eligible patients	• Number of meetings held to revise TB/HIV guidelines to allow scale up of IPT and to adequately address IPC, ICF and TB/HIV integration • Proportion of eligible patients receiving INH.
7. To ensure that at least 80% of health facilities in TB/HIV settings meet the minimum requirements for IPC implementation by 2015	a. Revise print and distribute IPC guidelines b. Develop IPC training curriculum c. Print and distribute IPC training curriculum d. Sensitize health facility and district IPC focal person on TB IPC	• Number of IPC guidelines printed and distributed • Number of IPC training curriculum printed and distributed • Proportion of IPC focal persons at district and health facility level sensitized on IPC

8. To strengthen the implementation of TB and TB/HIV work place policies	a. Revise guidelines for TB/HIV in the workplace b. Develop a sensitization package for TB at the workplace c. Disseminate TB at workplace guidelines to all stakeholders d. Print and distribute guidelines for TB/HIV in uniformed forces	• Guidelines for TB/HIV revised and disseminated • Proportion of health facilities using the TB/HIV referral tool

6.5. Multi-Drug Resistant TB

Strategic Objective: To strengthen DR TB diagnosis, prevention, care, treatment and support.

Sub-objective	Activities/ Interventions	Indicators
1. To improve DR TB patients' access to successful standardized Treatment, Care and Support	a. Support Daily DOT provision to all DRTB patients b. Hold Monthly review meetings of all DRTB patients c. Carry out Defaulter tracing of DRTB patients d. Carry out mapping of all DRTB patients diagnosed e. Develop and or revise guidelines for management of defaulters f. Establish patients support groups in all DRTB treatment centers g. Provide Nutrition support to eligible DRTB patients h. Train 1050 HCWs on DRTB in all the TB Control regions i. Undertake refresher courses for HCWs with in DRTB facilities j. Refurbish and maintain DRTB Isolation Facilities k. Carryout mentoring visits to DRTB clinics l. Hospitalization of DRTB patients requiring care and treatment	• Number of DRTB patients supported with Daily DOT • Number of monthly clinical review meetings held of DRTB patients • Number of patients support groups established in all DRTB treatment centers • Number of eligible DRTB patients provided with Nutrition support • Number of refresher training of HCWs working in DRTB facilities held • Number of DRTB Isolation Facilities refurbished and maintained
2. To Reduce exposure of DR TB in health care settings and the community	a. Develop, print and disseminate the training curriculum DRTB / IPC b. Training of trainers on DRTB c. Training of trainers on IPC d. Training of 3125 HCWs on IPC in the 12 TB control regions e. Formation & support of IC committees with a focal person in all health facilities f. Hold DRTB/IPC TWG meetings g. Procure and distribute personal protective gear (gowns and masks) to all DRTB diagnostic and treatment sites	• Number of DRTB and IPC training curriculum developed, printed and distributed • Number of health care workers TOT trained on DRTB • Number of HCWs Trained in IPC in 12 TB control regions • Number of Infection Control Committees formed and supported with a focal person in health facilities • Number of DRTB/IPC TWG meetings held • Number of personal protective gear (gowns and masks) procured and distributed to all DRTB diagnostic and treatment sites

6. 6. Childhood TB

Strategic Objective: To strengthen the diagnosis and management of TB, TB / HIV, and chronic lung diseases in children so as to sustain high quality DOTS expansion and enhance case finding, case notification, case holding and improve care of other lung diseases.

Sub Objectives	Main activities	Indicator

1. To develop and operationalized appropriate diagnosis and management systems for Childhood TB	a. Develop and disseminate guidelines for diagnosis and management of childhood TB b. Develop training curriculum for paediatric TB c. Capacity building of health workers on childhood TB d. Procure diagnostic tools (skin test, Paediatric TB diagnostic algorithm, Diagnostic criteria) e. Develop and disseminate tools for contact tracing of peadiatric f. Provide IPT to under 5 exposed to PTB with no TB disease g. Provide nutritional support to all children with TB.	• Number of children treated for TB • Proportion of exposed children on IPT • Number of peadiatric TB guidelines printed and distributed • Number of workshops held to develop paediatric TB training curriculum • Number of health care workers trained on management of childhood TB
2. To Strengthen the diagnosis of TB in Kenya through quality assured bacteriology, radiology, histology and other modern diagnostics including digital diagnostic imaging in order to improve access and equity.	a. Provide adequate tools for optimal radiological investigation (Radiology films, developer and staff) b. Adopt and develop modern digital diagnostic Imaging c. Develop a policy to adopt the DDI d. Train Health Workers on DDI e. Procure the DDI machine	▪ No. of functional sputum collection centers in place. ▪ No of facilities with functional DDI
3. To improve management of TB / HIV co-infected children	a. Participation in HIV paediatric guidelines review meetings b. Strengthen HIV testing using antibody test and PCR testing through DBS for children under 18 months in the chest clinics c. Provide ARVs to TB / HIV co-infected children to all chest clinics d. Screening of all HIV infected children for TB e. Disseminate guidelines for diagnosis and management of TB/HIV in children f. Capacity build HCWs in childhood TB / HIV management	• Number of children receiving HIV testing • Number of HIV Positive children put on ARV • Number of Health care workers trained on management of childhood TB/HIV
4. To advocate for improved pediatric TB diagnosis and management	a. Hold consultative meetings on Paediatric TB diagnosis and management b. Develop and disseminate IEC materials on pediatric TB diagnosis and management	• Number of consultative paediatric TB meetings held

6.7. Special Groups

Strategic Objective: To improve access to TB, leprosy and lung health services for all special groups

Sub-objective	Activities/ Interventions	Indicators
1. To ensure an enabling environment for implementation of TB control for special groups.	a. Appointment of focal person by DLTLD to coordinate all activities targeting special populations in collaboration with donor partners b. Establish and maintain special group TWG c. Develop, print and distribute policy guidelines on TB control in special populations d. Hold a consultative meeting with professionals with capacity to offer technical assistance specific to special groups [WHO, Judiciary, Immigration] e. Provide regular mobile laboratory and X- ray facilities for special populations f. Conduct outreach services to special population in selected sites g. Renovate and refurbished prison TB clinics and diagnostic services h. Carry out routine TB and Lung disease screening for Prison population i. Provide prison TB screening tools j. Carry out TB health education in prison on quarterly basis	• Number of persons appointed to coordinate special groups activities • Number of special groups TWG meetings held • Number of special groups TB guidelines printed and distributed • Number of special groups consultative meetings held
2. To advocate for recruitment and retention of trained health care workers to provide LTLD health services for the special populations	a. Build the capacity for health care workers to address LTLD among special populations through training and updates b. Regular support supervision by provincial and national level teams	• Number of Health care workers trained on TB and TB/HIV management among special populations • Number of trained staff recruited to work among special populations
3. To control cross-border infection and spread of TB	a. Mapping of LTLD treatment sites in neighboring countries [East African region]	• Number of quarterly consultative meetings held with the stakeholders • No of border posts doing surveillance for TB,L,LD • Number of LTLD treatment sites identified in neighbouring countries.

6.8. Health Systems Strengthening and Human Resources

Strategic Objective: To contribute to the strengthening of the health system to improve TB, L & LD service delivery.

Sub-objective	Activities/ Interventions	Indicators
1. To have optimal numbers of motivated, competent and equitably distributed health service providers who will implement and sustain quality TB, Leprosy and lung disease control services, in order to achieve the National targets.	a. Enhance collaboration with Medical Training Institutions to strengthen pre-service training curricula and the teaching capacity in the field of TB/ Leprosy and Lung disease. b. Introduce a Performance Improvement Approach. c. Enhance organizational sharing and learning. d. Promote equitable distribution of staff at all levels. e. Enhance a safe and enabling working environment in TB/Leprosy and lung disease services at all levels. f. Strengthen strategic partnerships for health workforce development for comprehensive TB/Leprosy / lung disease control with governmental and non-governmental stakeholders. g. Ensure appropriate numbers of staff given the development of the health system and needs through government and partner support.	• Number of collaboration meetings held • Number of health facilities with safe and enabling working environment in TB/Leprosy and lung disease services at all levels • Number of strategic and functional partnerships for TB/Leprosy/Lung disease control
2. To have TB, L & LD adequately addressed in the new NHSSPIII (and AOPs) and Vision 2030 (budget and indicators).	a. Actively participate in the revision and implementation of Vision 2030. b. Sensitize SWAP partners on importance of TB to give TB a stronger voice in the development of NHSSPIII (and AOPs).	• Percentage of the division's budget request reflected in NHSSPIII
3. To integrate TB, L & LD services and activities in all district and provincial health plans.	a. Active participation by all DLLCs and RLLCs to attend all district and provincial level planning meetings to ensure incorporation of DLTLD AOPs in the district and regional AOPS. b. Identify and advocate for inclusion of key TB/Lung disease indicators into national HMIS	• Percentage of all provincial health plans that include TB, L & LD services and activities.
4. To comprehensively coordinate technical assistance and partners for mobilization and efficient utilization of resources and partner support according to programme needs.	a. Identify TA needs for strategic plan b. Appoint focal point for TA and partner coordination c. Focal point to make a TA coordination plan specifying timing, source, funding and reporting of each TA (local and international)	• TA coordination plan in place and up to date
5. To have core program elements (at least drugs, lab supplies and staff) fully financed by government to ensure continuity and self-reliance in the future and enhanced program stewardship.	a. Present the budgetary estimates and request to the department, directorate and MOH planning and monitoring unit before the MOPHS budgetary process starts. b. Prepare an implementation plan (activities, timelines, with budget) to declare TB as a national emergency.	• Percentage of funding required for all TB & L drugs funded by GoK • Separate budget lines for TB drugs and lab supplies in MOPHS budget
6. To implement Quality management and Quality improvement (ISO & QI approaches) for standardization and quality improvement of all TB, L, LD	a. Implement a quality management system in all the DLTLD components (ISO 9001:2008) in collaboration with stakeholders (MOPHS, KBS) b. Ensure DLTLD Attains ISO certification. c. Maintain and enhance a quality management system in DLTLD.	• Number of training sessions carried out • Percentage of a Quality management system elements implemented within the DLTLD • DLTLD awarded ISO certification

control activities.	d. Scale up and evaluate the quality improvement approach intervention as part of having a total quality management system within the Division. e. Advocate for quality management systems within the greater ministry to improve the health sector systems strengthening. f. Document lessons learnt in implementation of the QMS and PMS (element of operational research) OR.	• Actual number of meetings to share QMS and PMS lessons
7. To strengthen infrastructure for improved service delivery.	a. Conduct inventory of clinic and lab infrastructures to be refurbished. b. Communicate and coordinate with the MOPHS, Constituency Development Funds and partners to plan for refurbishments. c. Source for funding and implement refurbishments.	• Proportion of needed structures refurbished

6.9. and 6.10. Lung Health and Public Private Mix

Strategic Objective: **PPM:** To engage and network all health care providers and stakeholders to provide quality lung and leprosy treatment and prevention.
Lung Health: To promote provision of quality, accessible and affordable health care for patients with respiratory illnesses including asthma, COPD and tobacco related lung diseases.

Sub-objective	Activities/ Interventions	Indicators
PPM		
1. To establish systems for engaging and networking all health care providers and stakeholders	a. Form and maintain a PPM TWG b. Develop print and distribute PPM policies including workplace policies c. Mainstream PPM agenda into the existing national, provincial and district meetings. d. Hold consultative meetings with stakeholders e. Strengthen referral mechanisms between sectors f. Train all health care providers in private sector g. Sensitize herbalists and other informal or alternative care providers h. Carry out mapping of health providers in informal settlements i. Carryout training of health providers in slum areas j. Renovate and equip service delivery points including setting up mobile units in informal settlements	• PPM TWG formed • PPM policy manual distributed • Number workplaces received policy manual / yr • Number of Consultative meeting held • Mapping of private providers in informal settlements
Lung Health		•
1. To improve delivery of standardized and quality lung health care by all providers, and aligned with the national and International Standards	a. Train health care workers on lung health including TB (PAL)	• Number of private HCW trained on quality care for lung health including TB
2. To support availability of essential services to provide quality lung health.	a. Support TWG quarterly meetings on lung health b. Development print and disseminate lung health policy guidelines c. Train teams of TOTs on the priority lung conditions d. Conduct PAL sensitization workshops e. Sensitize HCWs on PAL f. Equip high volume hospitals with essential lung function assessment equipment (spirometers etc) g. Train HCWs on the use of essential lung function equipment	• Lung health TWG meetings / yr • Lung health policy guidelines development and distributed / year • Number TOTs trained / year • Number regional PAL workshops conducted • Number of hospitals provided with lung function equipment.

6.11. Health Promotion

Strategic Objective: To promote the national response to TB, leprosy and lung diseases by creating an enabling environment for behavior change, sustainable resource allocation and partnership.

Sub-objective	Activities/ Interventions	Indicators
1. To improve awareness of TB, leprosy and lung health at all levels.	a. Review communication and advocacy strategy b. Design, develop, produce and distribute IEC materials (for all thematic areas) c. Conduct ACSM technical working group meeting d. Conduct mass media campaign (interactive talk shows, spots/commercial adverts, newspaper advertisement and documentaries) e. Identify TB Celebrities f. Conduct mass screening campaigns as part of WTB day g. Conduct quarterly media briefing h. Conduct World TB day, World Asthma day and World Pneumonia days i. Carry out school TB health education program j. Carry out TB health education in public barazas k. Carry out monthly TB health education in public transport system in 20 major urban sites l. Hold two workshops for development of the ACSM training manual , curriculum and ACSM sensitization guide for health Workers and community m. Attend international training on ACSM n. Train program officers on health promotion at all levels o. Train Health Workers on ACSM p. Recruit and train TB champions q. Train community leaders on TB r. Review, print and distribute patient charter s. Document best practice on ACSM	• Number of ACSM TWG meetings held • Communication and advocacy strategy revised • Number of IEC materials developed and distributed (for all thematic areas) • Number of mass media campaigns conducted • Training Curriculum in ACSM developed • WTB , World Asthma and World Pneumonia days commemorated • Number of people screened for TB during WTB day celebrations • Number of programme officers receiving training on health promotion
2. To create a mechanism for resource mobilization to address TB, leprosy and lung health.	a. Develop and disseminate Partners resource mobilization plan with tracking tool for the DLTLD Strategic Plan (2011-2015). b. Conduct Forum for MPs/PSs/Senior officers on TB Leprosy and Lung Health c. Conduct periodic review meetings with the partners and focal persons of various thematic areas in program and link up the activities d. Train journalists on TB/HIV and MDR-TB	• Number of meetings held to develop Resource mobilization plan tracking tool for strategic plan (2011-5) • Number of forums on TB Leprosy and Lung health conducted for MPs/PS/Senior officers • Number of periodic partners review meetings held • Number of journalist trained on TB/HIV
3. To strengthen coordination mechanisms on health promotion activities among stakeholders in TB, leprosy and lung health.	a. Mapp out CSOs/NGOs/CTBC implementers b. Capacity build CSO(Core/Technical capacity training) c. Hold National meetings to coordinate monitoring of ACSM activities and harmonize ACSM annual plans	• Number of CSOs/NGOs/CTBC implementers mapped • Number CSOs with staff offered training • Number of national meetings held to coordinate monitoring of ACSM activities

4. To streamline technical assistance provided by partners to the program	a. Conduct baseline survey of TA in TB control b. Track technical assistance provided by partners	• Number of TA contribution in TB control surveys • Number of TA offered by partners
5. To establish a functional Stop TB partnership Kenya and strengthen collaboration among all stakeholders	a. Establish and maintain functional Stop TB partnership Kenya chapter b. Hold periodic Stop TB partners forum c. Carry out joint field visits with STOP TB partners	• Stop TB partnership Kenya chapter established • Number of STOP TB Partners forum meetings per year

6.12. Community Based TB Care

Strategic Objective: To increase the level of community involvement in provision of quality TB, Leprosy and lung health services

Sub-objective	Activities/ Interventions	Indicators
1. To strengthen coordination of CTBC implementation at all levels	a. Hold quarterly CTBC technical working group meeting b. Participate in the MOPHS community health service TWGs c. Update and print national guidelines on CTBC&P and include leprosy d. Hold annual national CTBC stakeholders meeting e. Maintain inventory on functional community health units at each TB control zone f. Hold annual district CTBC stakeholders forum g. Provide support to community health units quarterly review meetings h. Support post-graduate course in community health system strengthening	• Number of quarterly CTBC TWG meeting held • Number of national guidelines on CTBC/Leprosy printed and distributed • Number of functional community health units at each TB control zone • Number of annual national CTBC stakeholders meeting held
2. To strengthen implementation of CTBC activities	b. Carry out training of DHMTs members and CHEWs on CTBC as TOTs c. Carry out trainings of CHWs on CTBC d. Provide monthly incentives to CHWs e. Procure bicycles for CHWs f. Procure and distribute CHW kit g. Sensitize the Community Health Management teams on CTBC h. Support international benchmarking visits i. Provide CTBC community R&R tools (chalk boards)	• Number of DHMTs members and CHEWs trained on CTBC as TOTs • Number of CHWs trained on CTBC • Number of bicycles for CHWs procured and distributed • Number of workshops held to sensitize Community Health Management Teams on CTBC
3. To promote TB Patient empowerment in TB control	a. Establish and provide support to patient support groups b. Distribute patient charter	• Number of patient support group established and supported • Number of patient charters distributed

6.13. TB and Poverty / Gender

Strategic Objective: To promote equitable access to tuberculosis care by implementing the TB & poverty / Gender initiative strategy

	Sub-objective	Activities/ Interventions	Indicators
1.	To promote equitable access to tuberculosis care by implementing the TB & poverty / Gender initiative strategy :	a. Carry out needs assessment in identified poorest and hard to reach areas and develop and implement tailored interventions b. Develop and distribute guidelines on poverty/ gender mainstreaming c. Workshop to sensitize stakeholders on Tb gender and poverty issues d. Capacity build for TB poverty and gender officers e. Hold a sensitization workshop for RLLCs on gender and poverty f. Hold a sensitization workshop for DLLCs on gender and poverty g. Hold a sensitization workshop for peripheral HCWs on gender and poverty mainstreaming h. Identify TB gender and poverty indicators and include them in the DLTLD M&E tools and disaggregate by age and sex	• Number of new TB treatment centers established in identified areas. • Number of gender and poverty mainstreaming guidelines printed • Number of workshops held to sensitize stakeholders on poverty and gender issues. • Number of HCWs sensitized on gender and poverty mainstreaming into TB control

6.14. Leprosy

Strategic Objective: 1. To ensure early case detection, improved recording, reporting and treatment completion of all diagnosed leprosy cases.
2. To strengthen disability prevention initiatives and promote care services including rehabilitation.

	Sub-objective	Activities/ Interventions	Indicators
	Early Case Finding		
1.	To ensure that health care workers have knowledge and skills to suspect, diagnose and manage the patient or refer leprosy patients.	a. Develop a training curriculum for management & control of leprosy b. Train health care workers on clinical leprosy management &control	• Number of workshops held to develop curriculum for management and control of leprosy • Number of health care workers trained in clinical management of leprosy
2.	To increase awareness of leprosy in the community in the leprosy endemic regions.	a. Sensitize and involve CHWs on leprosy control b. Hold Health education sessions with leprosy patients and their families c. Sensitize the communities on leprosy control d. Support the formation of the community support group & leprosy patients (former and current)	• Number of community health care workers trained in leprosy control • Number of Health facilities providing H/E to patients/families • Number of community support groups formed
3.	To develop a policy which supports and ensures active case finding.	a. Develop and distribute guidelines on active case finding. b. Carry out skin clinics in endemic areas for screening c. Hold technical working group on leprosy meetings	• Guidelines distributed to endemic zones • Number of skin clinics held per year • TWG held per year
4.	Ensure regular supplies of Leprosy commodities are available in all leprosy treatment centres.	a. Procure and distribute Prednisone. b. Provide footware to all patients with DG1 c. Hold Health education sessions with leprosy patients and their families	• Amount of prednisone purchased and distributed • No. of patients with disability grade 1 given footwear

	d. To carry out support supervision at all levels focusing on leprosy.	
5. To ensure access to rehabilitative services in selected centres and also in line with community based rehabilitation initiatives.	a. Carry out mapping of the orthopaedic services available in endemic districts. b. Conduct quarterly voluntary muscle testing and sensory testing (VMT/ST) on all patients during treatment c. Support the rehabilitation and equipping of all the rehab centres d. Update the orthopaedic technologists/physiotherapists in the endemic areas e. Identify and refer patients who refer rehab services.	• Number of orthopaedic services mapped • Number of rehab centres rehabilitated and equipped • Number of orthopedics specialists in endemic areas

6.15. M&E, Operations Research and Surveillance

Strategic Objective: To improve, expand and use strategic information system to enhance linkages between all the program areas to strengthen program performance

Sub-objective	Activities/ Interventions	Indicators
1. To put in place a national case based electronic surveillance system at all levels	a. Develop a web based online reporting system (Hire a consultant to assist in the development and finalize the implementation plan) b. Set up and maintain IT environment for the National electronic surveillance system (Servers, PDAs, Desktops, printers, Solar panels and inverters, IT officers and Training) c. Provide internet connectivity for all DTLTD coordinating staff. d. Develop, print and distribute TB information system guidelines e. Carry out quarterly M/E TWG consultative meeting f. Train HCWs on the use of the TB info system using the PDA g. Set up and maintain a Laboratory Information management system in 8 regional laboratories and 20 high volume districts	• Number of M&E TWG Meetings held • National electronic surveillance system in place • National On-line web based reporing system in place • Number of TB Information System guidelines printed and distributed • Internet connectivity provided to DLTLD central unit office • TB information system developed and piloted • Number and percentage of districts reporting using the electronic TB information system • Number of laboratories with functional LIMS system
2. To Improve the quality and use of strategic information, including feedback at all levels	a. Conduct a workshop to develop/review M/E data collection tools b. Print and distribute data collection tools c. Procure data analysis software and antivirus software d. Support staff development and capacity building – continue e. Train and support HMIS staff to use the TB/HIV Information system. f. Train peripheral unit staff on utilization of data for program improvement at the facility level. g. Website updated regularly to disseminate all current information (Reports, Guidelines etc) h. Carry out regular data quality assessment i. Train HCWs on the use of E-TB Manager	• Number of Meetings held to review DLTLD M&E Tools • Number of statistical and anti-virus softwares procured • Number of M&E staff who received advanced training • Number of Health Information systems staff trained on TB Information system using the TB/HIV information system • Number of facility unit staff trained on the utilization of data • DLTLD website regularly updated • Number of regular data quality assessment carried out • Number of health care workers trained on the use of E-TB manager

3. To build capacity for and enhance research to improve program performance	a. Appoint a competent research focal person to coordinate research activities b. Train staff on operational research at different levels (CU, provincial & district) as per the implementation plan c. Review and operationalization of the research implementation plan including the identification of research priorities d. Hold annual research dissemination meeting	• Number of competent research focal person appointed to coordinate research activities • Number of staff trained on Operational research at different levels (CU, ,Regional & district) as per the plan • Number of meetings for review and operationalization of research plan including the research priorities • Number of research collaborative meetings with stakeholders
4. To carry out population based survey to establish the burden of TB, Leprosy and Lung Disease	a. Conduct a TB prevalence survey b. Conduct a DR TB survey c. Conduct a TB mortality survey d. Conduct burden of Lung Disease (BOLD) study	• Number of TB prevalence surveys carried out • Number of DR TB survey carried out • Number of Mortality surveys carried out
5. To measure impact of selected programmatic interventions	a. Carry out delay in diagnosis survey b. Carry out a ACSM KAP survey c. Carry out a survey to determine the reasons why TB patients default d. Carry out evaluation of TB Gender and Poverty initiatives being implemented in 2 districts (Mutomo and Kitui) e. Carry out an evaluation of the impact of paediatric diagnostic criteria on treatment outcomes f. Carry out a survey on barriers to access of TB care g. Conduct baseline needs assessment for special groups (Immigrant, prisoners and uniformed forces) h. Carry out a survey on current practices on paediatric TB treatment i. Carry out regular post marketing surveillance j. Conduct survey to determine the contribution of CB DOTS to TB care k. Pilot introduction of Rifabutin containing regimen in HIV patients on PI	• Number of interventions identified and evaluated • Number of impact assessments successfully completed • Number of Mid and End term reviews carried out and reports available

CHAPTER 7: Sustainability and Conditions for Success

Sustainability of a program coping with an epidemic of this magnitude is something of a contradiction in terms. There are, naturally, concerns about the financial sustainability of a program of this size especially as the focus may be shifting from disease specific programmes to overall health care system support. The successful implementation of this strategic plan is expected to result in the decline in TB incidence in Kenya. This may result in shrinkage of the financial envelope available for TB care and control which could erode the gains made and lead to a resurgence of the disease. Continued optimal funding and technical support are two essential factors which will be needed for the successful implementation of this strategic plan. Other essential elements that will be needed for this plan to be successfully implemented include staff, national and regional stability, political will and support, a favorable organizational environment and leadership. Although many of the objectives listed in this plan will not be achieved without sufficient resources to do so, funding is not everything and other elements and conditions for success will be needed as described briefly below.

Staff: The availability of sufficient, qualified, competent and motivated staff at all levels will be key to the success of this plan. The Kenyan public health care system suffers a human resource shortage both in terms of numbers and distribution. There may be also problems with staff competencies and skills in addition to staff motivational problems. Among the factors that may be influencing staff motivation include perceived inadequate remuneration, poor working environment, lack of commodities and equipment to facilitate work and the perceived health risk of taking care of TB and in particular MDR-TB. All these problems will need to be addressed if this plan is to be successfully implemented.

HIV trends: The TB trends will depend to a very large extent on the HIV trends. While it appears that the HIV prevalence /incidence seems to have stabilized in some areas of the country, in others (especially the northern areas and the Coastal zone) it seems to be rising. A rising HIV incidence/prevalence will be followed by a rise in TB and vice versa. This relationship may be altered by the scale of provision of ART to HIV infected individuals. If HIV infected individuals are identified early and placed on ART promptly this will have an effect on the incidence of TB.

MDR-TB: Development of resistant TB poses a great threat to TB control. The trend of MDR-TB is worsening in the country. The expectation is that MDR-TB prevalence will rise in tandem with the wide scale us of Rifampicin, however, it is known that a good TB care and control programme that ensures high adherence to treatment protocols by both providers and patients can considerably limit the burden of MDR-TB. The early identification of patients with drug resistant TB (including mono and poly resistant TB) and the placement of such individuals on appropriate treatment with appropriate support systems for adherence will be essential for the prevention of forms of TB that are virtually untreatable.

Political and Regional Stability: Political stability is very important for any health program. This stability includes retention of experienced staff and recruitment and retention of qualified staff. National and regional stability is also important for TB control as it prevents mass movement of people as internal or external refuges. Tuberculosis care and control becomes very difficult under conflict situations.

Space and leadership: A program the size and scope of the current national program, dealing with numerous issues including leprosy elimination and for lung disease control activities requires sufficient investment in management and leadership. This is both in terms of physical pace (proper offices, equipment), the presence of highly qualified technical staff and management autonomy.

CHAPTER 8: Budget

Budgeting for this Strategic Plan was done using with the *WHO Planning and Budgeting Tool* and covers the five-year period. The majority of funds come from GoK, with gaps filled by bilateral and multilateral agencies, particularly the GFATM and United States Government (USG). The Central Unit develops its own annual operating plan (AOP) which is then incorporated into the MOPHS. Typically, the AOPs at the Regional and District level are based on the disease burden, the level of infrastructure development, human and equipment resource needs. These non-Central operating plans are developed from within the district or regional health management teams.

Table 5 is a summary budget for the whole program, by year with summary items for each of the sub-objectives of the 15 thematic areas. The Strategic Objectives are listed by number and content on the left, with each sub-objectives associated with that SO following. All sub-objectives have been included even those without direct budget through the programme. Some allowance (of 5%) has been made for inflation.

Table 6 is the final summary budget with 5% inflation for the whole program over 5 years but only showing the totals for each thematic area. As shown, the total five year budget is estimated at USD 292 million, which is approximately $57 million per year. The range of annual budget ranges between USD55 and 60 million per year, with year one (2011) showing the highest amount.

Table 5: Summary Budget for Five Year Strategic Plan by 15 Strategic Objectives

Strategic Objective	Sub-Obj. No.	Sub-Objective	2011	2012	2013	2014	2015	5 Year Total
To sustain high quality DOTS expansion and enhancement through case finding, case notification and case holding modalities to ensure all TB patients have access to optimal TB diagnosis, care and treatment.	1.1.0	To advocate for adequate budgetary allocation for TB control activities from the government of Kenya and partners.	114,407.00	369,928.65	162,925.35	369,928.65	239,526.35	**1,256,716.00**
	1.2.0	To support coordination of implementation of activities	226,207.33	13,387.92	237,517.70	13,387.92	237,517.70	**728,018.57**
	1.3.0	To enhance capacity of health care workers to offer quality TB case management including patient support and nutrition services	446,192.00	578,977.35	730,224.60	891,735.60	1,094,637.60	**3,741,767.15**
	1.4.0	To strengthen support supervision of TB control services at all levels in Kenya	13,113,523.40	8,257,608.87	11,946,470.55	12,297,227.25	11,157,599.25	**56,772,429.32**
		Grand Total Obj. 1.0	**13,902,340.73**	**9,222,015.39**	**13,079,251.85**	**13,574,394.12**	**12,731,396.65**	**62,509,398.74**
Strategic Objective	**Sub-Obj. No.**	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
To strengthen and sustain accessible, quality assured bio-safe TB bacteriology (including use of new technologies) for early diagnosis, monitoring, surveillance and management of tuberculosis and other lung diseases	2.1.0	To strengthen quality assured TB AFB microscopy	6,973,520.00	7,240,330.65	6,510,599.55	5,520,376.05	5,629,717.80	**31,874,544.05**
	2.2.0	To expand quality assured TB culture and DST service	6,521,350.00	5,344,568.25	6,738,677.40	6,364,186.50	6,397,482.00	**31,366,264.15**
	2.3.0	To strengthen coordination of laboratory services	29,825.00	2,268.00	2,268.00	31,316.25	2,268.00	**67,945.25**
		Grand total Obj. 2.0	**13,524,695.00**	**12,587,166.90**	**13,251,544.95**	**11,915,878.80**	**12,029,467.80**	**63,308,753.45**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
To strengthen the TB, L &LD commodity management system and ensure access to and rational use of high quality medicines, laboratory supplies and equipment and other health related products.	3.1.0	To ensure evidence based product selection – based on standard documents (National guidelines, WHO guidelines and Any other approved guidelines)	2,160.00	2,268.00	2,268.00	2,268.00	2,268.00	**11,232.00**
	3.2.0	To improve the DLTLD commodity Forecasting & Quantification and the procurement system	9,414.00	10,300.50	14,420.70	10,300.50	14,420.70	**58,856.40**
	3.3.0	To strengthen the warehousing & distribution system for DLTLD commodities	10,066,522.00	9,101,981.70	9,520,011.90	10,106,863.20	10,709,534.85	**49,504,913.65**
	3.4.0	To strengthen the commodity data management information system	172,200.00	180,810.00	180,810.00	180,810.00	180,810.00	**895,440.00**

	3.5.0	To promote rational use of the TB, Leprosy & Lab supplies & equipment	180,594.00	189,623.70	84,623.70	84,623.70	84,623.70	**624,088.80**
	3.6.0	To assure high quality DLTLD commodities through collaboration with key stakeholders	3,200.00	3,360.00	3,360.00	3,360.00	3,360.00	**16,640.00**
	3.7.0	To expand operational research (OR) activities to inform policy, Law, and regulation reviews and establish TB anti-microbial resistance surveillance system	24,844.00	24,050.25	-	-	24,048.15	**72,942.40**
		Grand-Total Obj. 3.0	**10,458,934.00**	**9,512,394.15**	**9,805,494.30**	**10,388,225.40**	**11,019,065.40**	**51,184,113.25**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
To improve, expand and use strategic information system to enhance linkages between all the program areas to strengthen program performance	4.1.0	To ensure at least 95% of TB patients are tested for HIV by 2015	573,601.00	434,876.40	193,036.20	189,940.80	213,160.50	**1,604,614.90**
	4.2.0	To ensure 80% of HIV infected TB patients receive ART by 2013 (KNASP) and at least 85% by 2015	225,834.00	237,125.70	237,125.70	237,125.70	237,125.70	**1,174,336.80**
	4.3.0	To provide HIV prevention methods to all TB patients including PWP for TB/HIV co-infected patients by 2015.	311,004.00	217,702.80	217,702.80	108,851.40	115,441.20	**970,702.20**
	4.4.0	To ensure nutrition support to TB and TB/HIV patients	1,461,486.00	478,510.20	373,151.10	396,366.60	431,111.10	**3,140,625.00**
		Recruit and sustain 10 nutritionis for hard to reach districts	40,000.00	40,000.00	40,000.00	40,000.00	40,000.00	**200,0000.00**
	4.5.0	To strengthen and sustain TB/HIV coordination at all levels	664,418.00	684,723.90	706,805.40	684,723.90	706,805.40	**3,447,476.60**
	4.6.0	To ensure that all eligible children under 5 years and PLHIV receive IPT by 2015	31,280.00	-	-	-	32,844.00	**64,124.00**
	4.7.0	To ensure that at least 80% of health facilities in TB/HIV settings are sensitized on the minimum requirements for IPC implementation by 2015	51,540.00	7,035.00	7,035.00	7,035.70	30,198.70	**102,844.41**
	4.8.0	To strengthen the implementation of TB and TB/HIV work place policies	83,327.00	15,477.00	-	-	87,493.35	**186,297.35**
		Grand Total Obj. 4.0	**3,402,490.00**	**2,075,451.00**	**1,734,856.20**	**1,624,044.10**	**1,854,179.95**	**10,691,021.26**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
5.0: To strengthen DR TB diagnosis, prevention, care,	5.1.0	To improve DR TB patients' access to successful standardized Treatment, Care and Support	698,806.00	869,563.80	887,429.55	1,095,922.80	1,300,709.55	**4,852,431.70**

treatment and support.	5.2.0	To Reduce exposure of DR TB in health care settings and the community	848,652.00	851,487.00	880,035.98	851,487.00	880,035.98	**4,311,697.95**
		Grand-Total Obj. 5.0	**1,547,458.00**	**1,721,050.80**	**1,767,465.53**	**1,947,409.80**	**2,180,745.53**	**9,164,129.65**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
6.0. To strengthen the diagnosis and management of TB , TB / HIV, and chronic lung diseases in children so as to sustain high quality DOTS expansion and enhance case finding, case notification, case holding and improve care of other lung diseases.	6.1.0	To develop and operationalized appropriate diagnosis and management systems for Childhood TB	121,976.00	75,600.00	106,730.40	75,600.00	106,730.40	**486,636.80**
	6.2.0	To Strengthen the diagnosis of TB in Kenya through quality assured bacteriology, radiology, histology and other modern diagnostics including digital diagnostic imaging in order to improve access and equity.	-	-	-	-	-	**-**
	6.3.0	To improve management of TB / HIV co-infected children	120,000.00	126,000.00	126,000.00	126,000.00	126,000.00	**624,000.00**
	6.4.0	To advocate for improved pediatric TB diagnosis and management	11,922.67	12,518.80	12,518.80	12,518.80	12,518.80	**61,997.87**
		Grand-Total Obj. 6.0	**253,898.67**	**214,118.80**	**245,249.20**	**214,118.80**	**245,249.20**	**1,172,634.67**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
7.0:To improve access to TB, leprosy and lung health services for all special groups	7.1.0	To ensure an enabling environment for implementation of TB control for special groups	892,136.00	884,268.00	936,742.80	885,628.80	916,759.20	**4,515,534.80**
	7.2.0	To advocate for recruitment and retention of trained health care workers to provide LTLD health services for the special populations	7200	7,560.00	7,560.00	7,560.00	7,560.00	**37,440.00**
	7.3.0	To control cross-border infection and spread of TB	218,952.00	213,444.00	213,444.00	229,899.60	213,444.00	**1,089,183.60**
		Grand total Obj. 2.0	**1,118,288.00**	**1,105,272.00**	**1,157,746.80**	**1,123,088.40**	**1,137,763.20**	**5,642,158.40**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	2011	2012	2013	2014	2015	**5 Year Total**
8.0:To contribute to the strengthening of the health system to improve TB, Leprosy & Lung Disease Service delivery.	8.1.0	To have optimal numbers of motivated, competent and equitably distributed health service providers who will implement and sustain quality TB, Leprosy and lung disease control services, in order to achieve the National targets.	5,122,949.00	6,609,881.25	6,734,938.35	6,592,463.85	6,734,938.35	**31,795,170.80**

	8.2.0	To have TB, L & LD adequately addressed in the new NHSSPIII (and AOPs) and Vision 2030 (budget and indicators).	-	-	-	-	-	**-**
	8.3.0	To integrate TB, L & LD services and activities in all district and provincial health plans.	-	-	-	-	-	**-**
	8.4.0	To comprehensively coordinate technical assistance and partners for mobilization and efficient utilization of resources and partner support according to program needs.	136,000.00	148,722.00	142,800.00	148,722.00	142,800.00	**719,044.00**
	8.5.0	To have core program elements (at least drugs, lab supplies and staff) fully financed by government to ensure continuity and self-reliance in the future and enhanced program stewardship.	-	-	-	-	-	**-**
	8.6.0	To implement Quality management and Quality improvement (ISO & QI approaches) for standardization and quality improvement of all TB, L, LD control activities.	34,510.00	103,542.60	96,205.20	104,260.80	4,872.00	**343,390.60**
	8.7.0	To strengthen infrastructure for improved service delivery.	-	-	-	-	-	**-**
		Grand-Total Obj. 8.0	**5,293,459.00**	**6,862,145.85**	**6,973,943.55**	**6,845,446.65**	**6,882,610.35**	**32,857,605.40**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**5 Year Total**
9.0:To promote provision of quality, accessible and affordable health care for patients with respiratory illnesses including asthma, COPD and tobacco related lung diseases.	9.1	To improve and ensure delivery of standardized and accessible quality lung health care by all providers, public and private, and align with the National and International Standards	260,550.00	273,577.50	273,577.50	273,577.50	273,577.50	**1,354,860.00**
	9.2	To support availability of essential services to provide quality lung health.	538,165.00	345,965.20	339,472.35	139,904.10	166,504.80	**1,530,011.45**
		Grand-Total Obj. 9.0	**798,715.00**	**619,542.70**	**613,049.85**	**413,481.60**	**440,082.30**	**2,884,871.45**
Strategic Objective	Sub-Obj. no.	**Sub-Objective**	**2011**	2,112.60	2,113.65	2,114.70	2,115.75	**5 Year Total**

10.0:To engage and network all health care providers and stakeholders for provision of standardized quality lung health care.	10.1	To establish systems for engaging and networking all health care providers and stakeholders	**320,364.00**	**272,433.00**	**319,960.20**	**272,433.00**	**319,960.20**	**1,505,150.40**
Strategic Objective	**Sub-Obj. no.**	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**Grand Total**
11.0:To promote response to TB, leprosy and lung diseases by creating an enabling environment for behavior change, sustainable resource allocation and partnership at all levels .	11.1.0	To improve awareness of TB, leprosy and lung health at all levels.	3,154,644.00	3,270,852.90	3,291,031.80	3,260,180.70	3,280,359.60	**16,257,069.00**
	11.2.0	To create a mechanism for resource mobilization and placing TB, leprosy and lung health in development agenda.	40,378.00	31,668.00	31,668.00	31,668.00	31,668.00	**167,050.00**
	11.3.0	To strengthen coordination mechanism on Health promotion activities among stakeholders in TB, leprosy and lung health.	167,330.00	132,373.50	158,182.50	54,946.50	54,946.50	**567,779.00**
	10.4.0	To streamline technical assistance provided by partners to the program	-	11,025.00	-	-	11,025.00	**22,050.00**
	11.5.0	To establish a functional Stop TB partnership Kenya and strengthen collaboration among all stakeholders	73,377.00	68,855.85	68,855.85	68,855.85	70,955.85	**350,900.40**
		Grand-Total Objective 11.0	**3,435,729.00**	**3,514,775.25**	**3,549,738.15**	**3,415,651.05**	**3,448,954.95**	**17,364,848.40**
Strategic Objective	**Sub-Obj. No.**	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**Grand Total**
12.0:To increase the level of community involvement in provision of quality TB, Leprosy and lung health services	12.1.0	To strengthen coordination of CTBC implementation at all levels	248,074.00	429,880.50	556,405.50	589,442.70	556,405.50	**2,380,208.20**
	12.2.0	To strengthen implementation of CTBC activities	1,713,080.00	2,598,624.00	2,739,450.00	2,230,305.00	2,236,815.00	**11,518,274.00**
	12.3.0	To promote TB Patient empowerment in TB control	44,800.00	94,080.00	123,480.00	123,480.00	123,480.00	**509,320.00**
		Grand-Total	**2,005,954.00**	**3,122,584.50**	**3,419,335.50**	**2,943,227.70**	**2,916,700.50**	**14,407,802.20**

13.0:To promote equitable access to tuberculosis care by implementing the TB & poverty / Gender initiative strategy	**Sub-Obj. No.**	**Sub-Objective**	**2011**	2,112.60	2,113.65	2,114.70	2,115.75	**Grand Total**
	13.1.0	**To promote equitable access to Tuberculosis care by implementing the TB and poverty /gender initiative strategy**	**151,050.00**	85,344.00	279,058.50	373,800.00	447,058.50	**1,336,311.00**
Strategic Objective	**Sub-Obj. No.**	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**Grand Total**
14.0: To ensure early case detection, improved recording, reporting and treatment completion of all diagnosed leprosy cases.	14.1.0	To ensure that health care workers have knowledge and skills to suspect, diagnose and manage the patient or refer leprosy patients.	112,595.00	105,714.00	110,405.40	105,714.00	110,405.40	**544,833.80**
	14.2.0	To increase awareness of leprosy in the community in the leprosy endemic regions.	98,640.00	103,572.00	103,572.00	103,572.00	103,572.00	**512,928.00**
	14.3.0	To develop a policy which supports and ensures active case finding.	101,040.00	106,092.00	106,092.00	106,092.00	106,092.00	**525,408.00**
	14.4.0	Ensure regular supplies of Leprosy commodities are available in all leprosy treatment centres.	12,800.00	13,440.00	13,440.00	13,440.00	13,440.00	**66,560.00**
	14.5.0	To ensure access to rehabilitative services in selected centres and also in line with community based rehabilitation initiatives.	**68,066.67**	66,713.50	66,713.50	66,713.50	66,738.70	**334,945.87**
		Grand-Total Obj. 14.0	**393,141.67**	**395,531.50**	**400,222.90**	**395,531.50**	**400,248.10**	**1,984,675.67**
Strategic Objective	**Sub-Obj. No.**	**Sub-Objective**	**2011**	**2012**	**2013**	**2014**	**2015**	**Grand Total**
15.0:To improve, expand and use strategic information system to enhance linkages between all the program areas to strengthen program performance	15.1.0	To put in place a national case based electronic surveillance system at all levels	967,536.00	398,098.05	249,981.90	285,750.15	865,783.80	**2,767,149.90**
	15.2.0	To Improve the quality and use of strategic information, including feedback at all levels	877,426.00	1,296,997.80	1,321,889.10	1,376,483.85	1,321,889.10	**6,194,685.85**
	15.3.0	To build capacity for and enhance research to improve program performance	96,430.00	83,821.50	101,251.50	83,821.50	101,251.50	**466,576.00**
	15.4.0	To Carry out population based survey to establish the burden of TB, Leprosy and Lung Disease	2,903,939.00	2,428,652.10	-	431,073.30	683,941.65	**6,447,606.05**
	15.5.0	To measure impact of selected programmatic interventions	214,794.00	366,835.35	47,544.00	128,426.55	248,823.75	**1,006,423.65**

		Grand-Total Obj. 14.0	**5,060,125.00**	4,574,404.80	1,720,666.50	2,305,555.35	3,221,689.80	**16,882,441.45**
		Grand total Strategic plan	**61,666,642.07**	**55,884,230.64**	**58,317,583.98**	**57,752,286.27**	**59,275,172.43**	**292,895,915.38**

Table 6. Summary of costs over 5 years for 15 thematic areas (with 5% inflation) .

No	Thematic Area	2011	2012	2013	2014	2015	5 Year Total
1	Core TB Case Detection and Management	13,902,340.73	9,222,015.39	13,079,251.85	13,574,394.12	12,731,396.65	62,509,398.74
2	Laboratory	13,524,695.00	12,587,166.90	13,251,544.95	11,915,878.80	12,029,467.80	63,308,753.45
3	Logistics and Commodities	10,458,934.00	9,512,394.15	9,805,494.30	10,388,225.40	11,019,065.40	51,184,113.25
4	TB/HIV	3,402,490.00	2,075,451.00	1,734,856.20	1,624,044.10	1,854,179.95	10,691,021.26
5	MDR-TB/IPC	1,547,458.00	1,721,050.80	1,767,465.53	1,947,409.80	2,180,745.53	9,164,129.65
6	Childhood TB	253,898.67	214,118.80	245,249.20	214,118.80	245,249.20	1,172,634.67
7	Special Groups	1,118,288.00	1,105,272.00	1,157,746.80	1,123,088.40	1,137,763.20	5,642,158.40
8	Health System Strengthening and Human Resources	5,293,459.00	6,862,145.85	6,973,943.55	6,845,446.65	6,882,610.35	32,857,605.40
9	Lung Health	798,715.00	619,542.70	613,049.85	413,481.60	440,082.30	2,884,871.45
10	PPM	320,364.00	272,433.00	319,960.20	272,433.00	319,960.20	1,505,150.40
11	Health Promotion – IPC, ACSM,	3,435,729.00	3,514,775.25	3,549,738.15	3,415,651.05	3,448,954.95	17,364,848.40
12	Community TB care	2,005,954.00	3,122,584.50	3,419,335.50	2,943,227.70	2,916,700.50	14,407,802.20
13	TB Poverty and gender	151,050.00	85,344.00	279,058.50	373,800.00	447,058.50	1,336,311.00
14	Leprosy	393,141.67	395,531.50	400,222.90	395,531.50	400,248.10	1,984,675.67
15	M&E and Operations Research	5,060,125.00	4,574,404.80	1,720,666.50	2,305,555.35	3,221,689.80	16,882,441.45
	Grand Total Cost	61,666,642.07	55,884,230.64	58,317,583.98	57,752,286.27	59,275,172.43	292,895,915.38

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