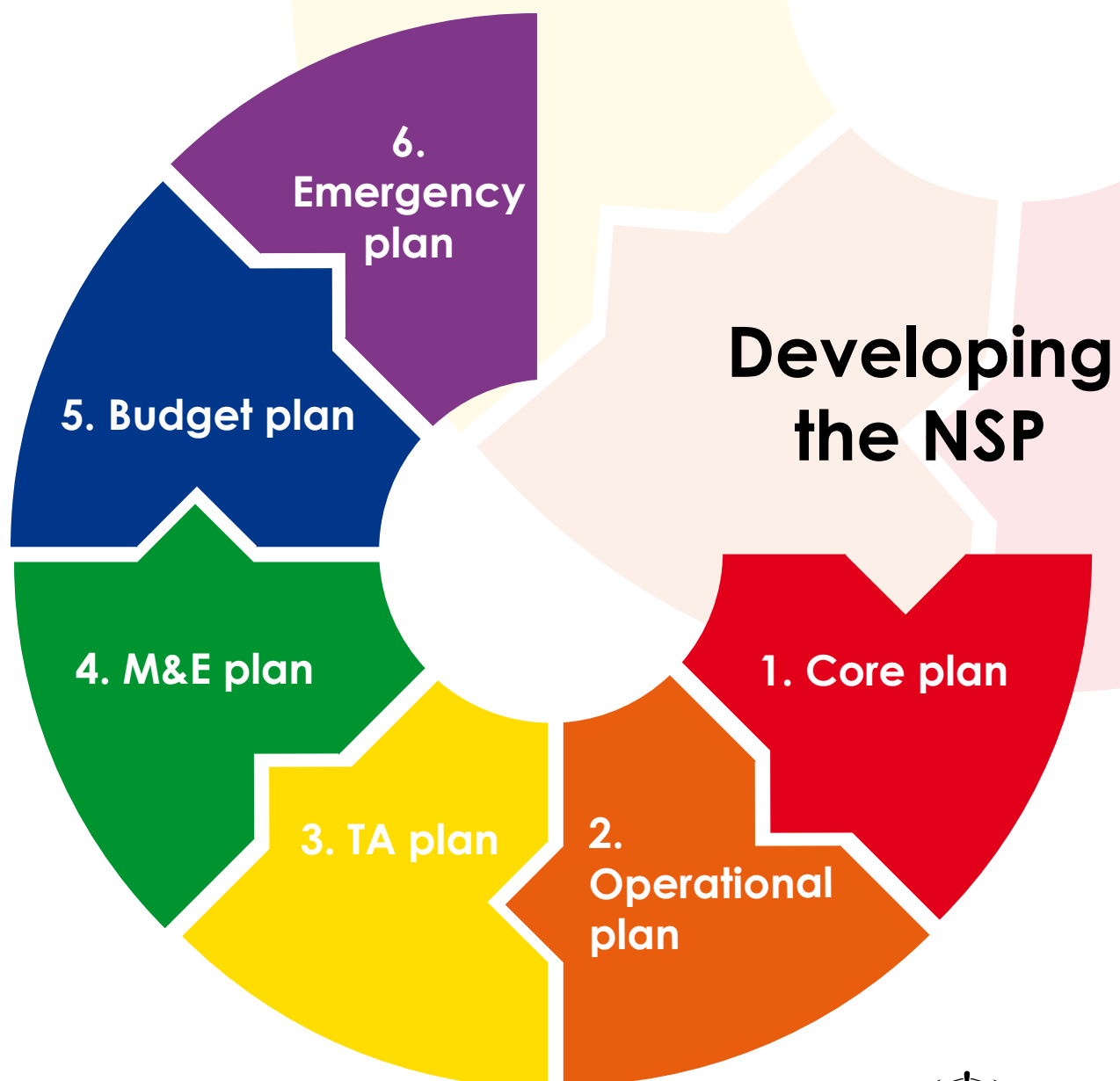# Toolkit to develop a National Strategic Plan for TB prevention, care and control

Methodology on how to develop a national strategic plan

Developing the NSP

- 6. Emergency plan
- 5. Budget plan
- 4. M&E plan
- 3. TA plan
- 2. Operational plan
- 1. Core plan

World Health Organization

Toolkit to develop a national strategic plan for TB prevention, care and control

Methodology on how to develop a national strategic plan

World Health Organization, Geneva, Switzerland

in collaboration with the

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World Health Organization

Acknowledgements

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Foreword

Strategic planning is a fundamental component of the management of a TB control programme and constitutes the key instrument to efficiently implement the policies for TB control in a country, over a defined period of time.

Based on the results of s a thorough situation analysis, a national strategic plan (NSP) for TB care and control should clearly identify for the TB programme manager, its partners and other stakeholders the goal and objectives that need to be achieved, as well as the strategic interventions and activities to reach them. A sound NSP should specify the budget needed to implement these interventions and activities. It should also clearly describe how these interventions and activities will be operationalized, as well as how their implementation will be monitored and their effect evaluated. Moreover, it should provide information on the technical assistance needed from national or international partners (or experts) to make this operationalization effective.

This toolkit has been developed to assist in formulating a NSP. Its various components were assembled to help the NTP managers and all stakeholders involved in the management of TB programmes develop new NSPs or improve the existing ones based on the procedures described across five key elements.

The WHO Stop TB Strategy 2006—2015 has been instrumental in providing guidance to achieve the 2015 global targets for reductions in the burden of disease caused by TB. The end of 2015 will mark the transition between the Millennium Development Goals (MDGs) established in 2000 and a post-2015 development framework. Within this broader context, the World Health Assembly in 2014 endorsed the new End TB Strategy with the associated ambitious unprecedented targets and with a vision of ending the TB epidemic by 2035.

The End TB Strategy expands well beyond the traditional TB control approach. It is based on three clear-cut pillars: the first includes all innovations in care, prevention and control; the second calls for bold policy decisions and for social protection of people affected by the disease; the third promotes research for new tools and innovations in the areas of prevention, diagnosis and treatment. As countries move forward in preparing new NSPs, it is essential that this process gives due consideration to the new strategy while using this toolkit to define the steps needed for a robust and comprehensive NSP.

This toolkit provides a clear methodology to translate the End TB strategy into sound, and visionary NSPs. A sound and bold plan is, in fact, the starting point to deliver better care and achieve control of TB towards, ultimately, its elimination as a public health problem.

Mario Raviglione
Director, Global TB Programme
World Health Organization

Abbreviations

AIDS   Acquired Immunodeficiency Syndrome

CSO   Civil Society Organization

DOT   Directly Observed Therapy

DOTS   Brand name of the internationally recommended strategy for tuberculosis control until 2005 and the basis of the Stop TB Strategy initiated in 2006

DST   Drug Susceptibility Testing

EQA   External Quality Assurance

FBO   Faith-based Organization

HIV   Human Immunodeficiency Virus

ICD   International Classification of Diseases

IHP   International Health Partnership

JANS   Joint Assessment of National Strategies and Plans Tool

LED   Light-emitting Diode

MDR-TB   Multidrug-resistant tuberculosis

MoH   Ministry of Health

NGO   Nongovernmental Organization

NHS   National Health Strategy

NRL   National Reference Laboratory

NSP   National Strategic Plan

NTP   National Tuberculosis Programme

PHC   Primary Health Care

PPM   Public-private Mix

SMART   Specific, Measurable, Attainable, Relevant, Time-bound

SWOT   Strengths, Weaknesses, Opportunities and Threats

TB   Tuberculosis

TRP   Technical Review Panel of the Global Fund

WHO   World Health Organization

XDR-TB   Extensively drug-resistant tuberculosis

Key definitions

Some key words used in this document may have different meanings according to the different readers. To facilitate the understanding and the utilization of this document, the following definitions are proposed:

- **Goal:** This is the long-term aim that has been set for a health strategy (e.g. a national strategy to control TB). Reaching a goal may need many more years than those covered by a NSP, and therefore it may be reached after the implementation of more than one NSP. A NSP usually contributes to achieving a goal. The focus of a goal is normally the health effect of a strategy within the population of interest, such as decreasing TB prevalence and/or TB mortality in populations following the development and implementation of a well-defined national strategy for TB control. Typically, the achievement of a goal is measured by an impact indicator.

- **Objective:** This is the aim that should be achieved by the NSP during the years of its implementation. An objective should contribute to achieving the goal. It is the overall result of the implementation of the NSP. For instance, increasing the treatment success rate of TB patients is an objective that can be achieved by the implementation of the NSP and therefore contributes to decreasing TB mortality in a population. The achievement of an objective is measured by an outcome indicator.

- **Target:** This is the aim that should be achieved by a strategic intervention. The achievement of a target is measured by an output indicator.

- **Strategic intervention:** This is the key health measure that will contribute to achieving at least one objective. It includes several activities and sub-activities that need to be developed and/or implemented. The implementation of a strategic intervention is closely related to the development and/or implementation of its inherent activities and sub-activities. For example, TB/HIV Collaborative Activities can be considered a strategic intervention in TB control strategy. Systematic screening of TB patients for HIV infection is one of the activities included in this strategic intervention. The implementation of a strategic intervention should achieve one or more targets. For example, managing 1500 MDR-TB cases in line with international standards could be a target for the Programmatic Management of Drug-resistant TB as a strategic intervention.

- **Activity:** This is the health action that contributes to implementing a strategic intervention. For instance, training private physicians in a national strategy to control TB is one of the inherent activities of the Involvement of All Care Providers, which is the strategic intervention. An activity may be: i) continuous health action, such as the systematic screening of HIV-positive people for TB; or ii) time-limited health action such as the development of training material on a national strategy to control TB. An activity may include sub-activities. Activities and sub-activities are usually monitored through process indicators.

- **Indicator:** This provides an assessment of the achievements of interventions and activities or helps evaluate the level of a specific health condition in a given population. It is used in both monitoring and evaluation activities.

- **SMART:**
  - » **Specific:** goals/objectives target a specific area for improvement.
    (questions: What do I want to accomplish? Why? Who is involved? Where? Requirements? Constraints?)
  - » **Measurable:** goals/objectives must be stated in quantifiable terms, otherwise they are simply good intentions. Measurable goals facilitate planning, implementation and monitoring and evaluation.
    (questions: How much? How many? How do we know if the goal has been achieved?)
  - » **Attainable:** goals/objectives must provide a driving force that inspires people to aim higher. They must be achievable or they will be a recipe for failure.
    (questions: Is the goal feasible? How can it be accomplished?)
  - » **Relevant:** goals/objectives must matter, be aligned with other goals/objectives, and support them.
    (questions: Is this the right time for the goal? Is it worthwhile?)
  - » **Time-bound:** goals/objectives must include a timeline indicating by when they should be accomplished. The time frame helps to focus efforts and plan the necessary actions over time.
- **Impact indicator:** This focuses on whether the goal has been achieved. Typical examples are mortality, prevalence and incidence.
- **Outcome indicator:** This focuses on the objectives, such as the number of TB cases identified or the treatment success rate.
- **Output indicator:** This assesses the strategic interventions, e.g. the number of MDR-TB cases managed.
- **Process indicator:** This evaluates the development or implementation of activities and sub-activities, e.g. the number of training modules printed or the number of health workers trained.
- **Input indicator:** This is considered in the monitoring and evaluation plan, e.g. the budget annually allocated by the government.

A. Introduction

A1. Why is national TB strategic planning important?

TB is an infectious disease caused by the bacillus Mycobacterium tuberculosis. It typically affects the lungs (pulmonary TB) but can affect other sites as well (extrapulmonary TB). The disease is spread in the air when people who are sick with pulmonary TB expel bacteria, for example by coughing. Overall, a relatively small proportion of people infected with M. tuberculosis will develop TB disease. However, the probability of developing TB is much higher among people infected with HIV. TB is also more common among men than women, and affects mainly adults in the most economically productive age groups[1].

The most common method for diagnosing TB worldwide is sputum smear microscopy (developed more than 100 years ago), in which bacteria are observed in sputum samples examined under a microscope. Following recent breakthroughs in TB diagnostics, the use of rapid molecular tests to diagnose TB and drug-resistant TB is increasing. In countries with more developed laboratory capacity, cases of TB are also diagnosed via culture methods (the current reference standard).

Without treatment, TB mortality rates are high. In studies of the natural history of the disease among sputum smear-positive/HIV-negative cases of pulmonary TB, around 70% died within 10 years; among culture-positive (but smear-negative) cases, 20% died within 10 years[2].

A national strategic plan (NSP) for TB care and control constitutes the key instrument to efficiently implement the defined policies for TB control in a country. It must reflect the vision of the national TB programme (NTP) and be in line with the national health policies and strategies as well as with the general health plan for the country. For global public health problems such as TB, development of national strategic plans should be guided by a national adaptation of the global strategy. The development of a NSP should be based on an in-depth analysis of TB epidemiology and in order to rely on a clear understanding of the TB control situation and follow a rational process of development. An appropriate NSP needs to cover a specific period of time of several years, usually at least 5 years. It must have a clear goal, consistent with the overall aim of the existing policy for TB control.

The global TB strategy developed by WHO for the period 2006—2015 has been instrumental in providing guidance to countries when developing their detailed NSPs to achieve the 2015 global targets for reductions in the burden of disease caused by TB.

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1   Global TB Report, 2013
2   Tiemersma EW et al. Natural history of tuberculosis: duration and fatality of untreated pulmonary tuberculosis in HIV-negative patients: A systematic review. PLoS ONE, 2011, 6(4): e17601.

The end of 2015 will mark the transition between the Millennium Development Goals (MDGs) established in 2000 and a post-2015 development framework. In 2014, a highlevel panel has proposed a set of 17 Sustainable Development Goals (SDGs) with targets set for 2030. They include a goal on "Ensure healthy lives and promote well-being for all at all ages", and a target to "end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases" by 2030. In alignement with these SDGs, WHO initiated the development of a post-2015 global TB strategy to end the global TB epidemic by 2035. It includes corresponding global targets for a 95% reduction in the number of TB deaths and a 90% reduction in the number of cases by 2035, compared with a baseline of 2015. Milestones for 2020, 2025 and 2030 are also included; examples are a 75% reduction in TB deaths by 2025 (compared with 2015), and that by 2020 no TB patients or their households experience catastrophic costs as a result of their disease. Achieving the proposed targets is based on three strategic pillars: integrated, patient-centred care and prevention; bold policies and supportive systems; and intensified research and innovation[3].

The resolution, endorsed by all Member States at the 2014 World Health Assembly in resolution WHA 67.1[4], states that all partners are responsible in the adaptation and implementation of the strategy, as well as in the development of nationally appropriate indicators, milestones and targets to contribute to local and global achievement of the 2035 target. This includes monitoring the implementation of the strategy, and evaluate impact in terms of progress towards set milestones and targets.

The development of the NSP for TB control is a fundamental component of a National TB programme's vision and constitutes the backbone to efficiently implement the policies for TB control in a country, over a period of time. The NSPs is the most important strategic document guiding national health authorities in managing and implementing appropriate TB control activities while being part of a collective movement to meet the overall global health-related SDGs beyond 2015.

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3   Global TB report - 2013
4   http://www.who.int/tb/post2015_TBstrategy.pdf?ua=1

The post-2015 global TB strategy at a glance

VISION A TB-free world
zero deaths, disease and suffering due to TB

GOAL End the global tuberculosis epidemic

MILESTONES FOR 2025
75% reduction in TB deaths (compared with 2015)
50% reduction in TB incidence rate (less than 55 TB cases per 100 000 population)
No affected TB patients or households face catastrophic costs due to TB

TARGETS FOR 2035
95% reduction in TB deaths (compared with 2015)
90% reduction in TB incidence rate (less than 10 TB cases per 100 000 population)
No affected TB patients or households facing catastrophic costs due to TB

PRINCIPLES

1. Government stewardship and accountability, with monitoring and evaluation

2. Strong coalition with civil society organizations and communities

3. Protection and promotion of human rights, ethics and equity

4. Adaptation of the strategy and targets at country level, with global collaboration

PILLARS AND COMPONENTS

1. Integrated, patient-centred care and prevention

A. Early diagnosis of TB including universal drug-susceptibility testing; and systematic screening of contacts and high-risk groups

B. Treatment of all people with TB including drug-resistant TB; and patient support

C. Collaborative TB/HIV activities, and management of co-morbidities

D. Preventive treatment of persons at high risk; and vaccination against TB

2. Bold policies and supportive systems

A. Political commitment with adequate resources for TB care and prevention

B. Engagement of communities, civil society organizations, and public and private care providers

C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control

D. Social protection, poverty alleviation and actions on other determinants of TB

3. Intensified research and innovation

A. Discovery, development and rapid uptake of new tools, interventions and strategies

B. Research to optimize implementation and impact, and promote innovations

A.2. Purpose and target audience

The intention of this document is to provide guidance on a methodology to develop a NSP for TB control. It describes the process that needs to be followed to design and prepare a NSP. It identifies and outlines the key components that should be included in a NSP and provides indications on how to build each of these components through a sound framework in order to reach the overall aim of the national strategy established for TB control.

This document is primarily aimed at TB programme managers, as well as at partners and stakeholders dealing with the programmatic issues related to TB care and control. The audience includes international partners, ministries of health (MoHs), other government sectors, nongovernmental organizations, the private sector, academic institutions and other civil society organizations that are involved in planning, developing, implementing, and monitoring and evaluating TB control interventions and activities.

A NSP is an important tool to strengthen the political commitment of national health authorities to control TB. It also contributes to making TB control visible in the national health agenda and, therefore, advocates for substantial resources from the government. Moreover, the process of developing a sound NSP will encourage donors to be involved in funding TB control in the country.

A.3. What is a NSP?

National strategic planning for TB control is a key instrument for managing TB control programmes appropriately. It is a process for defining and determining priorities and strategic directions over a period of time (e.g. 5 years and aligned with the national health plan). It sets forth what should be achieved within a TB programme, how it will be achieved, and how it will be known that it has been achieved. It guides decision-making on allocating resources and on taking action to pursue strategies and set priorities[5].

A sound NSP should provide a clear framework that specifies the appropriate strategic interventions to reach the country's TB care and control goal(s), objectives and targets. Interventions and objectives need to be adequately and coherently linked. Moreover, activities and sub-activities inherent to each intervention need to be clearly specified, highlighting clear target(s) for each intervention and identifying where and when each activity or sub-activity should be implemented and who will implement it.

In addition, a NSP should include:

- specifications of the technical assistance needed to implement certain interventions and/or activities identified;
- a clear description of how the implementation of interventions and activities will be monitored and how their output, outcomes and impact will be measured and evaluated;
- a detailed budget to implement interventions and activities.

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5   http://www.health.state.mn.us/divs/opi/pm/lphap/stratplan/

A.4. Basic principles

A.4.1. Compliance with the Framework and Guidelines of the International Health Partnership

Health development can only be sustainable if it is conducted within the framework of a national policy of socioeconomic development. Significant efforts are being made in this context by national and international actors to improve and strengthen health services for populations. It is important to note that the coordination between the different stakeholders is a key element for these efforts to be effective. This coordination needs to address, specifically, harmonization of a planning process towards a single vision of the health plan in a country. Donors, technical partners and other international stakeholders are more inclined to support health plans that are harmonious. The development of any NSP needs to be in line with the requirements of the International Health Partnership, an interagency working group whose monitoring framework defines how national plans should target health issues (e.g. NSP for TB control). The Joint Assessment of National Health Strategies and Plans Tool (JANS) assesses, through a standardized approach, the strengths and weaknesses of national strategic health plans. It sets out the essential components and parameters of a good national strategy and plan according to five specific sets of criteria:

1. situation analysis and programming: the situation analysis will help clearly define the relevant strategies;
2. the process through which national strategies and plans have been developed;
3. cost and budget of the plan to implement the relevant strategy;
4. implementation and management arrangements;
5. results, monitoring and review mechanisms.

This toolkit is compliant with the criteria set out in JANS.

A.4.2. Consistency with health policy and national health plans

A NSP to control and/or prevent a specific health condition should be in line with the national health vision and policy, and should be consistent with the national health plan and its supporting strategies and programmes. A NSP for TB control should therefore be developed in the context of a comprehensive national approach to health strategy and planning on the basis of a sound analysis of the overall health situation in the country.

A.4.3. Involvement of stakeholders and partners

It is crucial that the relevant stakeholders and partners be fully engaged throughout the process of the development of the NSP for TB control. Their engagement should be ensured from the very beginning of the planning process in order to secure their ownership and pro-active participation. The NTP should regularly update the mapping of all partners (e.g. who they are, what they do, where

they operate and with which resources) to be able to involve them in the implementation of the NSP. Professionals from the relevant health sectors, including Civil Society Organizations (CSOs) and NGOs, operating at intermediate and local level, need to be consulted and involved in the NSP development process. Activities carried out by partners should be costed and included in the NSP in order to have a comprehensive picture of all the human and financial resources devoted to the NSP implementation.

A.5. Preparatory process of a NSP

A systematic, transparent and multi-stakeholder process gives credibility to the NSP, and therefore increases the chances of wide acceptance and endorsement by government and partners alike. A credible plan also paves the way for commitment and implementation.

The steps that need to be considered in developing an appropriate NSP are as follows:

- Preparatory planning
  - » An outline and concept document should be prepared along with background documents for NSP development based on situation analysis.
  - » The relevant national health authorities need to be thoroughly informed to obtain official approval and ensure full support for the process of NSP development.
- Multi-stakeholder participation
  - » The relevant stakeholders operating in the country, as well as their areas of strategic focus and commitment period, must be identified. All the key interest groups (e.g. CSOs, women and child health advocates, patients' organizations) need to be included.
  - » The regulatory authorities or agencies (e.g. for finance, medicines, equipment), funding organizations, subnational health level and other relevant bodies need to be considered and represented.
  - » A transparent platform must be used for the planning and decision-making process to develop a NSP.
  - » The stakeholders need to be solicited to participate in the various NSP consultation meetings.
  - » A committee to develop the NSP needs to be established (such as a task force to manage the process plus a writing committee).
  - » The development of the NSP should be undertaken, discussed and finalized.
  - » The endorsement of the NSP by all participating stakeholders should be ensured.
- A meeting should be organized to present the content of the NSP to the national health authorities.
- The NSP should be endorsed and promoted by the national health authorities.
- The NSP costs should be incorporated into the budget for the fiscal year.

The availability of a sound NSP will provide a clear direction to implement TB care and control interventions, as well as credibility to mobilize funding resources within the country, and through bilateral or multilateral cooperation procedures.

A.6. Establishment of a numbering system

The NSP explains in detail the rational for its development. It specifies goal(s), the objective(s) and strategic interventions with their inherent activities and sub-activities. As all these elements will be mentioned in the budget plan, monitoring and evaluation plan, operational plan and technical assistance plan, a numbering system should be established in order to identify specifically each of these elements. The numbering system will provide a unique number for every goal (if there are several goals), every objective, every strategic intervention and every activity and sub-activity. This number will be used for each of these elements across the five components of the NSP. Such a numbering system will contribute to ensuring consistency among these components.

The example below shows how a numbering system can be established.

Box 1. Example of the numbering system to follow throughout the documents for consistency

Goal: To decrease TB mortality to one death per 100 000 population by 2020.

    Objective 1: To increase TB cure rate from 50% to 90% by 2017 onwards.

        Strategic Intervention 1.1. Improving and strengthening the managerial capacities at district level

            Activity 1.1.1. Clear definition of the role of the managerial unit for TB control at district level

            Activity 1.1.2. Reassignment and recruitment of the appropriate staff according to the post descriptions in the Central Unit

            Activity 1.1.3. Appropriate training of the managerial staff at district level

            Activity 1.1.4. Organization of supervision activities from the district level

            Activity 1.1.5. Organization of training activities for health workers at district level

        Strategic Intervention 1.2. Implementation of TB drug treatment services in health facilities and the community

            Activity 1.2.1. Appropriate drug supply and management

            Activity 1.2.2. Involvement of local community volunteers in treatment supervision

            Activity 1.2.3. Enablers for the patient to come to the health facility for monitoring and after hospitalization

            Activity 1.2.4. Provision of mobility means to the PHC workers to find identified default

    Objective 2: ……

        Strategic Intervention 2.1: ...

            Activity 2.1.1. Specify first activity

            Activity 2.1.2 .Specify second activity

                If needed specify sub-activities using the same numbering system

                2.1.2.1 Specify sub-activity

                2.1.2.2 Specify sub-activity

                2.1.2.3 Specify sub-activity

B. Key components in the NSP

A comprehensive NSP should include five components, in line with the JANS criteria:

B.1. a **core plan**, which should include:

- **a.** an **analysis of the TB burden and TB control situation**, including a clear description of the challenges and programmatic gaps;

- **b.** definitions of the **goals and objectives;**

- **c.** identification of **strategic interventions** and their related **activities and sub-activities;**

B.2. an **operational plan** that provides, for each activity and sub-activity, relevant and detailed information on the process of implementation;

B.3. a **monitoring and evaluation plan** with the **indicators** that need to be assessed for the goal(s), the operational objectives, the strategic interventions and some important activities;

B.4. a technical assistance plan identifying interventions and activities that need technical assistance and providing detailed information on how the technical assistance should be carried out;

B.5. a detailed budget plan that includes the costs for each intervention, activity and sub-activity with reference to the relevant operational objective.

In addition, an **emergency preparedness plan** needs to be seriously considered in countries with a fragile security situation or that are prone to natural disasters.

As a result of a correct planning process, internal consistency should be ensured among situation analysis, gaps, goals, objectives and strategic interventions and inherent activities, as well as among the five components mentioned above.

B.1. The core plan

The core plan is the narrative component of the NSP and constitutes the backbone of the country vision for TB control. The core plan should provide all the elements and arguments explaining the identification of the gaps and the choice of the goal(s), objective(s) and strategic interventions.

To this end, it is paramount to describe carefully the status of TB burden and TB control policy implemented to date in the country. These descriptions should provide information on the results achieved, remaining challenges, current gaps and anticipated needs for the next planning period.

The core plan should include clearly defined goal(s) that will significantly contribute to reaching the overall aim specified in the national policy to control (and, where feasible, to eliminate) TB in the country. It should also include clearly specified objectives. The link between the goal(s) and the objective(s) should be properly established. Moreover, an appropriate NSP should show that the

objective(s) that have been set are: i) logical with regards to the gaps identified; and ii) compatible with the strategic interventions defined.

Periodic internal field monitoring and evaluation or external NTP reviews involving international experts can provide the basis for a sound situation analysis and gap analysis, lead to the identification of goals and new objectives, and define strategic interventions. This will help in developing an entirely new NSP or revising/updating the existing one, as needed.

> **Box 2. National TB Programme Review**
>
> The review of a national TB programme significantly contributes to assessing the situation of TB burden and TB control. The review of the NTP aims at:
> 1. analysing the TB burden situation;
> 2. conducting strategic analysis of the internal and external environment of the TB programme;
> 3. analysing operational and policy gaps and identifying priority interventions; and
> 4. identifying the immediate and mid-term strategic directions.
>   Refer to: www.who.int/tb/publications/jmm_2014/en/index.html

B.1.1. Situation analysis of the country

Characteristics

The situation analysis should provide background information on some characteristics of the country such as the size of the national territory or important historical events that are associated with the health status of the population or may have influenced the existing health system.

The description of the demographic characteristics needs to provide information on:

- the population size;
- the population distribution by geographical areas, urban versus rural, ethnic/cultural groups, if relevant, gender, age groups and others;
- the average age of the population;
- the life expectancy in males and females;
- any ongoing process of demographic transition.

The description of the political and socioeconomic contexts will help understand the country's health situation. Information on the following country aspects is usually needed:

- government type (e.g. republic, kingdom)
- administrative divisions and the numbers of the various administrative units
- organization of the administrative network that covers the national territory
- provision of public services through the administrative network
- gross domestic product and gross national income and their trends over recent years

- sources of country income and economic infrastructure
- economic system(s) that have been used to date in the country (e.g. free market, state-controlled economy or mixed)
- external debt of the country
- level of international aid to the country's economy and public services
- level of unemployment among young adults
- proportion of the population living under the poverty level
- development policies initiated by the government
- major actions recently taken by the government such as a structural adjustment programme or national measures to alleviate poverty.

Health context

Key indicators on the overall health status of the population should be highlighted, such as the birth rate, overall mortality rate, infant mortality, maternal mortality and trend of life expectancy over the most recent decade(s).

Information should be provided on the major causes of death in the population with their respective mortality rates. The distribution of the causes of death in children needs to be described whenever possible.

The main causes of morbidity must be clearly specified. The burdens and the distributions of communicable and noncommunicable diseases need to be described separately. It would be useful to identify the contribution of TB to the overall burden of communicable diseases and the overall morbidity, and to compare the morbidity of TB to that of major communicable conditions such as HIV/AIDS. It would not be useless to describe the situation of certain health conditions or behaviour, such as obesity or tobacco smoking, within the population. Furthermore, the principal causes of demand for care in the ambulatory health settings and hospital network need to be fully described.

It is imperative that clarifications be provided concerning the overall health policy adopted by the national health authorities and the health priorities included in their political agenda. The goal(s) and objectives of the national health policy and the health interventions adopted to reach them must be described in a consistent manner with the national health plan developed by the national health authorities. It is important to describe accurately the place of TB control within the national health policy and the national health plan.

The mechanism used to cover in-country health expenditure needs to be explained. The various sources of funding and their contributions that ensure this coverage should be also specified, i.e. government contribution, health insurance schemes, bilateral and multilateral cooperation, loans and aids from international partners, out-of-pocket contribution from patients, and others. It would be useful to provide information on the proportion of the population that is covered by any health insurance system, which groups of the population are covered, and whether there is any health insurance programme that focuses specifically on the most disadvantaged groups.

The various sectors that are included in the health system should be described (e.g. public, private or semi-public health sectors). In addition, it is imperative to describe:

- the different levels of the health system that exist in the country;
- how these levels are linked to each other;
- the human resources that are available at each level of the health system;
- which types of care services are provided to the population by level of health system;
- the accessibility of the population to these care services;
- the distribution of PHC services, their accessibility to populations in urban and rural settings, and the integration of TB care and control interventions in these services.

TB burden analysis

The most relevant and recent validated epidemiological data on TB in the country should be reported and described in the core plan. All the available sources of information on TB should be considered in this exercise, namely the WHO estimates (e.g. as annually reported in the WHO Global Tuberculosis Report and the country profiles[6]), vital statistical data and the information system established by the NTP, as well as findings of surveys (e.g. TB prevalence survey), internal monitoring and evaluations of TB control activities, external programme reviews and operational research studies carried out.

The available information on TB burden, based on TB prevalence survey (if available), WHO estimates or other approaches (capture/recapture study or survey of annual risk of TB infection) must be considered. TB mortality estimates should also be obtained from credible ICD-compliant vital statistics or WHO estimates. The analysis of data on TB in the country collected through the routine information system should provide the annual notification rates per 100 000 population. The data need to be presented to reflect a disaggregation by type of TB (sputum smear-positive pulmonary TB, sputum smear-negative pulmonary TB, and extrapulmonary TB (or bacteriologically confirmed TB, clinically diagnosed TB, pulmonary TB and extrapulmonary TB if the new WHO definitions are used) and history of treatment. More importantly, they should be disaggregated by age group, gender and area (district, state, region or province, depending on the country)). The trend over time of the notified numbers and rates of TB cases must be described.

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6   www.who.int/tb/country/data/profiles/en/index.html

The disaggregation of the data will provide information on:

- who is more affected by TB; this will result in the identification of:
    - » the age groups with the highest numbers and notification rates of TB;
    - » the gender group with the highest number and notification rate of TB;
    - » TB burden in children and women in childbearing age;
- the place where TB is most frequently observed; this will:
    - » identify the geographical areas with the highest TB burden;
    - » compare TB occurrence between rural and urban settings;
    - » determine, within the geographical areas, the regions and/or districts with the highest numbers and notification rates of TB;
- the trend of notified TB cases to describe any increase or decrease over time of their rate per 100 000 population and specify the annual rate of increase or decrease;
- the trend over time of the average age of notified TB patients.

Concerning the last of the above-mentioned points, an increase in the average age will indicate that TB is probably affecting older individuals. Such information, along with data showing a significant decline in the TB notification rate among young people, would imply that TB transmission is probably decreasing in the general population, provided that there is no decline in TB detection efforts.

HIV/AIDS situation

The HIV/AIDS situation and its effects on TB in the country must be described through:

- the estimated number of people living with HIV;
- the HIV prevalence in the adult population;
- the HIV prevalence in pregnant women;
- estimated HIV prevalence in specific risk groups, such as sex workers, intravenous drug users and others;
- the cumulative number of people living with HIV/AIDS identified to date;
- the estimated prevalence of HIV infection among people with TB;
- data on notified TB among people living with HIV.

Other specific aspects of the HIV/AIDS burden should be highlighted, such as the prevalence of HIV infection among pregnant women, injection drug users or sex workers.

In addition, the analysis should provide information on population groups with a significantly higher TB notification rate compared with the general population, such as:

- TB contacts
- people living in slums
- detained people
- people from indigenous populations
- miners
- suburban residents
- migrants
- internally displaced people
- refugees
- asylum seekers
- others particular groups, such as people with specific co-morbidities.

The number of TB patients who are on re-treatment and their proportion among all enrolled TB patients should be reported. Their distribution by certain characteristics, such as the re-treatment categories (e.g. relapse, failure, re-treatment after defaulting), gender, age or areas, will be useful in understanding the TB control situation.

Drug-resistant TB

Information on drug-resistant TB, particularly multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB), should be specified, such as:

- the estimated total number (measured or modelled) of people with MDR-TB, at least among notified pulmonary TB patients;
- the prevalence of MDR-TB:
  - » among TB patients who have never received any TB treatment;
  - » among TB patients who were previously treated, if possible stratified by the following categories: relapse, re-treatment after treatment interruption (default) and re-treatment after treatment failure.

The above information should be obtained from previous drug resistance surveys, the ongoing surveillance system for drug-resistant TB, or existing MDR-TB/XDR-TB case management programmes.

It would be appropriate to:

- report the number of cases of MDR- and XDR-TB identified through NTP services or any other health services;
- describe, if possible, the distribution of these cases by:
  - » area (state, region, province, district or other; urban versus rural areas or any spatial distribution);
  - » gender;
  - » age group;
  - » any other characteristic, such as groups with a potential risk for drug resistance.

This analytical description of TB burden is essential to identify certain population groups or geographical areas that need to be targeted by appropriate strategic interventions. In addition, any available information on knowledge gaps, cultural beliefs and behavioural patterns affecting health-seeking habits of the population in general or specific population groups should be described and included in this analysis.

Organization of TB control

The entity or entities managing TB control should be clearly specified. In most low- and middle-income countries, TB control is usually organized within the framework of a national TB programme, often within the Communicable Diseases Division or Department of the Ministry of Health (MoH).

The core plan should provide a full understanding of the organization of TB control in the country.

To this end, the following elements need to be described:

- The operational structure and policies of the national TB programme, namely:
  - » the central unit and its functions and managerial procedures;
  - » the role of the intermediate health system level (e.g. state, region, province, district) in the organization of TB control activities and in the management of the resources of the TB control programme at this level;
  - » the integration of NTP services in health facilities and in general health services;
  - » the TB laboratory network, including information on the national reference laboratory, and the number and role of TB laboratories at the intermediate level and at peripheral levels;
  - » the national policy adopted by the NTP to control TB and, if needed, its evolution over time, its main challenges and achievements;
  - » the previous NSP, with a description of its goal(s), operational objectives, key strategic interventions and budget;
  - » the sources of funding that have been so far mobilized for TB control, with detailed information on the financial contribution of the government and nongovernment agencies; the national and international funding partners that have been involved in TB control need to be identified;

» the components of the previous NSP that were financially supported by the partners, including the Global Fund, should, wherever possible, be specified;

» the components of the previous NSP that were not implemented, because of a lack of funding or poor capacities of TB control efforts, should be clearly highlighted;

» mechanisms implemented to coordinate with national and international partners and stakeholders involved in TB control in the country;

» procedures used to ensure adequate coordination between the central unit of the NTP and the intermediate health level.

• The present level of implementation of the strategic interventions and activities; information should be provided on:

» the provision of TB care (diagnosis and treatment) and control services in general health services, particularly in PHC settings, first referral health facilities and hospitals;

» the population coverage by TB care and control services;

» the involvement of health networks outside the national TB programme, such as the private health sector, health services run by NGOs and FBOs, hospitals and the health services of the army, police, social security and penitentiary system;

» the level of implementation of some key strategic interventions that are addressing specific TB control issues, such as:

- TB/HIV collaborative activities;

- programmatic management of drug-resistant TB;

- TB infection control;

- practical approach to lung health;

- community engagement;

- childhood TB;

- TB care and control services targeting well-identified high-risk groups, such as TB contacts or individuals with co-morbidities (e.g. people with diabetes);

» the management of TB medicines;

» the information system implemented to monitor and evaluate TB burden and TB care and control services;

» the organization of supervision for TB care and control activities;

» the organization of training activities on TB care and control.

Results of TB control policies implemented to date

The core plan should describe the results that have been achieved, and also those not achieved, with respect to the expectations of the national TB control strategies planned. The analysis of the data generated by appropriate information systems, developed and implemented to monitor and assess TB and the TB control situation, will provide clarification on the results of TB control efforts. These results need to be substantiated via the indicators defined by the national TB control programme to evaluate whether the objectives have been reached.

Some examples of indicators that can be measured are:

- The *impact* of the national TB control (or elimination, where appropriate) policy adopted. It usually needs to be evaluated through the identification of changes in TB mortality, incidence or prevalence that are related to the TB control efforts undertaken so far. This implies that there are sufficient quality data to detect the effect of changes in TB control efforts on TB burden. For instance, the observation of a significant decrease over time in TB mortality needs to rely on a sound vital registration system, with standard coding of causes of deaths, including TB.
- The *outcomes* targeted through the objectives, such as an increase or decrease in the TB treatment success rate.
- The *outputs* of the strategic interventions implemented, such as:
  - » an increase in the number of people with presumptive TB, appropriately identified and assessed for TB;
  - » an increase in the number of people with TB detected through TB contact investigation activities;
  - » an increase in the number of TB patients diagnosed with MDR-TB, enrolled on appropriate treatment according to national guidelines using quality-assured second-line drugs and adequately monitored and followed-up;
  - » an increase in the number of people with TB who have been tested for HIV.

Strength, weakness, opportunity and threat (SWOT) analysis

The analysis of the strengths and weaknesses of, and opportunities and threats for, TB control (or elimination, where appropriate), is known as SWOT analysis. Derived from market and business sciences, it is commonly used in analysing health service provision systems, including TB control services. The SWOT analysis is a prerequisite step to undertaking the gap analysis.

Being in essence an assessment technique, which can be conducted for example as a brainstorming exercise, it offers the opportunity to fully understand and appropriately describe the TB control situation in the country. This analysis helps NTP identify the positive and negative influencing factors that are inside and outside the programme. The words "strengths" and "weaknesses" refer to the factors that are internally related to the programme, while "opportunities" and "threats" refer to factors that are beyond the scope of TB programmes but may have a significant influence on TB control.

The analysis of the results of the programmatic activities implemented to control TB, along with the findings and conclusions of the most recent evaluations of NTP (undertaken for example in the framework of a review and/or external monitoring mission), must be used in the analysis of the results of TB control policy. This will significantly help identify the strengths and weaknesses of TB control (or elimination, where appropriate) strategy implemented to date in the country.

The key assets that have contributed to achieving significant results and strengthening the implementation of TB control activities in the country should be fully described.

The reasons why some outcomes have not been achieved must be carefully identified and critically analysed. This will help clarify the extent to which there are linkages between the identified causes and the poor achievement or non-achievement of the expected results.

Table 1 shows an example of the results of a SWOT analysis. This analysis is based on the situation of a fictitious country described in the Tubercoland case study.

Table 1. Example of a SWOT analysis

	+	**–**
Internal Factors	**Strengths** • Strong political commitment that has translated into increasing funding from the governement • Availability of appropriate capacities to manage MDR-TB patients • Efficient infection control measures in health facilities dealing with MDR-TB patients • Successful EQA system that covers 95% of the TB microscopy laboratories of Phtizioland • Adequate DST practices, at least for first-line drugs	**Weaknesses** • Suboptimal practices to manage patients with TB • The supervision of TB control activities is not organized within the NTP network • Absence of coordination between the Ministry of Health and the Ministry of Justice regarding TB control in prisons
External Factors	**Opportunities** • The health sector reform is likely to create appropriate conditions to establish sound linkages with the health sectors operating outside the NTP • Official role of the MoH in establishing norms and standards for health services, including for TB care Tand control services • Development of a national surveillance system that covers all the health sectors and includes TB	**Threats** • Decentralization of the management of public services, including health services, that may result in poor management capacities of NTP services at the level of decentralization • Health insurance schemes established in the framework of a health sector reform that may limit access to health services, including TB care services.

The various elements identified and discussed in the SWOT analysis will help proceed to another important step in the development of the NSP: the gap analysis.

B.1.2. Programmatic gap analysis

The gap analysis is a fundamental step in the development of the NSP and, therefore, should be well described in the core plan.

A gap analysis should be based on the SWOT analysis. It is not a description of the national TB control strategy components that have not yet been implemented, nor is it a list of strategic interventions or activities to be implemented.

Box 3. Examples of inappropriate formulation of a gap

1. The managerial capacity of the NTP should be strengthened: more staff should be recruited at central level; cars should be purchased for supervision.
2. PPM activities should be implemented.
3. There is no community DOTS.
4. Activities to involve all care providers have not yet been implemented.
5. The practical approach to lung health must be implemented.

A gap analysis should describe the constraints and insufficiencies that have been identified and that can explain the current and expected weaknesses in TB control or eliminaton strategy. It should describe what has been lacking, missed or not achieved through the implementation of the ongoing TB control strategy.

A gap analysis cannot be appropriately carried out and fully understood if the SWOT analysis has not been well described, namely:

- the strong assets that contributed to achieving appropriate results;

- clear identification and full understanding of the reasons for non-achievement of certain expected results;

- the possible opportunities that have not been considered yet in the national policy to improve TB control;

- the potential or actual threats for TB care and control services already implemented and for which no measures have yet been defined.

Even if all identified gaps and constraints need to be addressed in the NSP, it would be appropriate to establish an order of priority for the issues identified in the gap analysis. Specific gaps or particular constraints may have a much greater impact on the improvement of TB control compared with other gaps or constraints; this thinking helps the prioritization process.

Box 4 includes an example of the identified gap analysis based on the SWOT analysis example described in Table 1.

> ## Box 4. An example of the identified gap analysis based on the SWOT
>
> 1. No action has been yet undertaken to minimize the threat that some patients may not have access to TB services because of the introduction of the new health insurance schemes via the ongoing health sector reform.
> 2. Managerial capacity of the NTP to organize appropriately a supervision system for TB control is poor.
> 3. Management of TB patients in the NTP network is inappropriate.
> 4. Significant numbers of TB patients are inappropriately managed in the health services of the prison system and there are no linkages between these services and the NTP.
> 5. No clear strategy has yet been defined by the NTP to take advantage of the ongoing process of health sector reform.

A gap needs to be explained and demonstrated through detailed information. The following two examples show how a gap is properly formulated based on the observations made from the SWOT analysis (Table 1).

> ## Box 5. Examples of two properly formulated gaps
>
> *Example 1: No action has been undertaken yet to minimize the threat that some patients may not have access to TB services because of the introduction of the new health insurance schemes through the ongoing health sector reform.*
>
> The health insurance covers, for insured individuals, diagnosis, treatment and treatment monitoring services as specified by the NTP in the national guidelines. Those who are not insured have to pay for these services, otherwise they cannot access them. As a result, the strict application of this rule is severely affecting TB case-finding.
>
> In the poor neighbourhoods of the big cities, the number of patients who attended for any reason the first-level health facilities declined by 50% for the last 12 months, while the number of patients with presumptive TB decreased by 65% in the same health facilities for the same period of time.
>
> A recent investigation carried out in 42 primary health care facilities, where the new health insurance procedures have been applied for the last 6 months, indicated that in the last quarter (in comparison with the same quarter of the year preceding the implementation of these procedures): i) 37% of the identified contacts of index TB cases did not access TB screening and assessment services; ii) the average duration between symptom occurrence and the treatment initiation in TB patients increased by 50%; iii) there was a 23% increase in advanced cavitarian lesions in chest radiography with highly positive sputum smears; and iv) the death rate during the intensive phase of treatment increased by 10%.
>
> Many reports of the MoH have highlighted that the absence of insurance refund for TB-free people is a major obstacle for the implementation of the screening interventions that have been developed to identify TB in high-risk groups. These groups belong to the most vulnerable sections of the population.
>
> Although negative effects of the implementation of the new health insurance procedures on the access of TB care and control services, particularly for disadvantaged population groups, have been observed and reported, no clear approach has been yet developed or initiated by the NTP and the relevant departments of the MoH in order to make these services free of charge for all people.

> ***Example 2: Inappropriate management of TB patients in the NTP network.***
>
> The last external review identified important deficiencies concerning the management of patients with TB. A significant proportion of TB cases are diagnosed and apparently not treated. Indeed, the recent NTP review highlighted the fact that 8% of identified TB patients were not reported in the treatment registers in the 14 districts visited. In addition, one out of five TB patients who were prescribed treatment received a suboptimal regimen. Data indicate that TB patients who are on treatment are not at all appropriately monitored. A significant proportion of TB patients (30% according to the review) default their treatment or are not evaluated (10%) at the end of treatment. As a result, the treatment success rate is very low (55%), far below the 85% minimum required.
>
> The findings of the review and the various reports established by the NTP Central Unit demonstrate strongly that the management of TB patients is totally inappropriate and is probably contributing to the occurrence of new MDR-TB cases in Phtizioland.

Other examples of gap analysis are developed in the Tubercoland case study (Exercises 1 and 2).

B.1.3. Identification and definition of goals and objectives

Formulation of goals

A NSP must have one or more specific goals. These goals usually have a broad perspective and are defined within the national "vision". They should be established in such a way that their achievement will significantly contribute to reaching and maintaining the overall aim defined in the national TB control policy. Each goal must be defined in line with "SMART" criteria (specific, measurable, attainable, relevant and time-bound criteria). The achievement of a strategic intervention is assessed through an impact indicator.

A few examples of goal formulation are to:

1. reduce the mortality from TB by at least 10% per year from 2020 onwards;
2. reduce the prevalence of TB from 140 per 100 000 population in 2005 to 70 per 100 000 population by 2020;
3. reduce TB incidence by at least 6% per year by 2020 onwards;
4. reduce the prevalence of MDR-TB among new cases by at least 5% per year from 2020 onwards.

An exercise on goal formulation is available in the Tubercoland case study (Exercise 2).

Formulation of objectives

The identification of gaps and constraints will help define the objectives of the NSP. Each objective must be a clear statement, logically related to the goal(s) and rationally linked to one or more gaps that are to be addressed through the implementation of the strategic interventions specified in the NSP. An objective needs to be ambitious in order to contribute to achieving the goal(s). Each objective should be established using SMART criteria.

In the example below, two objectives are formulated in relation to the first of the four goals given in Section D.1.3.1.

Table 2. Example of a goal and of two objectives related to the goal

Goal	To reduce the mortality from TB by at least 10% per year from 2020 onwards
Objective 1	To increase by 2017 the number of all forms of TB notified to 35 000 per year and successfully treat at least 85% of them. Then to further increase by 2019 this annual number to 42 000 cases per year and successfully treat at least 90% of them.
Objective 2	To successfully treat at least 75% of new MDR-TB cases identified in 2015 and at least 85% of those identified in 2016.

The prioritization of the gaps and the process of identifying and defining goals and objectives need careful thinking and thorough discussion. They constitute one of the most important steps in the development of the NSP. This step requires the participation of all the partners involved in TB control in the country, as well as the stakeholders contributing to the development of the NSP. The achievement of an objective is assessed through an outcome indicator.

An exercise on the formulation of objectives is available in the Tubercoland case study (Exercise 3).

B.1.4. Identification of strategic interventions and activities to be implemented

Each objective will be reached through the implementation of a set of strategic interventions whose identification must be discussed carefully and carried out appropriately. The strategic interventions that are selected should be in line with the international recommendations for TB care and control and need to be adapted to the local context in order to ensure sustainability and equity. The consistency between the SWOT analysis, the objectives and their inherent strategic interventions is paramount and constitutes one of the key parameters to assess the soundness of a NSP. The implementation of a strategic intervention is assessed through an output indicator.

An exercise on linkages between objectives and strategic interventions is available in the Tubercoland case study (Exercise 3).

Each strategic intervention usually includes the activities that need to be implemented. Each activity should be clearly described and be as specific as possible. A vague description of activities is likely to result in inefficient implementation of the strategic interventions and therefore reduce the chance of achieving the objectives. In addition, such activities with poor clarity will affect the other components of the NSP, particularly the budget and operational plans and, to some extent, the technical assistance plan. In order to increase the specificity of activities and establish adequate budgeting, sub-activities may need to be identified and described. However, activities and their inherent sub-activities must be always consistent. The implementation of an activity or sub-activity is assessed through a process indicator.

An example of how to present the strategic interventions and activities, following a consistent numbering system, is given in Table 3.

Table 3. Presentation of the strategic interventions and activities, following a consistent numbering system

Goal	To reduce the prevalence of MDR-TB among new cases by 5% for each year from 2018 onwards	
Objective 1	To identify at least 3500 new MDR-TB cases by 2015 and at least 4200 by 2016.	
	Strategic Interventions	Activities for Strategic Intervention 1.1 belonging to Objective 1
Strategic Interventions for Objective 1	1.1. Increase the laboratory capacities for the bacteriological diagnosis of TB and for drug resistance assessment in such a way that the following targets can be reached: • by 2015: i) the number of TB suspects assessed by sputum smear microscopy will be twice as high as the number of those assessed in 2013; ii) 50% of re-treatment TB cases and at least 80% of identified TB/HIV patients will be assessed by GeneXpert examination; and iii) all TB patients who have rifampicin resistance at GeneXpert examination will have DST; • by 2016: i) the number of TB suspects assessed by sputum smear microscopy will be 3 times higher than the number of those assessed in 2013; ii) at least 85% of re-treatment TB cases and all identified TB/HIV patients will be assessed by GeneXpert examination; and iii) all TB patients who have rifampicin resistance at GeneXpert examination will have DST.	1.1.1. Update the national guidelines for the procedures to set bacteriological diagnosis of TB, including for LED 1.1.2. Develop national algorithm and standard operative procedures (SOP) to use GeneXpert 1.1.3. Develop national guidelines and SOP for culture 1.1.4. Develop national guidelines and SOPs for DST involving first- and second-line drugs 1.1.5. Print 2000 copies of national guidelines for sputum smear microscopy and LED 1.1.6. Print 1500 copies of a document including algorithm and SOPs to use GeneXpert 1.1.7. Print 250 copies of national guidelines and SOPs for culture and DST 1.1.8. Organize, via the NRL, training sessions for the coordinators of the seven regional laboratories on management and supervision of TB laboratory activities carried out at the peripheral level 1.1.9. Assess, by international experts, the activities carried out within the national TB laboratory network as follows: two assessments in year 1 and year 2, then once a year from year 3 to year 5 1.1.10. Undertake an external evaluation of the quality of the NRL services by a Supranational Reference Laboratory

The Tubercoland case study includes an exercise on the identification of activities and sub-activities under their relevant strategic interventions (Exercise 3).

B.2. The operational plan

The operational plan is an important component of the NSP and focuses, as a priority, on the activities to be implemented. It must be fully consistent with the core plan, budget plan, monitoring and evaluation plan, and technical assistance plan. The established numbering system needs to be used for this purpose.

The activity and sub-activities must be identified in the operational plan under the strategic interventions and objectives to which they are linked. A good operational plan should show how the activities and sub-activities will be implemented in a precise manner. It should provide for each of them substantial information to make their implementation successful. In fact, the plan should specify detailed information, by quarter, on the activities and sub-activities that need to be implemented at least for the first year of the period covered by the NSP. The implementation of the activities for the remaining years of the NSP can be detailed subsequently.

For the first year, on a quarterly basis and for each activity or sub-activity clearly specified, the following information should be identified:

- the dates or the period when it will be implemented;
- the setting where it will be implemented;
- the person/institution that will be responsible for its implementation;
- the cost inherent in the implementation of this activity or sub-activity as calculated in the budget plan;
- the source of funding that will cover this cost;
- the process indicator that will be used to monitor the implementation of the activity or sub-activity.

Other relevant information, depending on the intervention, activity or sub-activity, might be needed to be specified, such as the need for technical assistance to develop a strategic intervention or to implement an activity or sub-activity.

The national operational plan of the NSP should ideally be in line with the national health authority planning cycle, as well as with subnational operational plans developed for TB control at intermediate health levels. In addition, it should be consistent with the operational plans of other programmes such as HIV/AIDS programmes, maternal and child health programmes or noncommunicable disease programmes.

The Tubercoland case study includes an exercise to describe the operationalization of activities in an operational plan (Exercise 6). Table 4 shows examples of how to present the information required to explain the development or implementation of activities in an operational plan.

Table 4. Example of an operational plan

Goal:	To reduce the prevalence of MDR-TB among new cases by 5% per year from 2018 onwards

Objective 1: To identify at least 3500 new MDR-TB cases by 2015 and at least 4200 by 2016

January – March Year 1

Strategic intervention 1.1: Improving the skills of health workers to identify and manage MDR-TB cases

	Unit	Quantity	Date	Location	Implementer	Costs in US$	Source of funding	Indicator	Other
Activity 1.1.1: Training									
Sub-activity 1.1.1.1 Development of training materials on MDR-TB	Set of training material	1 set of training material	January Year 1	Capital city	NTP	10 000	MoH	Set of training material developed	Need for international technical assistance
Sub-activity 1.1.1.2 Printing the training materials on MDR-TB	Set of training material	10 000	1-15 February Year 1	Capital city	NTP	5000	MoH	Set of training material printed	
Sub-activity 1.1.1.3. Training of health workers on MDR-TB management	Doctor Nurse	50 100	20-24 Feb Year 1 1-15 March Year 1	District 1 District 2	NGO 2 FBO 3	3000 6000	USAID Global Fund	Number of doctors trained Number of nurses trained	Need for local technical assistance (details in the technical assistance plan)
Activity 1.1.2: MDR-TB supervision									
Sub-activity 1.1.2.1……….									
Sub-activity 1.1.2.2……….									

B.3. The monitoring and evaluation plan

Monitoring and evaluation are essential managerial functions in any health plan. A monitoring and evaluation plan is a comprehensive framework that defines the indicators aimed at assessing the achievement level made to reach the goal(s), objectives and targets specified in the NSP.

A monitoring and evaluation plan is needed in order to:

- monitor the progress made in the implementation of planned activities and in delivery of services, usually on a continuous basis;
- evaluate the progress made to achieve the intended goal(s), objectives and targets, which could in many circumstances be a periodic process (e.g. once per quarter).

It is clear that the monitoring and evaluation must be established for the relevant elements included in the core plan. In addition, it must be fully consistent with the other components of the NSP and the numbering system as highlighted in the basic principles of a NSP.

A sound monitoring and evaluation plan should clearly identify and define indicators. The indicators are the key instruments for monitoring and evaluation. An indicator provides an assessment of the achievements of interventions and activities or helps evaluate the level of a specific health condition in a given population. It can be expressed as:

- an *absolute number*, such as the number of notified TB cases;
- a *rate,* such as the rate of notified TB cases (i.e. number of patients with a new TB episode per unit of population per unit of time); the notification rate for TB is usually expressed per 100 000 population per year;
- a *proportion*, such as the prevalence of MDR among TB patients who have never received any TB treatment;
- a *ratio,* such as the number of TB/HIV patients managed per health facility;
- an *index,* such as the weight of a TB patient, expressed in kilograms, divided by the square of her/his height, expressed in m2 (body mass index).

When each indicator is defined in the monitoring and evaluation plan to assess a goal, an objective, the development of a strategic intervention or, in some circumstances, the implementation of an activity, the following elements must be specified:

- The *purpose* of the indicator (impact, outcome, output or process);
- The *procedure of calculation* (e.g. absolute figure, proportion, ratio, rate, index);
- The *source(s) of information* that will be used; if it is a rate, ratio or proportion, the sources of information for the numerator and denominator need to be specified;
- The *periodicity (and timeliness)* of data collection;
- The *entity* that will collect the information;

- The *levels* where the information will be collected, compiled and analysed;
- The *entity* to which the results of the analysis need to be disseminated;
- The *values* of the indicator at the baseline and expected values at the relevant moment(s) covered by the NSP.

In the monitoring and evaluation plan, the number of indicators should be limited to the most essential ones. The indicators for which the source of information is not available or not accessible should not be considered. It is important to include in the plan the indicators for which there are sound sources of information. The indicators assessing the goals (impact) and objectives (outcome), as defined in the core plan, and evaluating all the strategic interventions (output) must be included in the monitoring and evaluation plan. The process indicators need to be considered only for the most important activities. Including too many indicators in the monitoring and evaluation plan could be onerous and may result in the collection of low-quality information.

The monitoring and evaluation plan should also clearly describe the information system used on a routine basis for TB control:

- definitions used (e.g. definitions of TB cases or treatment outcomes);
- sources of information (e.g. registers);
- forms used to collect the data on TB care and control activities;
- compilation process of the data;
- procedures to analyse the data collected and compiled;
- health levels involved in the collection, compilation and analysis of the data;
- reports that are established;
- periodicity of these reports (e.g. quarterly reports on TB notification and cohort analysis);
- procedures used to disseminate the findings of the data analysis to those who need to be informed (e.g. quarterly or annual reports, regional or national meetings);
- mechanisms used to ensure adequate quality of the data generated by the information system (e.g. supervision, monitoring and evaluation field assessments, reviews).

Clarifications need also to be provided on the information that is generated from periodic surveys, such as TB drug resistance surveys, or from a particular approach such as a sentinel surveillance system for HIV infection in patients with active TB.

The Tubercoland case study includes an exercise on defining indicators (Exercise 5).

B.4. The technical assistance plan

The technical assistance plan should be consistent with the other four components of the NSP, using the established numbering system. Most importantly, it must be closely linked to the operational plan on which it should be based. It provides detailed information on the technical assistance required for the strategic interventions and activities, as identified in the operational plan. Therefore, it should be established for the first two years of the NSP. For the remaining years, the technical assistance needs to be identified as far as possible. Technical assistance can be provided by international as well as national experts.

The following information must be specified for each strategic intervention or activity that needs technical assistance:

- a brief description of the terms of reference for the technical assistance required, including the specification of deliverables;
- a brief description of the profile/expertise of the consultant who will ensure the technical assistance;
- the identification of the entity responsible for the implementation of the intervention or activity;
- the timeframe to carry out the technical assistance;
- the estimated cost of technical assistance (including consultancy fee, travel, per diem) as calculated in the budget plan;
- identification of the source of funding, if available;
- identification of the funding gap that needs to be closed in the event that there is no financial source to cover the cost of the technical assistance.

The Tubercoland case study includes an exercise on the specifications that need to be included in a technical assistance plan (Exercise 7).

B.5. The budget plan

The budget plan is a fundamental component of the NSP. It is a multi-year expenditure framework that needs to be aligned with the fiscal year cycles. It should refer to the established goal(s), objectives, strategic interventions (including activities and sub-activities) as identified in the core plan. The budget plan must be fully consistent not only with the core plan but also with the monitoring and evaluation plan, operational plan and technical assistance plan. To this end, as highlighted above, a standardized numbering system should be used. A budget plan needs to be periodically reviewed (e.g. annually) and updated in light of the revisions made in the strategic interventions and unit costs.

The budget plan establishes the cost:

- to reach the goal
- to achieve each objective
- to implement each strategic intervention
- to carry out each activity and sub-activity
- for each quarter, with detailed information, for at least the first two years of the plan
- for each year after year 2 without detail
- for the full period covered by the NSP.

There are tools that can be used to establish a budget. The WHO TB Planning and Budgeting Tool can help with this and so can OneHealth tool In both cases, the user is able to map the budget set up in the tools to the interventions as defined in their NSP or in their donor application format.

To calculate the budget for a given activity, the following consecutive steps are required:

- define the unit to be costed for the activity or sub-activity;
- establish the cost of this unit;
- establish the quantity of units to be developed or implemented; the quantity of the units should be appropriately predicted for each year of the plan (and for each quarter of the first two years of the plan) based on adequate data and/or sound assumptions (see Box 7);
- set the budget of the activity or sub-activity by multiplying this quantity and the unit cost.
- For instance if the activity to be implemented is training:
- The unit to be costed could be one training sesssion.
- The cost of one training session needs to be established taking into account all the elements that must be considered in one session (e.g. per diem for trainees and trainers, rent of training room, coffee break, stationary).
- The number of training sessions that need to be organized for a specific period of time should then be identified.
- Finally, the budget for training to be undertaken during this period of time should be established by multiplying the number of training sessions by the cost of one training session.

To calculate and present the unit cost of each activity (or sub-activity), the following requirements need to be respected.

- *Keep order:* Each activity must be numbered as it is in the other four components of the NSP in line with the numbering system used. The activity must be indicated under the strategic intervention and the objective to which it is linked.

- *Be precise:* The unit cost for each activity should be well demonstrated and documented.

- *Use an adequate price:* The price or cost attached to an element should be appropriate and in line with the country context so any default unit cost values appearing in the above mentioned tools, ought to be validated with data collected at the country level .

- *Be consistent:* The national standards to establish the cost of activities and sub-activities should be used. These standards must not vary for the same activities across the budget plan. In some country settings, costs for activities are specified in financial guidelines established by the national health authorities. Costs may need to be adjusted, across the years covered by the plan, using a factor for currency rate fluctuation and inflation.

The budget plan should identify for each year of the plan:

1) the source of funding for every intervention: the funding contributions of the government (including loans) and of each international partner.

2) the expected funding gap which will be calculated as the difference between the amounts of funds needed and those mobilized.

3) and the activities and strategic interventions required to achieve the NSP objectives that remain unfunded at that point in time..

The Tubercoland case study provides an opportunity to undertake an exercise on budgeting (Exercise 4).

Box 6. From vertical to integrated TB planning

WHO TB planning and budgeting tool	**OneHealth Tool**

WHO TB planning and budgeting tool
Software support: tbdata@who.int
www.who.int/tb/dots/planning_budgeting_tool

OneHealth Tool
http://www.internationalhealthpartnership.net/en/tools/one-health-tool/

Disseminated since 2006

Disseminated since 2012

Over 60 national TB programmes in low-and middle-income countries report using it

Over 25 countries have used the tool for health sector planning, mostly in Africa but also in Asia and Latin America. To date staff from 4 national TB programmes have been trained

Designed by WHO

- to strengthen national **TB planning and budgeting** at country level
- to link targets in the Global Plan to Stop TB and country targets to the required investments

Designed by the UN Interagency Working Group on Costing and developed by the Futures Institute

- to inform **sector wide national strategic health** planning and costing in low- and middle-income countries
- to link strategic objectives and targets of disease control and prevention programmes to the required investments in health systems
- it builds upon and leverages the most useful components of the WHO TB planning and budgeting tool. It is designed in a modular fashion allowing for programme specific costing as well as health system planning and costing

It can be used by **TB** national programmes to

- estimate the resource requirements of TB and new policy recommendations by activity, by intervention, by level of priority and by implementer
- estimates the funding gap per intervention
- map and produce budgets for national use and for the Global Fund applications

It can be used by **TB** national programmes to

- estimate the resource requirements of TB strategies (and integrated TB/HIV, TB and RMNCH) and new policy recommendations
- quantify the health system impact of scale-up of TB interventions
- describe the fiscal space availability for scale-up of TB interventions
- estimate impact of TB strategies (software in progress)
- map and produce budgets for national use and for GFATM concept note application documents

WHO manages the development and maintenance of the tool, builds capacity to use it and provides technical support to policy makers to inform national planning and resource needs estimates

Provides planners with a single framework for scenario analysis, costing, health impact analysis, budgeting and financing of strategies for all major diseases and health system components

Single user Microsoft Office Excel

Promotes dialogue between planning units and national programmes focused on specific topics, and alignment of planning cycles between Health Plan and disease-specific plans http://www.nationalplanningcycles.org

WHO manages the development and maintenance of the tool, builds capacity to use it and provides technical support to policy makers to inform national planning and resource needs estimates

WHO provides input to the development of the OneHealth tool, builds capacity to use it and provides technical support to policy makers to inform national planning and resource needs estimates.

Single user Microsoft Office Excel

Single user desk top (Spectrum, Futures Institute)

Available in English, French, Spanish and Russian

Available in English, French, Spanish, Russian, Arabic and Portuguese.

B.5.1. Projection of calculations

After identifying the activities and sub-activities that need to be developed and/or implemented across the years covered by the NSP, it is crucial to calculate the number of units of activities and sub-activities for each period of time, particularly for each year. Indeed, the number of activity/ sub-activity units will change across the years depending on the expected needs. To this end, the calculation of these projections will require the use of the available national and international data and should be based on sound assumptions. Projections should ideally be done based on an epidemiology review. Here we propose a conservative method to project patients in the absence of such a review. Please use these as interim projections to set up a first draft budget and revise as soon as the epidemiology review provides better estimates on present and future notifications. (Source: WHO/HTM/GTB/TME).

The calculation procedure may be different from country to country.

Box 7. Example of how to calculate the projections

One of the objectives of the 2015–2018 national strategic plan of Dabanostan is to increase the notification of smear-positive pulmonary TB cases from 4000 in 2014 to 15 000 in 2018. The NTP and partners agreed that the progress in notification will be as follows:

- 6000 in 2015,
- 9000 in 2016,
- 12 000 in 2017
- 15 000 in 2018.

There are 40 laboratories performing sputum smear microscopy for the diagnosis of TB in Dabanostan in 2014. In each laboratory, microscopy for TB is carried out by one microscopist only. Recent data have shown that 25% of the TB suspects who were examined were sputum smear-positive. These data suggested that: i) there was a quite high selection of TB suspects; and ii) a signification proportion of respiratory patients who met the definition of TB suspects were probably not assessed for TB. The NTP and its partners made a decision to increase the identification and the assessment of TB suspects in the district health system, and so the positivity rate among identified TB suspects should decline from 25% to 10% in 2015, 8% in 2016 and at least 5% in 2017 and 2018. Therefore, the number of TB suspects that should be examined by microscopy to identify patients with sputum smear pulmonary TB should be:

	2015	2016	2017	2018
Number of TB suspects that need to be examined by sputum smear microscopy	60 000	112 500	240 000	300 000
Number of patients with sputum smear pulmonary TB identified	6000	9000	12 000	15 000

The NTP policy of Dabanostan is to examine two sputa by microscopy for each identified TB suspect and three sputa for the bacteriological monitoring of sputum smear pulmonary TB patients who are put on TB treatment. Therefore, the number of sputa that need to be examined should be:

- 138 000 sputa in 2015,
- 252 000 in 2016,
- 516 000 in 2017
- 645 000 in 2018.

In Dabanostan, public services are ensured for 250 days per year. Therefore the number of sputa that can be examined by microscopy per day is:

- 552 in 2015 (138 000 sputa divided by 250 working days)
- 1008 in 2016 (252 000 sputa divided by 250 working days)
- 2064 in 2017 (516 000 sputa divided by 250 working days)
- 2580 in 2018 (645 000 sputa divided by 250 working days).

If we assume there will be one microscopist per laboratory ensuring sputum smear examination and each micrscopist will perform an optimal number of 15 sputum smear examinations per working day, then the number of laboratories performing sputum smear microscopy for the diagnosis of TB should be:

- 37 in 2015 (552 sputa divided by 15 sputa per laboratory per day)
- 67 in 2016 (1008 sputa divided by 15 sputa per laboratory per day,
- 138 in 2017 (2064 sputa divided by 15 sputa per laboratory per day)
- 172 in 2018 (2580 sputa divided by 15 sputa per laboratory per day).

Therefore, no additional laboratories performing sputum smear examination are needed during the year 2015, since 40 laboratories are available; efforts should focus on increasing the identification of TB suspects and in improving their management. However, additional functional laboratories will be needed for the following years: at least 27 laboratories in 2016, at least 71 additional labratories in 2017 and a further 34 laboratories in 2018.

B.6. Emergency preparedness plan

Developing an emergency preparedness plan as part of the NSP needs to be seriously considered in countries with a fragile security situation or those prone to natural disaster. The preparedness plan should be established for the acute phase of any complex emergency, including natural disaster. Priority should be given to the identification of patients whose treatment has been interrupted and to the re-establishment of TB treatment for these patients. It is important that TB drug supply and management and monitoring systems be integrated into the health sector response to the emergency. The monitoring and evaluation system should be re-established.

The NTP should take the leadership and the responsibility for developing strategic TB plans, guidelines and emergency preparedness measures. TB control should be integrated into the acute and chronic phases of the plan for complex emergencies through a set of interventions, such as designating an NTP focal point for emergencies, NTP participation in the emergency preparedness meetings, involvement of stakeholders around specific issues, e.g. tracing of patients, cross-border activities, as well as ensuring that TB is included in emergency preparedness guidelines and emergency plans.

More information on this subject can be found in the WHO publication "TB care and control in refugee and displaced populations" (WHO/HTM/TB/2007.377).
http://www.who.int/tb/publications/2007/en/index.html

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Selected Bibliography

D. Tubercoland case study

Tubercoland monograph, simulation exercises, and answers to exercises

D.1.   Tubercoland monograph

INTRODUCTION

The Republic of Tubercoland is a landlocked country, located in the North-East of Afrasia. It has a border, with Kinojan in the North, Dabanostan in the East, the Democratic People's Republic of Kononyakos in the South and the Kingdom of Gouguania in the West. The national territory is included in an area of 650,000 km². After gaining independence in mid-1971 from Arakochiua and Joundopour, the northern and southern parts of Tubercoland reunified. The northern regions are more industrialized and richer while the southern regions are poorer and essentially rural. After the reunification, the country faced enormous economic difficulties and endured political and ethnical crisis up to mid-1980s. Some form of political stability started with the elections of 1986. The citizens of Tubercoland are called Tubercos and the official language Tubercoscu.

DEMOGRAPHY

The last demographic census, carried out in 2012, estimated the population size to be 39,785,560 for the entire country. The Republic of Tubercoland includes 82 provinces (or *satrapos*) plus the Capital City Department of Teebeegrad. These 82 *satrapos* have been distributed across recently created 16 Administrative Regions. Sixteen percents of the country population (nearly 6.4 million inhabitants) live in Teebeegrad. Various ethnical groups are living in Tubercoland: 25% of the population is Blados, 25% Arapakas, 15% Sinkese, 15% Boujadis, 10% Palish, 5% Kinos, and the remaining 5% are Dabanos, Kononyas, Guouguanios, Houlans and Yodas.

Fifty five percents of the population presently lives in urban areas. In 1971, at the moment of independence, the urban population accounted for 5% only. The age distribution is as follows: 0-14 years: 17%, 15-64 years: 70%, and 65 years and more: 13%. The median age is 32 years (29.1 in males and 33.9 years in females). The annual population growth is +1.9%.

ECONOMY

The national currency is the Tuberco Pocak (TP) (1 US$= 240 TP in 2013). The gross domestic product (GDP) in 1980 was 523 US$ per capita. In 2012, the GDP was 1,489 US$ per capita; however, as there is a disparities in development between the north and the south, the GDP was 1,963 US$ per capita in the northern regions and 889 US$ per capita in the southern regions. With the discovery and exploitation of the gas-fields of Boragrad as of 1999, there has been an economic growth in the southern regions while an economic stagnation has been observed in the northern regions and highlighted by many international organizations.

In the fiscal year 2012, the Government expenditure for health in Tubercoland was 15 US$ per capita. According to UNDP and a World Bank's Report (2011), Tubercoland ranks 101 out of 162 for Human Development Index and 65 out of 91 for the Human Poverty Index. The national income relies on various economic activities, namely gas, bauxite and iron mining (in the southern regions), cotton, rice, coffee, tobacco, some manufactured goods and tourism. Funds sent by the Tuberco migrants to their homeland from industrialized and oil-producer countries account for 15% of the national income. However, approximately half of the population is considered to be poor; one third of the Tubercos live with 360 TP and less (1.5 US$). The external debt is approximately 20 billion US$. To cope with this, the Government is embarked in a structural adjustment programme. This has resulted in drastically reducing the recruitment in public services, freezing salaries along with a budget reduction for many public services, a partial or total privatization of many economic or public sectors. Furthermore, about 55% of the national income has been devoted to the reimbursement of the external debt. In order, to overcome the effects of the structural adjustment programme, the stagnation of the economic situation and the recent increase of population migration from the rural to urban areas and from the southern to northern regions, the Government has initiated for the last four years a socio-economic reform to strengthen the market economy and the implementation of a policy of decentralization at regional level. To this end, the National Assembly has recently voted the creation of 16 Administrative Regions (AR). Each AR will have its own Regional Assembly, fiscal and economic policies and autonomy to make its own political and strategic orientations of socio-economic development in order to improve the well-being of the population. Each AR will cover 3 to 6 *satrapos*.

Economic observers are cautiously optimistic that the reduction of inflation will consolidate and the timid positive economic growth observed in 2008-2012 will increase by approximately 3% in the coming year. The next National Development Plan 2014-2018 will give a high priority to economic development, education and health.

However, in order to mitigate the effects of the structural adjustment programme on the most vulnerable and disadvantaged populations and to alleviate poverty in poor areas, the government of Tubercoland has launched the National Initiative for Human Development with the financial support of Arakochiua and the United States of Bankobamba.

HEALTH PROFILE

Routine data of the Ministry of Health (MoH) and the last Demography and Health Survey show that: i) the birth rate is 21.5 births per 1,000 population, ii) the death rate: 5.6 deaths per 1,000 population and iii) the life expectancy approximately 70 years (72 years in women and 68 in men); in 1975, the overall life expectancy was 49 years only. The maternal mortality is 115 deaths per 100,000 live births; this rate was 256 per 100,000 live births in 1973. The infant mortality rate is 42 deaths per 1,000 live births (males: 44 deaths per 1,000 live births; females: 38 deaths per 1,000 live births); this rate was 195

deaths per 1,000 live births in 1973. The total fertility rate was 6.2 children born per woman in 1973 while in 2012 this rate was 2.5 children born per woman.

The major causes of deaths in children below 5 years of age are: diarrhoeal diseases, acute respiratory infections, and protein-energy malnutrition. In 2009, a survey showed that 25% of children were moderately to severely underweight while 10% were overweight.

With the implementation, for the last 15 years, of the programme of extensive irrigation in the southern regions, the notified number of patients with schistosomiasis has increased in these regions. Malaria is one of the leading causes of morbidity and mortality in 5 *satrapos* of the northern regions. In these 5 *satrapos*, malaria-related symptoms are the first or second cause of demand care in primary health care settings.

It is estimated that more than 49,500 new TB cases occur in the Tubercoland population every year. This burden accounts for 14% of that of the WHO Region of Afrasia.

Hepatitis B and C have been increasing for the last 8 years. The sexually transmitted infections (STI) are very common; it estimated that 4.9 million persons seek care for STI-related symptoms every year, particularly in the private health sector. Many indicators are pointing out that HIV burden still remains low in Tubercoland. For instance, the HIV prevalence is less than 1% among blood donors and pregnant women.

However, recent surveys showed that HIV seroprevalence was 10% in sex-workers and 15% in intra-venous drug users in the smuggling areas along the eastern and northern borders with Kinojan and Dabanostan respectively. The MoH succeeded to implement a successful national HIV/AIDS programme with a strong and competent Central Unit at ministerial level

Furthermore, the prevalence of cigarette smoking is approximately 30% among adults aged 20 years and above. Smoking is increasing among female adolescents and young adults.

The recent ISAAC survey has shown that 10% of adolescents aged 13 years had symptoms compatible with asthma. Data from 10 urban hospitals highlight that, in 2012, 15% of the hospitalizations in intensive care units are related to exacerbations of chronic respiratory diseases (CRD). Moreover, 25% of hospital discharges are associated with respiratory conditions while 20% of hospital mortality is attributed to respiratory illnesses, including pulmonary TB. Other data show that respiratory diseases are one of the leading causes of care seeking in PHC (see Annex).

Vital statistics of the last 10 years strongly suggest that chronic heart diseases are the first cause of death in Tubercoland. A recent population-based survey has shown that 25% of 12,569 randomly selected people aged 20 years and above had a high blood pressure (using the Joint Committee Definition); among the persons with high blood pressure, 5% only knew they had this condition. Also,

the same survey reported that 18% of the people investigated who were 30 years and over had at least a mild diabetes. Approximately 15% of the hospitalizations in intensive care units are due to acute heart events such myocardial infarction.

It is estimated that approximately 45,000 new cases of cancer appear annually in the Tubercoland population. Breast and uterine cancers are the most frequent in females while prostate and lung cancers are the most common in males.

HEALTH PRIORITIES AND HEALTH POLICY

The overall goal of the MoH is to promote and strengthen the health of the population of Tubercoland. The key objectives of the MoH are to improve health equity and accessibility to efficient and sustainable health services, particularly for the poor.

In order to achieve these goal and objectives, the MoH is developing a National Health Plan 2014-2018 through which the following key health strategies will be operationalized:

1. Promote women and child health through basic care services delivery: antenatal care, delivery and postnatal services, reproductive health services, family planning, immunization, and curative care coverage for children such integrated management childhood illnesses (IMCI).

2. Reduce the burden of transmissible diseases such as tuberculosis (TB) through DOTS Strategy/ Stop TB Strategy, malaria, schistosomiasis, STI, HIV/AIDS, etc….

3. Reduce the burden of non communicable illnesses through the implementation of preventive interventions particularly in the communities and improve the management of patients with chronic conditions within the health system particularly at PHC level in order to reduce the complications generated by such conditions.

4. Improve the coverage of public health services within the district health system through the implementation of: i) the Minimum Package of Health Services (MPHS) at first level health facilities and ii) the Complementary Package of Health Services (CPHS) at the first ambulatory referral and district hospital levels.

5. Upgrade the professional skills of public health staff to ensure effectiveness and efficiency of the health system through planning, revision of basic training, and expansion of continuing training to health staff on clinical approaches and management.

6. Ensure an appropriate and efficient logistic supply and management system regarding drugs, equipment and materials, in line with the identified needs.

7. Upgrade the capacity of technology and management of district and *satrapos* hospitals.

8. Ensure and strengthen the full participation of the semi-public and private health sectors in the provision of health services to population in line with the national health policy in such way these sectors become real partners of the MoH.

9. Expand PHC services in the communities especially in: i) the suburban areas of the big cities, ii) the remote rural areas not connected to the national road networks, and iii) the scattered settlements.

10. Improve and accelerate the ongoing development of health care cost recovery schemes as defined in the so-called national programme, "PPR" (PPR stand for Pooling-Prepayment-Redistribution).

11. Include health promotion, protection and interventions in: i) the ongoing national initiatives to alleviate poverty and improve well-being (eg. National Initiative for Human Development) and ii) the various bilateral and multilateral cooperation projects.

12. Upgrade the policy development through the improvement of the health management information system (HMIS), surveys, studies, operational research, monitoring and evaluation.

BRIEF DESCRIPTION OF THE HEALTH SYSTEM

Each of the 82 *satrapos* includes 3 to 5 administrative districts; the Capital City Department includes 11 administrative districts. The total number of administrative districts in Tubercoland is 278. However, the number of health districts is only 235; as a result, some health districts cover at least two administrative districts that are often under-populated.

The health structure has three levels: central, *satrapos* and district. A health district: i) includes at least one district hospital, PHC centres and health posts and ii) often covers a population of 200,000 to 400,000 inhabitants.

The MoH has developed various health programmes. These programmes focus on priority health issues or interventions such as: family planning, ante-natal care, immunization, IMCI, TB control, trachoma control, leprosy control, rheumatic fever prevention, essential drugs, etc…. The MPHS and CPHS programmes, recently developed and launched, focuses on the district health system in order to appropriately integrate health services, improve access to efficient health interventions in PHC level and improve the management of the resources available within the district. All these programmes are: i) funded by the MoH with government funds and/or by international partners in the framework of bilateral or multilateral cooperation initiatives and ii) managed from specific departments or units at ministerial level. The activities of these programmes are: i) coordinated at *satrapos* and district levels by specific health professionals and ii) carried out within the district health system.

There are 157 district hospitals, 61 *satrapos* hospitals and 22 national hospitals. These hospitals include 16,572 beds.

In each health district, there is a network of health facilities; at very peripheral level there is health post with 2 to 3 nurses, then at slightly higher level there is PHC centre with most often 2 to 4 general practitioners and even more, and several nurses. There are 2,362 health posts and 865 PHC centres. Patients, whenever needed, are referred to outpatient department (OPD) of district hospital or directly to district hospital. The district hospital usually includes the four basic wards (internal medicine, obstetrics-gynaecology, paediatrics and surgery), an emergency room, an intensive care unit, a basic radiology equipment and some laboratory facilities, including TB microscopy. The TB control services are managed, at this level, from the office of health district.

The *satrapos* hospital is a referral facility for the health districts; it has usually an OPD and deals with the key clinical specialities such as surgery, obstetrics-gynaecology, paediatrics, internal medicine, respiratory diseases, ophthalmology, dermatology, psychiatry, cardiology, endocrinology, and others, depending on the local situation. Many investigation tests are offered at *satrapos* level such as: radiology, echography, laboratory including TB microscopy; culture for Mycobacterium tuberculosis is performed in two *satrapos* hospitals only.

The 22 national hospitals provide tertiary care services and are included in the networks of the six medical schools existing in the country. All the health professionals at this level are highly qualified and specialized. Various radiological and laboratory tests, including TB microscopy, are carried out. Culture for *Mycobacterium tuberculosis* (MTB) is ensured in five of these 22 hospitals and drug susceptibility test for TB bacilli in one.

The following table (Table 1) show the distribution of the health professionals by category and health sector in Tubercoland.

Table 1: Distribution of health professionals by category and health sector

Health sector	Nurses	General practitioners	Specialists	TOTAL
Ministry of Health	19,693	9,208	8,985	37,886
Other public sectors	3,622	1,232	963	5,817
Private sector	5,366	10,456	15,096	30,918
Semi-public sector	3,485	1,006	1,412	5,903
TOTAL	32,166	21,902	26,456	80,524

The MoH facilities are the major health settings where population seeks care; as matter of fact, 47% of the health professionals practicing in Tubercoland are working in the MoH sector.

A recent survey has reported that: i) 92% of the specialist doctors are working in urban (75%) or suburban (17%) areas, ii) only 45% of the general practitioners are practicing in rural areas, and iii) 60% of the nurses are working in rural areas. The same survey has highlighted that in general, irrespective of the urban or rural setting, 50% of the Tubercos population lives within a 3-km walking distance from at least one health facility, 84% within a 6-km walking distance and 90% within a 10-km walking distance; the remaining 10% of the population corresponds to the communities which are located in remote or enclosed regions or living in scattered settlements.

The Government has recently introduced a health care cost recovery scheme programme with the support of various international partners. Health insurance is presently available for all government employees and personnel of most of the big national and international companies. Special schemes have been designed for corporations including wage-earners of small business organizations.

Approximately 45% of the population is covered by one of these insurance schemes. However, any person asking for a health service should pay a minimum of user fees in any public or semi-public health facilities. These fees are usually accessible for most of people attending PHC settings. The MoH, in collaboration with the Ministry of Finance, is exploring the possibilities to involve the administrative districts and communities to financially support specific services in PHC system.

An essential drug list has been established since early 1980's and is updated on regular basis. This list is in line with the WHO list of essential medicines.

The MoH has implemented and scaled up, for the last 10 years, a National Essential Drug Programme (NEDP) within the district health system. This programme is presently covering the whole country. However, the NEDP is far from covering the medicines' needs of the care seekers attending the districts' health facilities. In many districts, mainly those with an important rural area, there is often a shortage of the drugs prescribed in the framework of the NEDP; to satisfy their needs, patients have to purchase medicines in private pharmacies where the prices are not fully regulated.

TUBERCULOSIS AND TUBERCULOSIS CONTROL

TB is a major problem of public health in Tubercoland. WHO estimates that approximately 49,700 new TB cases occur in Tubercos population every year for the last three years; the estimated incidence is about 125 new cases for 100,000 population per year while the estimated mortality rate is 15 deaths from TB per 100,000 population per year.

TB control is organized in the framework of the National TB Programme (NTP). DOTS strategy was initiated in 1997 and the Stop TB Strategy in 2006.

1.   Analysis of TB burden

Since the introduction of DOTS, the NTP succeeded to establish an information system to monitor and evaluate TB control situation in Tubercoland.

The Table 2, hereafter, shows the trend over time of TB notification.

Table 2: Notification of new TB cases in Tubercoland from 1997 to 2012

Years	New TB cases				Retreatment TB cases
	All new TB cases	New smear-positive TB cases	New smear-negative TB cases	New extra-pulmonary TB cases	
1997	780	553	123	104	260
1998	2,491	1,641	491	359	703
1999	5,586	3,429	1,401	756	1310
2000	9,369	5,247	2,470	1,652	1653
2001	14,096	7,658	3,603	2,835	1922
2002	19,236	9,846	4,581	4,809	2137
2003	20,101	8,739	5,357	6,005	1988
2004	22,089	9,201	6,941	5,947	2454
2005	24,122	9,649	7,581	6,892	3289
2006	26003	10,401	8,510	7,092	3214
2007	27,654	11,591	10,129	5,934	4502
2008	29,182	12,256	10,870	6,056	5150
2009	29,402	11,761	11,300	6,341	5600
2010	28,999	11,310	11,770	5,919	5117
2011	29,323	11,142	12,072	6,109	5585
2012	29,088	10,281	12,705	6,102	5499

The data analysis indicates that 55 to 59% of new TB cases (any type) notified every year are males and approximately 75% are aged less than 55 years. The incidence of notified smear-positive pulmonary TB cases is usually 60 to 90% higher in males than in females while that of extra-pulmonary TB cases is usually not significantly different between both genders.

Furthermore, 70% of new TB cases are identified in the most urbanized regions of Tubercoland. Approximately 25% of TB cases are notified in the Capital City; for instance, the annual notified incidence is usually more than 260 new cases per 100,000 population in two districts of Teebeegrad. Moreover, 35%, 40% and 50% of TB relapses, treatment failure cases and multi-drug resistant (MDR) TB cases, respectively, are identified in Teebeegrad.

At least 15% of all TB patients identified every year through NTP network are retreatment cases.

Among TB patients, the HIV prevalence is most often 1 to 3%; it has never reached 5% since the sentinel surveillance system has included TB patients in the monitoring of HIV infection.

2.   Organization of TB control

2.1.   Overall management of NTP

The mobilization of funds from government and through a World Bank loan contributed to expanding and scaling up TB control activities through NTP. A Central Unit has been established within the MoH to manage the NTP activities. This unit includes four health staff under the leadership of a manager. The main roles of the Central Unit are to: i) define the national policy for TB control, ii) develop national guidelines, iii) establish a national strategic plan for TB control, iv) manage resources, including funds and TB drugs, v) ensure training activities for all the relevant health workers that need to be involved in TB care and control services, vi) organize the supervision of TB control activities all over the national territory, vii) coordinate with the National Reference Laboratory (NRL), viii) collaborate with the partners involved in TB control efforts in Tubercoland, and ix) others.

The MoH allocates a budget for TB control from the Government funds every year. This annual budget is directly managed by the NTP central unit. The Table 3, below, shows the budget allocated every fiscal year since 1997.

Table 3: Budget allocated to TB control from 1997 to 2012

Years	Budget allocated to NTP(in Tuberco Pocaks)	Proportion of the NTP budget allocated to TB drugs purchase
1997	360,000,000	20%
1998	408,000,000	22%
1999	480,000,000	22%
2000	600,000,000	25%
2001	648,000,000	30%
2002	720,000,000	35%
2003	768,000,000	35%
2004	840,000,000	40%
2005	912,000,000	42%
2006	960,000,000	42%
2007	960,000,000	48%
2008	840,000,000	55%
2009	720,000,000	60%
2010	610,000,000	69%
2011	528,000,000	74%
2012	497,000,000	81%

240 Tuberco Pocaks = 1 US$

The implementation of DOTS services in all the health facilities of MoH was achieved in 2002. The management and evaluation of TB control activities are decentralized at *satrapos* level. The follow-up and close monitoring of TB care and control services, as defined in the NTP policy, are ensured at district level. TB register is established in the health district. Most of the bacteriological activities to diagnose TB are carried out in the district hospital OPD and in few PHC facilities. Anti-TB treatment is usually provided to patients in PHC centers and health posts; some patients may receive their TB treatment in the district hospital OPD.

There is a National Board for TB control that supports NTP in identifying the strategic orientations needed to improve to control TB situation in Tubercoland. This board includes representatives of the six medical schools, private health sector, army health sector, health services of the penitentiary system, major health insurance corporations and others. Two university professors who are members of the National Board are also Representatives in the National Assembly and members of the Health Commission of the Parliament.

2.2. *Management of patients with symptoms compatible with TB and identification of TB cases*

The national guidelines issued by the NTP clearly highlight that a patient with signs and/or symptoms compatible with TB, particularly a productive cough for than two weeks, should be evaluated for TB through sputum smear microscopy and other tests when appropriate. Patients who are suspected of having TB are usually identified by nurses or general practitioners in health posts, PHC centers and district hospital OPDs. These patients are then referred to TB microscopy laboratory for further assessment. Those who are smear-positive are registered and prescribed TB treatment at district hospital OPD level. TB suspects who are smear-negative need to be clinically investigated further by the medical officer; if the diagnosis of smear-negative TB or extra-pulmonary TB is retained, then the patient is registered and prescribed TB treatment in line with the NTP guidelines. Most of the TB patients receive their treatment on ambulatory basis most often in PHC centers and health posts; only the TB patients who are severely ill are hospitalized.

The Table 4, hereafter, shows data on the process of TB identification since the initiation of DOTS in 1997.

Table 4: Data on TB identification process in 1997-2012

Years	1 Number of TB suspects identified and referred for SSE	2 Number of TB suspects assessed through SSE (2/1)	3 Number of examined sputa (3/2)	4 Number of positive- smear sputa (4/3)	5 Number of patients with smear-positive TB (5/3)
1997	9,716	9036 (93%)	26,204 (2.9)	2,033 (7.7%)	753 (2.7)
1998	35,335	32,508 (92%)	81,271 (2.5)	5,689 (7%)	2,275 (2.5)
1999	62,690	57,675 (92%)	144,188 (2.5)	11,535 (8%)	4,614 (2.5)
2000	96,918	87,227 (90%)	209,344 (2.4)	16,748 (8%)	6,699 (2.5)
2001	119,408	107,468 (90%)	268,669 (2.5)	21,494 (8%)	9,345 (2.3)
2002	121,290	106,737 (88%)	245,495 (2.3)	24,549 (10%)	11,690 (2.1)
2003	116,437	98971 (85%)	207,840 (2.1)	20,784 (10%)	10,392 (2)
2004	104,966	89,221 (85%)	178,442 (2)	21,413 (12%)	11,270 (1.9)
2005	96,365	79,019 (82%)	142,233 (1.8)	21,335 (15%)	12,550 (1.7)
2006	97,601	78081 (80%)	127,929 (1.6)	21,238 (17%)	13,274 (1.6)
2007	96,833	77,467 (80%)	116,200 (1.5)	23,240 (20%)	15,493 (1.5)
2008	90,629	70,691 (78%)	98,968 (1.4)	22,763 (23%)	16,259 (1.4)
2009	93,565	70,174 (75%)	84,209 (1.2)	21052 (25%)	16,194 (1.3)
2010	70,776	54,971 (78%)	65,966 (1.2)	18,470 (28%)	15,392 (1.2)
2011	66,732	48,047 (72%)	52,852 (1.1)	16,913 (32%)	15,375 (1.1)
2012	60,332	41,629 (69%)	45,792 (1.1)	16,485 (36%)	14,986 (1.1)

Culture for MTB is not commonly used. This test is hardly performed in 5% of TB suspects who are smear-negative. As a result, less than 1% of pulmonary TB cases are confirmed by culture.

2.3.   TB laboratory network

There are 168 TB microscopy laboratories located mainly in the hospitals' OPDs, particularly at district level, and in very few PHC centers. There are eight laboratories with facilities for MTB culture in the main *satrapos*. These two categories of laboratory are assumed to be technically supported and supervised by the NRL located in the National Health and Hygiene Laboratory in Teebeegrad.

The Table 5, hereafter, shows the distribution of TB laboratory according to the new Administrative Regions as highlighted above.

Table 5: TB laboratories distribution by Administrative Region

Administrative Region	Population size(1)	Number of TB microscopy laboratories(2)	Number of culture laboratories(3)	Ratio (1)/(2)	Ratio (1)/(3)
Northern Centre	3,569,421	6	1		
Northern West	1,698,530	8			
Northern East	2,600,894	10	1		
L'Binga	1,892,366	9			
Bingobamba	4,569,237	15	1		
Standing Bull	1,795,623	10	1		
Hahha	945,623	7			
Teebeegrad	6,365,689	11	1		
Smearbamba	3,669,875	14	1		
Mac-Sputum	2,986,354	9			
Bronchovich	1,582,967	9			
Kanfoudi	3,289,745	16	1		
Nah Kunedan	856,479	8			
Guitanos	1,756,940	14	1		
Oplossos	1,658,923	13			
Zogotozz	546,894	9			
Overall	39,785,560	168	8		

2.4. *Outcomes of TB control activities in Tubercoland*

Since DOTS strategy has been initiated, the number of notified TB cases has increased. However, TB detection has not increased since 2008 and still remains below the 70% global target.

The treatment success rate was in line with the WHO global target for the first four years after the introduction of DOTS; but since the year 2001, it has significantly decreased below 85% (Table 6). Furthermore, the default rate has progressively and significantly increased over the last 10 years.

Table 6: Cohort analysis of TB cases treated in 1997-2012, Tubercoland

Years	Treatment success rate	Failure rate	Default rate	Death rate	Transfer rate
1997	88%	1%	3%	4%	4%
1998	89%	1%	3%	3%	4%
1999	87%	2%	4%	4%	3%
2000	85%	1%	4%	4%	6%
2001	82%	3%	5%	4%	6%
2002	82%	1%	7%	3%	7%
2003	81%	2%	6%	4%	7%
2004	82%	1%	6%	3%	8%
2005	79%	1%	8%	5%	7%
2006	77%	2%	10%	5%	6%
2007	78%	3%	11%	4%	4%
2008	75%	1%	12%	5%	7%
2009	74%	1%	13%	6%	6%
2010	74%	2%	12%	6%	6%
2011	71%	3%	14%	5%	7%
2012	71%	2%	15%	6%	6%

2.5. *Other aspects of TB control in Tubercoland*

2.5.1. Issues associated with MDR-TB

A recent drug resistant survey, undertaken at national level in 2011/2012, has shown that, among TB cases who were never prescribed anti-TB drugs, the prevalence of resistance to at least one anti-TB drug was 9.2% while the prevalence of MDR-TB was 1.3%. However, the same survey highlighted that, among new smear-positive pulmonary TB cases in the Capital City Teebeegrad, the prevalence of resistance to at least one anti-TB drug was 18% while that of MDR-TB 5.1%.

The NTP has recently standardized and initiated procedures to harmonize the management of patients with re-treatment TB as well as those with MDR-TB, with a particular focus on big cities. However, there is still no national guidelines to manage MDR-TB cases and among the estimated 260 MDR-TB cases only 10 have been somewhat managed in line with the international requirements. A recent study carried out in 55 hospitals' wards, where smear-positive TB and re-treatment TB cases are hospitalized, has reported that the number of nurses and medical officers affected with TB steadily increased, year after year, from 4 in 2002 to 48 in 2012.

2.5.2. TB/HIV collaborative activities

Although HIV burden is low in Tubercoland, the MoH has implemented, as highlighted above, a successful national programme to prevent and control HIV infection and AIDS. TB has been integrated for more than 10 years in the existing sentinel surveillance system for HIV infection. The prevalence of HIV in TB patients is less than 5%. However, there is no information on the systematic screening of TB among people living with HIV (PLHIV). A recent field assessment reported that, in fact, very few PLHIV are evaluated for TB and no isoniazid preventive therapy (IPT) is provided to those who have no active TB. The systematic screening of HIV infection in patients with active TB and provision of cotrimoxazol are not ensured through NTP services. Moreover, no clear guidelines on TB/HIV management have been developed and no coordination mechanism between the NTP and the National HIV/AIDS Programme has been established at national level.

2.5.3. Involvement of the other health sectors in TB control

Even though, the other health sectors are well-represented in the National Board for TB Control, no clear strategy has been developed to involve health workers practicing outside the NTP settings. Even though many TB patients are referred from the other health sectors, it is believed that ten to fifteen thousand TB patients are diagnosed and treated outside the NTP network, particularly in the private health sector which includes nearly 40% of the doctors available in the country. A study[7], involving 964 private physicians, has been recently carried out in Teebeegrad and Tangobamba, the two biggest cities of the country. This study showed that, in 2011, these private physicians referred, to public health

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7   Pinzo Pintos, Galagotan Bouzigma and Blabosh Zingana. How adequate is the contribution of the private medical sector in tuberculosis care and control in major cities in Tubercu!and? Public Health Journal of Afrasia 2012; 14 (7): 702-711.

facilities with NTP services, 9,652 TB suspects and 254 bacteriologically confirmed TB cases; however, they prescribed a TB treatment to 2,137 other patients. Further assessment reported that the procedures to set TB diagnosis were sub-optimal in 82% of these patients and the TB treatment was not in line with the regimens required in the NTP services. Major problems in the prescription of TB treatment were identified; for instance, many TB patients were prescribed rifampicin alone with a sub-therapeutic dosage for 2 to 3 months. Moreover, the same study showed that TB medicines are sold in the private pharmacies without any medical prescription irrespective the quantity of drugs asked for by the client; for instance, a single pill of 50 mg rifampicin can be purchased for 30 Tuberco Pocaks.

2.5.4.   Other managerial issues

A recent assessment of NTP management, carried out by the Regional Office of WHO for Afrasia, highlighted the following key issues:

- The tasks that should be carried out by each member of the NTP Central Unit team are not well defined and clearly described

- The treatment guidelines issued by the NTP in 1998 are not anymore in line with the international requirements.

- The NTP Central Unit has not established any national strategic plan for TB control since the last one that ended in 2005

- The supervision has no clear national guidelines and is carried out in a chaotic manner; the NTP Central Unit team participates in very few supervision missions undertaken in Teebeegrad and has little information on supervision activities undertaken in the *satrapos* outside of the Capital City

- There is no standardized training material that can be used nationwide; also, the Central Unit has no clear agenda and no standardized programme for the training of the health workers in charge of NTP services. Very few training sessions, on which the NTP Central Unit is usually not informed, are organized at *satrapos* level

- Although TB contact investigation is included in the national policy, no TB contact investigation activities have been implemented to date; moreover, there are no national guidelines to undertake these activities

- The data collected on routine basis through the NTP network show that every year approximately 70% of TB cases are identified in the most urbanized regions of the country and the notified incidence is more than 2 times higher in some urban districts of big cities than the national average. Also, a high proportion of re-treatment TB cases are registered in big cities. In the last four years, the treatment success rate in new TB cases is as low as 50% and the treatment default rate as high as 25% in some urban health districts of Teebeegrad, Tangobamba and Zedaspotol. To date, no deep analysis of the data on TB occurrence in urban areas, particularly in big cities has been undertaken by the NTP Central Unit. No measures have been taken to adapt TB control care and control services' provision in the urban settings. Also, no specific interventions have been established to improve TB treatment outcomes and therefore to reduce the occurrence of retreatment TB cases in big cities.

- In Tubercoland, there are 873 NGOs. Two thirds of them are operating at community level and have strong links with the National Initiative for Human Development. None of these NGOs has, to date, included TB control in its activities' agenda. There are three national NGOs whose official role is to exclusively focus on TB in Tubercoland and to provide support to NTP. They are financially subsided by the MOH. However, their actions are undertaken without any coordination with the NTP; moreover, they do not have clear activities' agenda and are not represented in the National Board for TB Control. These three NGOs do not have any strategy to mobilize financial resources within or outside the country and, therefore, they have never initiated any action to raise funds to support TB control in Tubercoland.

- Although two members of the National Board for TB Control are also members of the Health Commission for the Parliament, the TB-related problems in Tubercoland have never been raised in the debates of the National Assembly since they were elected as representatives.

CONCLUSION

Tubercoland is a low middle income country under a structural adjustment programme. In this framework, the Government is initiating a process of political and administrative decentralization in 16 Administrative Regions.

Tubercoland is in the process of demographic transition. The epidemiological transition is also progressing; both communicable diseases and chronic health conditions are major issues and are considered in the national health policy. To this end, significant reforms have been undertaken in the health sector for the last few years

TB is a major problem of public health in Tubercoland. Approximately 29,000 new TB cases have been annually identified for the last three years. DOTS Strategy was initiated in 1997 and the Stop TB Strategy in 2006. However, TB case detection and treatment success rate are still below the WHO Global targets (e.g.: ≥ 70% case detection rate and ≥ 85% treatment success rate).

The NTP has major problems associated with management practices and procedures that need to be urgently addressed to improve TB care and control services.

In the process of development of the National Health Plan, the MoH has recently urged the NTP to establish its own National Strategic Plan (NSP) for the five coming years 2014-2018. The NTP is requested to consider, as much as possible, the national health priorities in the development of this NSP.

ANNEX

Demand of care in ambulatory health settings in Tubercoland in 2012					
Health conditions	**0-4 yrs**	**5-14 yrs**	**15-54 yrs**	**³ 55 yrs**	**Total**
Tuberculosis	635	3762	23146	1545	29088
STI	4	4558	1025865	173194	1203621
HIV/AIDS	45	256	1623	435	2359
Diarrhoeal diseases	658955	98452	24577	41715	823699
Childhood diseases	36912	6745	875	66	44598
Meningitis	654	321	108	40	1123
Hepatitis	25468	11852	2103	946	40369
Malaria	756972	236555	157890	8221	1159638
Schistosomiasis	3	6892	2015	744	9654
Leishmaniasis	25	258	125	51	459
Leprosy	2	5	25	32	64
Trachoma	62589	25963	9865	819	99236
Lower ARIs	598715	258120	85623	52054	994512
Upper ARIs	856923	423693	285460	123447	1689523
Maternal conditions	0	123	894023	5077	899223
Perinatal conditions	0	561	885632	2043	888236
Nutritional deficiencies	8456	2156	847	1074	12533
Malignat neoplasms	569	1102	2133	4090	7894
Diabetes mellitus	0	5612	280542	203767	489921
Nutritional/endocrine disorders	125	1589	1460	1415	4589
Neuropsychiatric disorders	0	89265	189652	77927	356844
Cardiovascular disorders	12569	28956	51236	72560	165321
COPD	0	0	98369	201889	300258
Asthma	9412	133645	199623	53841	396521
Other respiratory conditions	12569	22369	23589	44363	102890
Digestive disorders	20136	79036	118950	41211	259333
Skin diseases	32589	45698	113697	62776	254760
Musculoskeletal diseases	1546	2458	10456	61230	75690
Oral conditions	3489	4895	6562	7928	22874
Others	13069	9786	16894	5464	45213
TOTAL	**3112431**	**1510837**	**4512965**	**1249945**	**10380035**

D.2.   Simulation exercises

You are strongly invited to read this monograph on Tubercoland. Do not try to look for the location of this country. As you can imagine, it does not exist on any map; it is a purely fictitious country.

The following set of simulation exercises will help you go through the process of development of a national strategic plan for TB control in Tubercoland. To this end, use as much as possible the information and data included in this monograph.

Exercise 1

1.   What are the strengths and weaknesses of the NTP of Tubercoland?

2.   What are the opportunities and threats that you might need to take into account in the development of the NSP? These opportunities and threats might be associated with the overall national policy, national health policy or others

3.   What are the key gaps in the existing TB control in Tuberculand that need to be considered in the NSP?

4.   Please, describe 2 gaps and explain why they are gaps.

Exercise 2

Given your deep knowledge on TB control situation in Tubercoland, please, formulate for the NSP 2014-2018:

1.   The goal(s)

2.   The operational objectives

Be aware:
i)   these formulations should use SMART criteria (Specific, Measurable, Attainable, Relevant, Time-bound)
ii)   the operational objectives should be consistent with the goal(s) and the gaps you identified in the Exercise 1.

Exercise 3

Please,
1.   specify the key strategic interventions for each of the operational objectives you formulated in Exercise 2

2.   identify the key activities (and sub-activities if needed) for at least 2 strategic interventions specified above

3.   use a numbering system in order to specifically identify each operational objective, each strategic intervention and each activity (and, if needed, each sub-activity).

Exercise 4

Please, select one of the 2 strategic interventions for which you specified, above, the activities, then establish a budget for this strategic intervention, for at least one year (if possible, for two years), using the WHO Planning and Budgeting Tool. You may also use a simple tabulation sheet (eg.: an Excel sheet) for which you must set a unit cost for each item that needs to be costed in the budget. Be aware, prior to setting a unit cost, define clearly the unit inherent to the item considered.

Please, respect the numbering system you set in Exercise 3.

Exercise 5

Please, define the indicators to measure:

1. the goal(s)
2. the operational objectives
3. the key interventions you specified above for each operational objective
4. the most relevant activities you identified in Exercise 3.

As in Exercise 4, you need to respect the numbering system you established in Exercise 3.

For each indicator, you need to specify:

- how it will be calculated (absolute figure, proportion, ratio, rate index, others)
- what source(s) of information will be used; if it is a ratio or a proportion, specify the sources of information of the numerator and denominator
- how often the information will be collected
- who will collect it
- at which levels it will be collected and compiled
- for which purpose the indicator will be used
- values of the indicator at the baseline and at the relevant moment(s) covered by the NSP.

Exercise 6

Please, establish an operational plan for the 2 strategic interventions for which you specified the activities (and sub-activities).

As in Exercises 4 and 5, please respect the numbering system you set in Exercise 3.

The operational plan should be established for the first year (if possible, for the two first years) of the NSP and must focus on the activities and sub-activities that will be implemented every quarter. For each activity and sub-activity, you should specify:

- when it will be implemented
- where it will be implemented
- who will implement it
- the cost of its implementation
- the source of funding to implement this activity or sub-activity
- how the implementation of this activity or sub-activity will be monitored and evaluated
- whether there is a need for a technical assistance
- other relevant detail, if necessary.

Exercise 7

Please, establish a technical assistance plan for the 2 strategic interventions for which you specified the activities (and sub-activities).

As in Exercises 4, 5 and 6, please respect the numbering system you set in Exercise 3.

The technical assistance plan should be established for the first year (if possible, for the two first years) of the NSP and must focus on the strategic interventions or specific activities or sub-activities that need technical assistance for their development and/or implementation. The technical assistance plan must match with the operational plan.

It should clearly specify:

- the strategic intervention or activity for which a technical assistance is needed
- when and where this technical assistance will take place
- the terms of reference of this technical assistance, including specification of the deliverables
- the profile of the expert who will undertake the technical assistance
- the cost to ensure this technical assistance
- whether the funding is available or not; if available, the source of funding should be identified.

Answers to simulation exercises

Exercise 1:

Strengths	Weaknesses
• There is a NTP for TB control • The NTP has structures: Central Unit and coordination units at satrapos and districts level • The terms of reference of the NTP central unit are well defined • There is a National Board for TB, which is an appropriate asset for the visibility of TB in the national health agenda and therefore contributes to strengthening the political commitment	• Managerial issues are identified: • There are weak management capacities at central level (only 4 staff under one manager) with not enough staff to implement and monitor NTP activities • The tasks of the Central Unit staff are not well defined. • Very few staff at central level that should cover (particularly for supervision and training) 82 satrapos. • Weak capacities and no organization for for supervision and training. • Treatment guidelines are not in line with the international recommendations.
• A budget from government is allocated to TB control – TB drugs purchase is ensured; this suggests some political commitment	• The budget for TB control is declining since 2007 (almost by 45%) • Most of funding goes to TB drugs' supply, and less funding left for other activities, such as training, supervision or capacity building of NTP
• DOTS strategy was adopted in 1997 and Stop TB strategy in 2006 – An internationally recommended policy to control TB was adopted by the NTP	• TB burden is high (almost 50,000 cases) and is affecting young people (75% are aged less than 55 years). • TB is a serious problem in big cities.
• TB care services are provided at all levels and integrated in PHC services	• The quality of the process to manage TB suspects is sub-optimal • TB detection declined from 2002 (see table 4)
• There is a laboratory network for TB control	The capacity to diagnose TB is insufficient and unequally distributed (see table 5). On average, there is currently 1 TB microscopy laboratory for 237,000 population. For instance: * In Teebeegrad (6 million population), where 25% of new TB patients and a high proportion of re-treatment and MDR-TB cases are identified, there is only 1 culture laboratory, and 1 microscopy laboratory for 600,000 population. * In the Administrative Region of Central North (3,569,421 population), there is 1 microscopy laboratory for 600,000 population.

Tubercoland case study - Simulation exercises

Strengths	Weaknesses
• The existing information system generates data on TB and TB control (Tables 2, 3, 4, 5 and 6) • Significant amount of information has been generated through surveys, studies and evaluation	• The treatment success rate is declining. The failure rate tends to increase which suggests a potential problem of MDR-TB. • There is a significant increase in the default rate since 2005; this suggests a lack of monitoring and/or poorly organized drug provision services.
• The sentinel surveillance system for HIV infection includes TB patients.	• No clear policy and strategy on TB/HIV have been established and implemented. The screening of PLHIV for TB is weak and IPT not provided to PLHIV with no active TB. • HIV screening in TB patients and cotrimoxazol provision are not implemented through NTP network.
	• Significant number of TB patients are managed outside the NTP services, particularly in the private sector. • The management of these patients is sub-optimal and not in line with the NTP policy. • Over the counter TB drugs are being sold in the private pharmacies. • Some of the dosages of TB drugs like rifampicin 50mg is not appropriate. Single pills can be sold. • These are likely to contribute to MDR-TB occurrence.
	• TB contacts are not screened. • No clear guidelines to implement TB contact investigation.
	• There is no clear policy or strategy to tackle TB in big cities and urban areas.
	• Increasing number of staff working in hospital TB wards being affected by TB.

Opportunities	Threats
• There is an ongoing process of administrative decentralization at regional level.	• The process of decentralization in the 16 new Administrative Regions may reduce the political commitment.
• There is a health sector reform progressing.	• A structural adjustment programme has been implemented. • The epidemiological transition is progressing towards chronic diseases; therefore, more funding might go to non communicable diseases at the expense of communicable diseases such as TB.
• There is a possibility of integrating TB care and control services into the ongoing initiative to improve health care services within the district health system through the new minimum packages: MPHS and CPHS.	• Insurance scheme may affect the "free-of-charge" status of TB care provision, because of the adoption of payment schemes promoted through the health sector reform.
• There is a possibility of integrating TB care and control services into the initiative upgrading the professional skills of public health staff.	
• There is a possibility to promote TB control in the initiative that focuses on strengthening the full participation of the semi-public and private health sectors in the provision of health services to population in line with the national health policy.	
• TB care and control services can be promoted through the expansion of PHC services.	
• The HIV burden is still low.	
• Additional relevant information for TB control can be obtained with the ongoing initiative to improve the HMIS.	
• TB control can be promoted through the ongoing National Initiative for Human Development to Alleviate Poverty.	
• 873 NGOs in the country, and 2/3 of them are operating at community level, with a strong link with the National Initiative for Human Development to Alleviate Poverty; TB control services can be promoted in communities through these NGOs. • Three NGOs are specifically focusing on TB control. • Two members of the National Board for TB are representatives in the National Assembly and members of the Health Commission for the Parliament.	

Key gaps:

1) Decline in TB funding from the Government due to competing health issues and health sector reform.

2) Insufficient management capacities at central level and poor capacities to manage, monitor and supervise TB control services in the 82 *satrapos*.

3) The quality of the process to manage TB suspects and identify patients with active TB has declined since 2002 at patient management level.

4) Laboratory capacities for TB diagnosis are insufficient.

5) Poor monitoring and follow up of TB patients on treatment.

6) Significant number of TB patients are treated in the private sector without any links with the NTP services and poor regulation on TB drugs' sales in the private sector.

7) Significant number of MDR-TB patients are not appropriately managed by any sound strategy.

8) Increasing number of health workers who are affected by TB; this suggests that TB infection measures are weak in the health facilities.

9) Poorly coordinated activities between the NTP and the HIV/AIDS programme even though both programmes are officially hosted within the MoH structure.

10) Well identified high risk groups such as contacts, PLWHIV, residents of poor neighborhoods, are not appropriately covered by clear TB control strategies.

11) Significant opportunities have not been seized in order to improve TB care and control, namely:
   a. The establishment of linkages with the National Initiative for Human Development to Alleviate Poverty can contribute promoting TB control;
   b. The parliament representatives who are members of the National Board for TB can help strengthen the political commitment for TB control and strengthen the visibility of TB control among the national health priorities;
   c. The administrative decentralization can contribute to improving the managerial capacities in the 16 Administrative Regions;
   d. The integration of TB in health services can promote the expansion of TB care and control services within the general health network.

12) No action measures have been taken to protect the "free-of-charge" status of TB care and control services in the context of the ongoing implementation of health insurance.

Two examples of gap formulation:

1) Insufficient management capacities at central level and poor capacities to manage, monitor and supervise TB control services in the 82 *satrapos*.

The mission of the Central Unit of the NTP is well defined; however, the team of this unit is weak, because:

- The number of staff is insufficient given the amount of tasks that need to be carried out. For example, the 82 *satrapos* cannot be supervised by this small team which includes four staff in addition to the NTP manager.

- Many policies and strategies have not been established and guidelines not developed due to the lack of technical skills (e.g. treatment guidelines not updated, no supervision guidelines, no contact investigation guidelines, no clear strategy to establish collaborative TB/HIV activities, no clear approach to involve all care providers, no clear strategy to tackle TB control issues in big cities, weak data management skills, no standardized national training materials, etc...)

- The managerial capacities are poor. As a matter of fact:
  » no national TB strategic plan has been developed
  » the supervision and training activities are not organized from the Central Unit level.

- The existing opportunities have not been seized in favor of TB control in Tubercoland because:
  » no mechanism has been established to promote TB control through the National Initiative for Human Development to Alleviate Poverty and the NGOs operating at community level,
  » the three thematic NGOs are not fully involved in promoting the NTP policy,
  » there is no lobbying in favor of TB through the parliamentary health commission which includes 2 members of the National Board for TB control,
  » the Government funds allocated to TB control have been declining for the last 4 years because of other competing priorities in the new health agenda.

2) The quality of the process to manage TB suspects and identify patients with active TB has declined since 2002 at patient management level.

The data collected on routine basis show that the number of TB suspects identified and referred for sputum smear examination (SSE) significantly increased from 9,716 in 1997, when DOTS was initiated, to 121,290 in 2002 (11.5 times increase). However since then, this number regularly has decreased. In 2012, only 60,332 TB suspects were identified and referred for SSE; this number suggests that the identification of TB suspects declined by 50% in 2012 in comparison to 2002. Among the TB suspects who were referred for SSE, the proportion of those who were assessed by SSE declined from 93% in 1997 to 69% in 2012. Also, the number of sputa examined per TB suspect, who were assessed, significantly decreased (from 2.9 in 1997 to 1.1 in 2012). The proportion of smear-positive patients identified among the TB suspects who were examined by SSE increased from 8.3% in 1997 to 36% in 2012.

These data clearly indicate that the priority of identifying TB among patients attending PHC facilities is declining and a significant number of identified TB suspects are not assessed. As a result, there is a high selection of TB suspects. This suggests that TB patients are likely to be detected at far advanced stage of the course of TB disease. The lack of training of PHC workers and the quasi absence of field monitoring and supervision are likely to contribute to the situation described above.

Exercise 2:

Goal:

To decline TB mortality rate by at least 10% per year from 2018 onwards.

Operational objectives:

Operational objective 1:

To increase, by 2016, the annual number of identified cases of all forms of TB to 34,800 and successfully treat at least 85% of them, then to further increase, by 2018, this annual number to 42,200 cases and successfully treat at least 90% of them.

Operational objective 2:

To strengthen quantitatively and qualitatively the managerial capacities of the Central Unit of the NTP by 2014 and to decentralize significantly these capacities in all the 16 administrative regions, at the latest, by 2015.

Exercise 3:

For the operational objective 1, the following strategic interventions are planned:

1.1. Increase TB diagnosis laboratory capacities in such way that: i) by 2015, each TB microscopy laboratory covers at least 100,000 population, each TB culture laboratory at least 1 million population and TB drug susceptibility testing services, including Xpert MTB/RIF, provided in, at least, the 5 most urbanized Administrative Regions and by ii) 2016, drug susceptibility testing services are ensured in at least each of the 16 Administrative Regions;

1.2. TB drug supply and appropriate drug management

1.3. Training of public health staff

1.4. Involvement of all care providers, with a focus on the private medical sector

1.5. Implementation of TB/HIV collaborative activities

1.6. Implementation of TB contact investigation activities

1.7. Implementation of childhood TB management activities

1.8. Strengthening TB care and control services in the penitentiary system

1.9. Implementation of the Practical Approach to Lung Health services

1.10. Involvement, in TB care and control services, of local NGOs operating in communities.

Operational objective 2, the following strategic interventions are planned:

2.1. Strengthen the Central Unit of the NTP by: i) clearly defining the missions and tasks of this entity, ii) recruiting competent additional staff according to the needs defined in these missions and tasks, iii) ensuring appropriate training to the existing staff and iv) establishing linkages with national and international partners

2.2. Establishing Coordination Units of the NTP in each of the 16 Administrative Regions (each regional coordination unit will include at least one regional coordinator, one TB laboratory technician and one statistician)

2.3. Organize, coordinate, monitor and evaluate training activities

2.4. Organize, coordinate, monitor and evaluate supervision activities

2.5. Strengthen the information system on TB surveillance and monitoring and evaluation of TB control services' performance

2.6. Establish operational research activities to evaluate and improve NTP Efforts.

Specification of the activities associated with 2 strategic interventions

Operational objective 1:

To increase, by 2016, the annual number of identified TB patients to 34,800 cases and successfully treat at least 85% of them, then to further increase, by 2018, this annual number to 42,200 cases and successfully treat at least 90% of them.

Strategic intervention 1.1.:

1.1. Increase TB diagnosis laboratory capacities in such way that: i) by 2015, each TB microscopy laboratory covers at least 100,000 population, each TB culture laboratory at least 1 million population and TB drug susceptibility testing services, including Xpert, provided in, at least, the 5 most urbanized Administrative Regions and by ii) 2016, drug susceptibility testing services are ensured in at least each of the 16 Administrative Regions;

Activities:

1.1.1. Update the national guidelines for TB microscopy, including LED

1.1.2. Develop national guidelines for culture

1.1.3. Develop national guidelines for DST

1.1.4. Develop national algorithm and directives to use Xpert

1.1.5. Print 2,500 copies of national guidelines for TB microscopy

1.1.6. Print 300 copies of national guidelines for culture

1.1.7. Print 3,000 copies of national algorithms and directives to use Xpert

1.1.8. Purchase 200 LED microscopes

1.1.9. Purchase 150 binocular microscopes

1.1.10. Purchase reagents for 200 LED microscopy laboratories

1.1.11. Purchase reagents for 350 binocular microscopy laboratories

1.1.12. Purchase culture equipment to implement 35 cultures laboratories

1.1.13. Purchase equipment to establish a unit to produce media for mycobacteria culture

1.1.14. Purchase further reagents to perform DST in 20 culture laboratories

1.1.15. Purchase 25 Xpert machines to implement in the most urbanized areas

1.1.16. Purchase cartridges for Xpert machine: 4,000 cartridges for 2014, 8,000 each year for 2015 and 2016 and 10,000 each year for 2017 and 2018

1.1.17. Purchase laboratory equipment to perform Line Probe Assay (LPA) in the NRL and the regional laboratories of the Administrative Regions of Northern Centre and Bingobamba

1.1.18. Train by 3 international experts of 10 senior staff working in the NRL and the regional laboratories of the Administrative Regions of Northern Centre and Bingobamba on planning and management of TB laboratory activities within a TB laboratories' network

1.1.19. Train 20 national and regional TB microscopy trainers by the NRL

1.1.20. Establish by the NRL a standardized training programme on TB microscopy

1.1.21. Establish by the NRL and in coordination with the Administrative Regions an agenda of training and refreshing courses on TB microscopy

1.1.22. Organize refreshing courses on TB microscopy for 200 microscopy technicians working in the 168 TB microscopy laboratories

1.1.23. Train 380 staff on LED microscopy

1.1.24. Train 250 new staff on TB microscopy (binocular microscopy)

1.1.25. Train by the NRL 100 laboratory staff on culture and 50 on DST for mycobacteria

1.1.26. Organize a training for 60 laboratory staff on the utilization of Xpert MTB/RIF

1.1.27. Organize a training abroad of 2 senior NRL staff on LPA procedures and utilization

1.1.28. Organize by the NRL the training of 8 laboratory staff on LPA procedures

1.1.29. Organize by the NRL the training of 100 technicians working in the private laboratories of the most urbanized Administrative Regions

1.1.30. Organize by the NRL the training of 20 technicians working in the laboratories of National Army Health Services

1.1.31. Organize by the NRL the training of 40 technicians working in the laboratories of Social Security Health System

1.1.32. Organize by the NRL the training of 20 health staff, working in the prisons' health units, on TB microscopy

1.1.33. Implement by the NRL the external quality control for TB microscopy covering all TB microscopy laboratories, including those of the private sector, National Army Health System, Social Security Health System and prisons' health units

1.1.34. Organize by the NRL training sessions for the seasoned staff of the 16 regional laboratories on the management and supervision of TB laboratory activities carried out within the regional TB laboratory network

1.1.35. Assess by international experts the TB laboratory activities carried out within the national TB laboratory network: 2 assessments in 2014 and 2015, then once a year in 2016, 2017 and 2018.

1.1.36. Undertake an external evaluation of the quality of the NRL services by a supra-national reference laboratory.

Operational objective 2:

To strengthen quantitatively and qualitatively the managerial capacities of the Central Unit of the NTP by 2014 and to decentralize significantly these capacities in all the 16 administrative regions, at the latest, by 2015.

Strategic intervention 2.2.:

2.2. Establishing Coordination Units of the NTP in each of the 16 Administrative Regions (each regional coordination unit will include at least one regional coordinator, one TB laboratory technician and one statistician)

In each of the 16 Administrative Regions, a Regional Coordination Unit of the NTP will be established. These units will constitute an intermediate level between the Central Unit of the NTP and the 82 *satrapos* and will facilitate the planning of TB control activities, the management of NTP resources, the implementation of the operational plans, training activities and supervision. To this end, each Regional Coordination Unit of the NTP will be in charge of: i) the planning and implementation of TB control activities in line with the NTP policies, ii) the supervision, iii) the training of staff involved in TB care and control in the region, iv) the activities of the regional TB laboratory network, v) the maintenance of equipment, vi) the information system of the NTP in the Region and vii) others. Each Regional Coordination Unit of the NTP should include at least 3 senior health professionals: a medical officer who has been working in the NTP services, a TB laboratory technician and a statistician. The Regional Coordination Unit will be established in the official chief-town of the Administrative Region.

Activities:

2.2.1. Training of the coordinators of the 16 Regional Coordination Units on planning, management, monitoring, supervision, organizing training of health workers, TB surveillance, data analysis

2.2.2. Training of the statisticians of the 16 Regional Coordination Units on surveillance methodology, data analysis, the evaluation of the quality of the data collected through NTP information system, the monitoring of the NTP information system established in the Administrative Region and others

2.2.3. Training of the laboratory technicians of the 16 Regional Coordination Units on planning TB laboratory activities, the management of the resources of a regional TB laboratory network, the methods of external quality control of activities carried out in a regional TB laboratory network, the implementation of external quality control within a regional TB laboratory network, the supervision and monitoring of regional TB laboratories' activities, evaluation methods and others

2.2.4. Purchase, for each Regional Coordination Unit of NTP, office equipment: desks, computers, printers, a photocopier, a data-show

2.2.5. Purchase, for each Regional Coordination Unit of NTP, a vehicle to supervise TB control activities undertaken in the *satrapos* included in the Administrative Region

2.2.6. Ensure the oil provision for the supervision vehicles to be in the Administrative Regions

2.2.7. Establish a Regional Committee for TB Control in each Administrative Region

2.2.8. Ensure a meeting of each Regional Committee for TB Control twice a year

2.2.9. Establish a *Satrapos* Committee for TB Control in each *satrapos* of the Administrative Region

2.2.10. Ensure a quarterly meeting of each *Satrapos* Committee for TB Control.

Exercise 4:

The strategic intervention 2.2. (see above) was selected for this exercise. Some of the activities of this strategic intervention will be costed in the framework of the establishment of a budget plan for this exercise. To this end, a simple tabulation sheet can be used. The WHO Budgeting and Planning tool can also used to set the costs and the budget.

Goal: To decline TB mortality rate by at least 10% per year from 2018 onwards.

Operational objective 2: To strengthen quantitatively and qualitatively the managerial capacities of the Central Unit of the NTP by 2014 and to decentralize significantly these capacities in all the 16 administrative regions, at the latest, by 2015.

Strategic intervention 2.2: Establishing Coordination Units of the NTP in each of the 16 Administrative Regions (each regional coordination unit will include at least one regional coordinator, one TB laboratory technician and one statistician)

| Activity | Unit | Unit cost | 2014, per quarter | | | | | | | | Total year 1 (2014) | |
| | | | Quarter 1 | | Quarter 2 | | Quarter 3 | | Quarter 4 | | | |
			Number of units	Cost	Number of units	Cost	Number of units	Cost	Number of units	Cost	Total units	Total cost
2.2.1 Training of the coordinators of the 16 Regional Coordination Units on planning, management, monitoring, supervision, organizing training of health workers, TB surveillance, data analysis	A training session	3,795$	1	3,795$	1	3,795$	0	0	0	0	2	7590 $
2.2.2---2.2.3												
2.2.4 Purchase, for each Regional Coordination Unit of NTP, office equipment: desks, computers, printers, a photocopier, a data-show	A regional office equipment	4,112$	8	32,896 $	8	32,896 $	0	0	0	0	16	65,792 $
2.2.5												
2.2.6 Ensure the oil provision for the supervision vehicle	A consumption of oil per car per quarter	225 $	16	3,600$	16	3,600$	16	3,600$	160	3,600$	64	14,400 $
2.2.7---2.2.10												

How to design and budget your plan?

In order to establish a budget plan, you can proceed according the following steps:

1. Report goal(s), operational objective(s) and their inherent strategic interventions and activities/sub-activities. In the example from Tubercoland we have reported, as indicated in the above table sheet, the goal (to decline TB mortality rate by at least 10% per year from 2018 onwards), the operational objective 2 (to strengthen quantitatively and qualitatively the managerial capacities of the Central Unit of the NTP by 2014 and to decentralize significantly these capacities in all the 16 administrative regions, at the latest, by 2015), and the strategic intervention 2.2: Establishing Coordination Units of the NTP in each of the 16 Administrative Regions (each regional coordination unit will include at least one regional coordinator, one TB laboratory technician and one statistician). In addition we have reported the activities using the numbering system as previously described. For the purpose of this example, only the activities 2.2.1, 2.2.4 and 2.2.6 will be costed and budgeted.

2. Establish the budget sheet in a table. The budget sheet should include the following columns for at least the two first years of the plan (presented by quarter) in the following order: activities, definition of the unit to be costed, cost of the unit. For each quarter: number of units to be implemented and their cost. For each year, the total number of units and their total cost need to be reported.

3. Define the cost of each Unit. To define the unit cost using the WHO Planning and Budgeting Tool you can proceed in two different ways. After having selected the country from the list provided in the tool (see the instructions in the manual: http://www.who.int/tb/dots/planning_budgeting_tool/en/index.html) and having, saved it in your computer (in order to work on the saved version and not online), you can proceed to cost the interventions and activities as described below.

For the cost of the activity numbered 2.2.1, there are the following options:

Option 1: To define the unit cost, enter Unit Cost under point 3 of the WHO Planning and Budgeting Tool and fill-in the required items as follows. We have a training event lasting 5 days, involving 1 international facilitator, 2 national facilitators, 1 support staff and 8 participants (regional coordinators) to be trained. The unit cost is including also the costs for travels, the refreshments and others as detailed below.

1. Per Diem for meetings and trainings

Per diems for international experts (per person and per day): not relevant
Per diems for local experts (per person and per day): not relevant
Per diem (per international facilitator and per day) :100 x 1 facilitator x 5 days=500$
Per diem (per national facilitator and per day):50 x 2 facilitators x 5 days= 500$
Per diem for local participants (average per person and per day): 10 x 8 participants x 5 days=400$
Support staff per diem (average per person and per day): 10 x 1 staff x 5 days=50$
Daily fee for local consultant (per person and per day):not relevant
Sub-total 1: 1450$

2. Travel costs

Travel costs for international experts (per person): not relevant

Travel costs for local experts (per person): not relevant

Cost of transportation (per international facilitator): 1000 x 1=1000$

Cost of transportation (per national facilitator): 100 x 2=200$

Cost of transportation (per participant):100 x 8=800$

Unit cost of transport vouchers (per patient): not relevant

Cost of room rental for this meeting (per day): 10 x 5 days=50$

Cost of hotel (per person and per day): not relevant

Cost of stationary (typical cost per meeting): 100$

Cost for fuel and lubricants (typical per visit): not relevant

Sub-total 2: 2050$

3. Refreshments

Cost of refreshments / lunch (per person and per day): 2x 2 coffee breaks x12 persons x 5 days=240$

Sub-total 3: 240$

4. Other

Cost of training material (per copy). 5 x 11=55$

Unit cost of printing new forms, per copy: not relevant

Sub-total 4: 55$

Total Unit cost=3795$

Option 2: Use the detailed option, under "2.4 HRD" of the WHO Planning and Budgeting Tool. As the training reported under 2.2.1 is a specific training, you need to select 2.4.11 "Other training". Out of the list of activities appearing below you need to select those which are of interest for you. If we use the same costing and the same items, the overall results are the same as using Option 1. The items available are the following:

Number of sessions (per year)

Length of session (average number of days per session)

Number of participants (per session)

Number of participants requiring per diems (per session)

per diem (average per person and per day)

Cost of transportation (per participant)

Number of national facilitators (average per course)

Per diem (per national facilitator and per day)

Cost of transportation (per national facilitator)

Number of international facilitators (average per course)

Per diem (per international facilitator & per day)

Cost of transportation (per international facilitator)

Number of participants requiring hotel (typical per session)

Cost of hotel (per person & per day)

Cost of refresher and lunch (per person & per day)

Cost of room rental (per day)

Cost of stationary (per day)

Number of copies of training material (per session)

Cost of training material (per copy)

Other costs <specify> (typical per session)

We report the Unit cost of 2.2.1 in the table as explained above.

To cost the activity 2.2.4, of our example, we can proceed according to Option 2 using the unit cost for item 3, labeled "office equipment" in the WHO Planning and Budgeting Tool. This item specifies the following elements:

Computer: 1,500$

Uninterrupted power supply (UPS): not relevant

Desk: 12$

Printer: 350$

Telephone: not relevant

Voltage stabilizers: not relevant

Chair: not relevant

Shelving: not relevant

Laptop: not relevant

Other: photocopier: 2000$

Other: data-show: 600$

Total Office equipment: 4,112$

This is the unit cost that is highlighted in the table above.

For the activity 2.2.6, we assumed that the average consumption of a supervision car is 1 liter of fuel per 10 km. It is planned that each car will run for 500 km per month which results in a total average of 1,500 km per quarter. Therefore the consumption of fuel per quarter per car is 150 liters. Given that the cost of fuel per liter is 1.5$, the average cost per car per quarter is 225$. This is how the unit cost for oil consumption, specified in the table above was established.

The budget can be also established using a simple calculation sheet (e.g. using Excel) in line with the principles of establishing units cost for each activity that need be costed as described in the methodology document of the toolkit.

Exercise 5:

Monitoring and evaluation component

Item	Indicator	Purpose	Calculation	Source of information	Perio-dicity	Who will collect the infor-mation	Level of information collection	Baseline
Goal	Mortality	Impact on TB in popu-lation	Nbr of deaths from TB divided population size	Death certifi-cates	Yearly	Vital statistics depart-ment	Vital statistics depart-ment	15/100,000 population
Operational objective 1	Nbr of regis-tered TB cases	Out-come	Nbr of registered TB cases	TB treat-ment register	Quar-terly and annually	NTP	Collection at TB dispen-sary level and compila-tion at district, satrapos,	29,088 new TB cases
Operational objective 1	Treatment suc-cess rate	Out-come	Nbr of TB patients who success-fully achieved their treatment divided by the number of TB pa-tients who were prescribed TB treatment within a specific period of time	TB treat-ment register	Quar-terly and annually	NTP	Administrative Region and NTP Central Unit level for both indicators	71% treatment success rate
Strategic intervention 1.1	Ratio: Nbr of TB microscopy laboratories/ population	Output	Nbr of TB micros-copy laborato-ries divided the population size	Monitor-ing and supervi-sion reports	Quar-terly and annually	NTP and NRL	Collection at district level, collection and compilation at satrapos evel and compilation at Administrative Region and NTP Central Unit levels	1 TB microscopy laboratory per 237,000 popula-tion
Strategic intervention 1.1	Ratio: Nbr of TB culture laboratories/ population	Output	Nbr of TB culture laboratories divided the population size	Monitor-ing and supervi-sion reports	Annually	NTP and NRL	Collection at district level, collection and compilation at satrapos level and compilation at Administrative Region and NTP Central Unit levels	1 TB culture laboratory per 4,973,000 popu-lation
Strategic intervention 1.1	Ratio: Nbr of laboratories ensuring DST services/popu-lation	Output	Nbr of laborato-ries ensuring DST services divided the population size	Monitor-ing and supervi-sion reports	Annually	NTP and NRL	Collection and compi-lation at satrapos level and compilation at Ad-ministrative Region and NTP Central Unit levels	1laboratory per 19,900,000 popu-lation
Activity 1.1.1	Updated national guidelines of TB microscopy available	Process		NTP	Early 2014	NTP and NRL	NTP and NRL	Obsolete nation-al guidelines on TB microscopy in 2013
Activity 1.1.15	Nbr of Xpert machines available in the most urbanized regions	Process	Nbr of Xpert ma-chines	Monitor-ing	Annually	NTP and NRL	NTP and NRL	No Xpert ma-chines available

Item	Indicator	Purpose	Calculation	Source of infor-mation	Perio-dicity	Who will collect the infor-mation	Level of information collection	Baseline
Activity 1.1.22	Nbr of the existing 168 TB microscopy laboratories with at least 2 re-trained microscopistes	Process	Nbr of the existing TB micros-copy laboratories with at least 2 re-trained microscopistes	Monitor-ing and supervi-sion reports	Annually	NTP and NRL	Collection at district level, collection and compilation at satrapos level and compilation at Administrative Region and NTP Central Unit levels	168 TB microscopy laboratories with microscopistes not re-trained or not trained
Strategic intervention 1.2	Nbr of shortages for any 1st line TB drug	Output	Nbr of FLD stock-outs	Monitor-ing and supervi-sion reports	Quar-terly and annually	NTP	Collection at TB dispensary level, collection and compilation at district level then compilation at satrapos, Administrative Region and NTP Central Unit levels	Frequent FLD stock-outs
Operational objective 2	Managerial capacities of the NTP appropriately and fully functioning between the Central Unit and the districts via the Administrative Regions and satrapos	Output	Qualitative assessment	External evalua-tion	Annually	NTP	NTP Central Unit	Poor managerial capacities at all levels of the existing NTP network
Strategic intervention 2.2	Nbr of Administrative Regions with a Regional Coordination Unit of NTP	Output	Nbr of Adminis-trative Regions with a Regional Coordination Unit of NTP	Monitor-ing and supervi-sion reports	Annually	NTP	Health Directorate of the Administrative Region and NTP Central Unit	There is no Administrative Region with a Coordination Unit of NTP
Activity 2.2.2	Nbr of Regional statisticians trained	Process	Nbr of Regional statisticians trained	Monitor-ing and external evalua-tion	Annually	NTP	Health Directorate of the Administrative Region and NTP Central Unit	There is no statistician available at regional level
Activity 2.2.4	Nbr of Regional Coordination Units of NTP with vehicle available for supervision	Process	Nbr of Regional Coordination Units of NTP with vehicle available for supervision	Monitor-ing and supervi-sion reports	Annually	NTP	Regional Coordination Unit of NTP and NTP Central Unit	There is no vehicle at regional level available for supervision

Exercise 6:

Operational plan

Goal: To initiate decline the TB mortality rate by at least 10% per year from 2017 onwards.

Operational objective 1: To increase, by 2016, the annual number of identified TB patients to 34,800 cases and successfully treat at least 85% of them, then to further increase, by 2018, this annual number to 42,200 cases and successfully treat at least 90% of them.

January - March 2014

Strategic intervention 1.1.: Increase TB diagnosis laboratory capacities in such way that: i) by 2014, each TB microscopy laboratory covers at least 100,000 population, each TB culture laboratory at least 1 million population and TB drug susceptibility testing services, including Xpert, provided in, at least, the 5 most urbanized Administrative Regions and by ii) 2015, drug susceptibility testing services are ensured in at least each of the 16 Administrative Regions

	Unit	Quantity	Date	Location	Implementer (or undertaker)	CostIn US$	Source of funding	Indicator	Other
1.1.1. Update the national guidelines for TB microscopy									
1.1.1.1. Establishment of writing group	Writing group	1 writing group	1st week of January 2014	Tee-beegrad	NTP/NRL	0	NA	Writing group established	
1.1.1.2. Undertaking the update of the guidelines' document by the writing group	NA	NA	10 January to 10 February 2014	Tee-beegrad	NTP/NRL	0	NA	The guidelines' document on TB microscopy updated	
1.1.1.3. Validation meeting	3-day meeting	1 meeting	12 to 14 February 2014	Tee-beegrad	NTP/NRL	10,000	Not yet identified	3-day meeting held	International expert needed to facilitate the meeting
1.1.1.4. Finalization of the guidelines update	1 guidelines' document	1	15 to 17 February 2014	Tee-beegrad	NTP/NRL	0	NA	The update of the guidelines' document finalized	
1.1.5. Print 2,500 copies of national guidelines for TB microscopy	Copy of national guidelines for TB micrscopy	2,500	20 – 24 February 2014	Tee-beegrad	NTP	5,000	MOH	Number of of microscopy guidelines printed and available	

Operational objective 2: To strengthen quantitatively and qualitatively the managerial capacities of the Central Unit of the NTP by 2014 and todecentralize significantly these capacities in all the 16 administrative regions, at the latest, by 2015.

Strategic intervention 2.2.: Establishing Coordination Units of the NTP in each of the 16 Administrative Regions (each regional coordination unit   Will include at least one regional coordinator, one TB laboratory technician and one statistician)

2.2.2. Training of the statisticians of the regional Co-ordination Units									
2.2.2.1. Identification of 4 facilitators	Facilitator	4	7 January 2014 at latest	Tee-beegrad	NTP	0	NA	4 facilitators identified	
2.2.2.2. Development of training agenda	Training agenda	1	8 to 10 January 2014	Tee-beegrad	NTP and facilitators	2,000	Not yet identified	Training agenda established	
2.2.2.3. Development of the training material	Set of training material	1	11 to 15 January 2014	Tee-beegrad	NTP and facilitators	8,000	Not yet identified	Training material developed	Technical assistance needed
2.2.2.4. Produce copies of the training material	Copy of a set of training material	30	17 January 2014	Tee-beegrad	NTP	500	MOH	30 sets of training material produced	
2.2.2.5. Implement the training of the 16 regional statisticians	Regional statistician trained	16	20 to 26 January 2014	Nah Kunedan	NTP	35,000	United States of Bankob-amba	16 Regional statisticians trained	Technical assistance needed

Exercise 7:

Technical assistance

Goal: To initiate decline the TB mortality rate by at least 10% per year from 2017 onwards.

Objective 1. To increase, by 2016, the annual number of identified TB patients to 34,800 cases and successfully treat at least 85% of them, then to further increase, by 2018, this annual number to 42,200 cases and successfully treat at least 90% of them.

January - March 2014

Strategic intervention 1.1.Improvement of health workers' skills to identify and manage TB cases

	Unit	Quantity	Date	Location	Implementer	Cost In US$	Source of funding	Indicator	Other
1.1.2. Training									
1.1.2.1. Development of training material	Set of training material	1 set of training material	January 2012	Tubercoland	NTP	10,000	MOH	Set of training material developed	Need for international technical assistance
1.1.2.2. Printing the training material	Set of training material	10,000	1-15 February 2012	Tee-beegrad	NTP	5,000	MOH	Number of sets of training material printed	
1.1.2.3 Training of health workers	Doctor	50	20 – 24 February 2012	Smear-ville	Bingo	3,000	US-AID	Number of doctors trained	Need for local technical assistance (details in TA plan)
	Nurse	100	1 – 15 March	Sputu-movich	Casino	6,000	GF	Number of nurses trained	
1.1.3. Supervision									
1.1.3.1.........									
1.1.3.2.......									

Toolkit to develop a National Strategic Plan for TB prevention, care and control

Methodology on how to develop a national strategic plan