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Global DOTS Expansion Plan

Progress in TB control in high-burden countries, 2001

One year after the Amsterdam Ministerial Conference

World Health Organization
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Contents

List of abbreviations

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
BRAC	Bangladesh Rural Advancement Committee
CDC	Centers for Disease Control and Prevention, Atlanta, USA
CDC/DTBE	CDC Department for Tuberculosis Elimination
CDR	Case detection rate
CESAL	NGO from Spain
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Agency
DFB	Damien Foundation Belgium
DFID	Department for International Development
DOT	Directly observed treatment
DOTS	The internationally recommended control strategy for TB
EU	European Union
GDEP	Global DOTS Expansion Plan
GDF	Global TB Drug Facility
GLRA	German Leprosy Relief Association
GMS	German Medical Service
GTZ	German Cooperation Agency for Development
HBC	High-burden countries
HIV	Human immunodeficiency virus
HSR	Health sector reform
ICC	Interagency Coordination Committee
ICD	Italian Cooperation for Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IUATLD	International Union Against Tuberculosis and Lung Diseases
JATA	Japan Anti-Tuberculosis Association
JFAP	Japan Foundation for AIDS Prevention
JICA	Japan International Cooperation Agency
KNCV	Royal Netherlands Tuberculosis Association
MDR-TB	Multidrug-resistant TB
MEDAIR	UK NGO
MSF	Médecins sans frontières
NGO	Nongovernmental Organization
NHC	National Health Committee
NLRA	Netherlands Leprosy Relief Association
NTP	National TB Control Programme
OPAS	Organizaçâo Pan-Americana da Sadde
PAHO	Pan-American Health Organization
PHC	Primary Health Care
PHRI	Public Health Research Institute
PIH/SES	Partners in Health
RNTCP	Revised National TB Control Programme
SPC	Secretariat of the Pacific Community
TB	Tuberculosis
TLM	The Leprosy Mission
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
WB	World Bank (the)
WFP	World Food Programme
WHO	World Health Organization
WV	World Vision

Summary

Although during the past decade DOTS—the strategy promoted by WHO to control tuberculosis (TB)—has been widely accepted, many developing countries have been unable to expand coverage as rapidly as needed and have failed to achieve the global targets of detecting 70% of infectious cases and curing 85% of those detected by the year 2000.[1] Progress has been slow. In 1999, only 23% of infectious cases were detected and treated under the DOTS strategy. Today, the major obstacles to expanding TB control are political, managerial, and financial, rather than technical.

In March 2000, the *Amsterdam Declaration to Stop TB* called for accelerated expansion of control measures and for increased political commitment and financial resources to reach the targets for global TB control by 2005.[2] In May 2000, a World Health Assembly (WHA) resolution restated this call.[3]

In response to both the Amsterdam Declaration and the WHA resolution, National Tuberculosis Programme (NTP) managers of the 22 high-burden countries, technical partners, financial partners, and the global TB network of WHO agreed to develop a Global DOTS Expansion Plan (GDEP) at a meeting in Cairo in November 2000.

The two pillars of the GDEP are the development of national DOTS expansion plans and partnership-building to control tuberculosis.

DOTS expansion plans for the medium-term must be technically sound and feasible for implementation, and take into account the characteristics of the national health system. This plan should identify the major inputs and associated budget required for DOTS expansion.

Partnership is crucial for success in controlling tuberculosis. Partnerships must be built among countries, agencies, foundations, and non-governmental organizations (NGOs), respecting and reinforcing the sovereignty of countries for the health of their people.

In Cairo, some 9 countries presented a plan that includes almost all the necessary elements; 3 countries had a less comprehensive plan that can be improved easily with some relevant technical input. After the meeting, the remaining 10 countries started to review or develop plans for DOTS expansion.

The GDEP provides a template for mobilization of the human and financial resources necessary to expand TB control as part of the national health system in order to achieve the global targets for tuberculosis control. The plan highlights country needs and resource gaps, emphasizing collaboration among governments of endemic countries, national and international agencies, and NGOs. It is expected that such a coordinated approach will reinforce government commitment, mobilize national and external resources, and increase efficiency.

Accurate estimates of the financial investments required to achieve the global TB control targets on a country-by-country basis are essential, both for resource allocation at country level and to allow donors to mobilize aid funds.

The status of the financial cost estimates for the 22 high-burden countries varies. Of the 22 high-burden countries, 18 have developed estimates of the total financial expenditures required to control TB.

Almost all estimates focus on TB-programme specific costs, and some only on a subset of these costs. The costs associated with general health services are usually not considered.

Despite the differences among existing cost estimates and the absence of estimates for some countries, it is possible to provide standardized estimates of total costs, existing contributions from governments through regular budgets or bank loans, donor funds pledged, and the remaining resource gaps, both for the 22 high-burden countries specifically and at global level.

Estimates obtained for the 22 high-burden countries can be summarized as follows:

- the annual cost of TB control probably lies in the range US$ 700–900 million per year,[4] excluding investment in new interventions specifically designed to raise case detection and cure rates;
- the existing resource gap for TB control in the 22 high-burden countries probably lies in the region of US$ 100–300 million per year (provided current loans and aid are sustained).

At global level, excluding industrialized countries and middle-income countries with a per capita income above US$ 3500 per capita:

- the resources required are between US$ 900 million and US$ 1.1 billion[5] per year;
- the gap is in the region of US$ 150–400 million per year;
- this gap would increase by US$ 50 million per year in the 22 high-burden countries, and by about US$ 200 million per year globally, in the absence of donor funds and bank loans. It is therefore important that such external financing is sustained.

Filling some or all of the resource gaps identified will enable important progress in TB control. It is important to emphasize, however, that this alone is unlikely to guarantee achievement of global targets. In at least some countries, additional funding may be required for new kinds of interventions that are specifically aimed at raising case detection and cure rates to target levels.

The GDEP and the recently established Global Drug Facility (GDF) are two major steps towards a Global Investment Plan (GIP) addressing both control and research needs, and since they respond immediately to the pressing need to cure patients and prevent disability and death, there is a strong case for making both of them the initial focus for newly available resources.

The GDF funding requirement of approximately US$ 50 million per year for drug costs, and the relationship between drug costs and the total costs of implementing successful TB control under DOTS, indicate that a practical way of investing new resources could operate as follows:

- invest funds jointly in the GDF and a more general DOTS implementation fund for TB control;
- for every US$ 1 invested in the GDF, invest US$ 2–9 in the more general DOTS implementation fund.

This report provides the first assessment of the status of tuberculosis control financing and of the resources necessary to expand DOTS coverage in the 22 countries with the highest number of estimated cases of tuberculosis. It also provides an understanding of the involvement and commitment of international agencies, both technical and financial, in country assistance. Partners, technical and financial, are encouraged to use this report as the basis for their future action in countries. The next step will be, on the basis of the report, to clearly define responsibilities of endemic country governments and international (and national) agencies in finalizing and implementing plans and in expanding DOTS coverage. This must be accompanied by allocation of resources, as well as establishment of deadlines for action, and clearly defined objectives, targets, and monitoring indicators for each high-burden country.

PROGRESS IN TB CONTROL *and resources required*

In March 2000, the *Amsterdam Declaration to Stop TB* called for accelerated expansion of control measures for tuberculosis (TB) and for increased political commitment and financial resources to reach targets for global TB control by 2005.[6] In May 2000, a World Health Assembly resolution restated this call.[7]

This report provides the first assessment of the status of tuberculosis control and of the resources necessary to expand DOTS coverage in the 22 countries with the highest number of estimated cases of tuberculosis (the "high-burden" countries). Partners, technical and financial, are encouraged to use its recommendations as the basis for their future action in countries.

This report is structured in two parts. The first part describes the global burden of tuberculosis and the international response. A summary of the actions taken since the Amsterdam conference highlights the key milestones towards progress in TB control. These are the Amsterdam Declaration, the World Health Assembly resolution, the Cairo meeting, and the Global DOTS Expansion Plan. This part also summarizes the status of cost estimates for the 22 high-burden countries and provides suggestions regarding allocation of donor resources to meet identified gaps, with particular reference to the balance of funds for DOTS expansion, the Global TB Drug Facility (GDF), multidrug-resistant TB (MDR-TB), and operational research. The second part profiles the six WHO regions and their respective high-burden countries. The country profiles summarize the TB control planning status and constraints; the actions needed to expand DOTS; the partners involved and the financial resources and resource gaps required to rapidly expand DOTS coverage.

1. Global burden of tuberculosis

Nearly one-third of the world's population—2 billion[8] people—is infected with the tuberculosis bacillus and at risk of developing active disease. About 8.4 million people develop active TB every year and 2 million die.[9] Tuberculosis accounts for 2.5% of the global burden of disease,[10] for 26% of preventable deaths, and is a leading infectious cause of death among young women.

1.1 High economic and social costs of tuberculosis

Some 95% of global TB cases and 99% of deaths occur in developing countries. There, 75% of cases are in the economically most productive age group (15–54 years) and on average 3 to 4 months of work time are lost if an adult has TB. This results in the loss of 20–30% of annual household income and an average of 15 years of income if the patient dies from their disease.[11] Tuberculosis imposes substantial indirect social and economic costs. In India alone, for example, every year more than 300 000 children leave school because of their parents' illness due to TB; and more than 100 000 women are abandoned by their families because of their disease.[12]

1.2 TB/HIV and MDR-TB

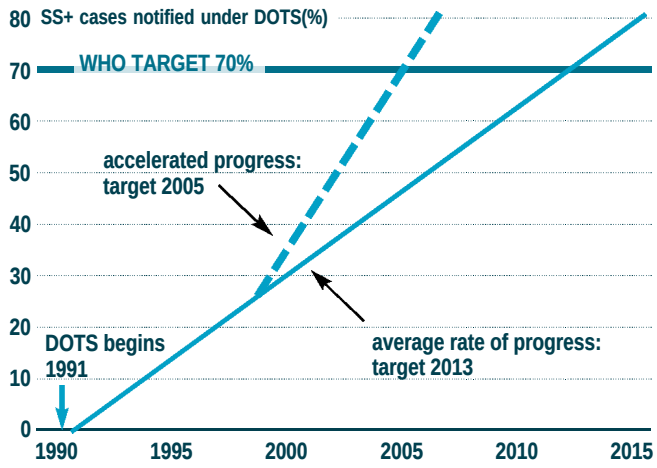
Co-infection with the human immunodeficiency virus (HIV) accelerates the risk of developing TB.[13] Countries with a high prevalence of HIV, particularly those in sub-Saharan Africa, have witnessed a profound increase in tuberculosis, with reported incidence rates rising two- or three-fold in the 1990s.[14]

At the same time, drug resistance caused by poorly managed treatment for TB is a growing problem in many countries.[15]

2. Slow progress to control tuberculosis

Although DOTS has been widely accepted, many developing countries have been unable to expand coverage as rapidly as needed and have failed to achieve global targets of detecting 70% of infectious cases and curing 85% of those detected by the year 2000.[16] An Ad Hoc Committee on the Tuberculosis Epidemic convened in London in 1998 identified the main constraints to rapid expansion of DOTS as: lack of political commitment; insufficient and ineffective use of financial resources; neglect of human resource development; poor health system organization and TB managerial capability; inadequate quality and regular supply of anti-TB drugs; and lack of information.[17]

Progress towards the WHO target for case detection



3. Amsterdam Declaration and Health Assembly Resolution WHA53.1

Unlike other health problems where a clear strategy is unavailable, tuberculosis can be controlled with available cost-effective technology and a proven approach known as the DOTS strategy. Today, the major obstacles to expanding TB control are political, managerial, and financial—although special challenges remain for problems such as HIV or MDR-TB.

3.1 Ministerial Conference on Tuberculosis and Sustainable Development

The Amsterdam Ministerial Conference on *Tuberculosis and Sustainable Development* organized by the Stop TB Initiative in March 2000 is considered a milestone in global TB control. Ministers of health, finance, and development planning from 20 high-burden countries that comprise almost 80% of the global TB burden adopted the Amsterdam Declaration. The declaration calls for accelerated action to expand TB control measures to reach global targets by 2005 and for mobilization of national and international resources for TB control.[18]

3.2 Amsterdam Declaration to Stop Tuberculosis

The government signatories of the Amsterdam Declaration committed to accelerate action against tuberculosis through:

- expanded DOTS coverage to detect at least 70% of all new smear-positive cases by 2005;
- sustained provision of human and financial resources;

- implementation capacity to use these resources efficiently and effectively;
- implementation, monitoring, and evaluation of national tuberculosis programmes using internationally accepted WHO standards;
- improved systems for procurement and distribution of TB drugs;
- incorporation of basic outcome measures for TB as performance indicators for health sector performance;
- promotion of national and international partnerships to stop TB.

Ministerial representatives also called upon international partners to support TB control efforts:

- to develop and strengthen national plans incorporating health development and tuberculosis;
- to build new international approaches to secure universal access to TB drugs;
- to accelerate basic and operational research;
- to establish a global fund for tuberculosis.

3.3 Health Assembly Resolution WHA53.1

Resolution WHA53.1[19] adopted in May 2000 encouraged all Member States to endorse the Amsterdam Declaration. The resolution calls upon the international community to support and to participate in the global partnership to stop tuberculosis and to increase organizational and financial commitment towards combating tuberculosis within the context of overall health sector development. Both at the Fifty-third World Health Assembly in May 2000 and subsequently, Member States have asked that WHO provide support particularly to those Member States with the highest burden of tuberculosis.

3.4 Role of the WHO Regional Offices

The WHO regional offices for Africa (AFRO), the Americas (AMRO), Europe (EURO), the Eastern Mediterranean (EMRO), South-East Asia (SEARO), and the Western Pacific (WPRO) coordinate with governments and partners all activities related to the Stop TB Movement in the respective region and guide the implementation and expansion of the DOTS strategy in all countries. WHO and other partners provide technical cooperation to countries in all areas of TB control, if required, to “adapt and not just adopt” the DOTS strategy countrywide.

Developing the DOTS strategy strongly requires and promotes well-functioning health care systems, and flexibility and adaptation to prevailing conditions in each country. The Regional Office supports inter-country training courses and activities, and facilitates inter-country cooperation.

TB control was put higher on the agenda in most regions in response to the Amsterdam conference. As a result, strategic plans are being developed in collaboration with partners in six regions to accelerate progress in TB control in all countries, including the 22 high-burden countries. Regional strategic plans will provide a framework:

- develop a national mid-term plan that identifies main actions needed, main technical partners, and funding shortfalls;
- to better coordinate and mobilize partners within each country;
- to identify the needs and resource gaps in each country.

4. From the Amsterdam Declaration to the Global DOTS Expansion Plan

A Global Investment Plan that details the total amount of resources necessary to effectively tackle the TB epidemic is under development but not yet available. This plan should consist of a balanced pre-allocation of resources covering the priority areas: a global DOTS expansion plan that strengthens health systems in general, permitting national TB control programmes (NTPs) to function effectively; a GDF that provides access to quality TB drugs for countries in need; innovative strategic approaches to the problems of HIV-associated TB and MDR-TB; and development of new tools, such as diagnostics, drugs, and vaccines.

4.1 The Cairo meeting

In response to both the Amsterdam Declaration and the WHA resolution, NTP managers of the 22 high-burden countries, technical partners, financial partners, and the global TB network of WHO agreed to develop a Global DOTS Expansion Plan (GDEP) at a meeting in Cairo in November 2000. Participants in this meeting agreed the objectives and process of the GDEP and the main areas of work for the short term. The conclusions are presented in Annex 1.

4.2 Objectives for establishment of the Global DOTS Expansion Plan

The Global DOTS Expansion Plan will provide a template for mobilization of the human and financial resources necessary to expand TB control as part of the national health system in order to achieve global targets for tuberculosis control. The plan will highlight country needs and resource gaps, emphasizing collaboration with the governments of endemic countries, national and international agencies, and nongovernmental organizations (NGOs). It is expected that such a coordinated approach will reinforce government commitment, mobilize national and external resources, and increase efficiency.

The two pillars of the GDEP are the development of national DOTS expansion plans and partnership-building to control tuberculosis.

• DOTS expansion plans

DOTS expansion plans for the medium-term must be technically sound, feasible to implement and take into account the characteristics of the national health system. A plan that includes a timeframe for DOTS expansion and identifies the major inputs and associated budget required for DOTS expansion (diagnostic supplies, drugs, management and supervision, training, staff, patient supervision, activities specifically aimed at increasing case detection and cure rates) will facilitate management, guide effective allocation of resources, and enable monitoring of implementation and progress towards targets.

• Partnership-building

Partnership is crucial for success in controlling tuberculosis. Global TB control can only be achieved through collaboration with partners in the health sector as well as outside it. Partnerships must be built among countries, agencies, foundations, and NGOs, respecting and reinforcing the sovereignty of countries for the health of their people. Partnerships at national level among the various departments of the health sector (clinical practice and laboratory, health centres and hospitals, academic institutions, public and private, government and nongovernmental institutions) are necessary for effective tuberculosis control and to ensure universal access to tuberculosis care. The GDEP promotes an approach that always begins and ends in the country:

- National programme managers are responsible for presenting the status, plans, and needs of their programmes to expand DOTS. Partners who will facilitate the expansion of DOTS are identified for each high-burden country.

- Regional plans will build on country plans and cover countries beyond the 22 high-burden countries. Partners discuss implementation and support to inter-country (regional or sub-regional) activities to strengthen national programmes.
- The national programme manager and the technical and financial partners discuss the areas of support on the basis of the national plan. One of the technical partner agencies is identified as a focal point for each of the countries to be the main collaborator for coordination of external support, information to other partners, and monitoring of progress.

5. Status of DOTS expansion in the 22 high-burden countries

The latest available data on case detection and DOTS implementation (1999) indicate that in the 22 countries with the highest burden of tuberculosis, the proportion of infectious cases (sputum smear-positive) treated with DOTS has increased from 21% in 1998 to 23% in 1999 (see Table 1).[20] These findings show that progress in TB control during this period was slow—with the exception of the Philippines, South Africa, Thailand, and, to some extent, India. Peru and Viet Nam are still the only high-burden countries to have achieved WHO targets for case detection and treatment success. Cambodia, Kenya, South Africa, and the United Republic of Tanzania are close to reaching global targets, but, with the exception of South Africa, little progress has been made in these countries.

Table 1. Tuberculosis situation in the 22 high-burden countries in the world (1999)

			Estimates of new TB cases*			Under DOTS*	
Rank	**Country**	Population (millions)	Total number of cases	Incidence per 100 000	Number of smear+ cases	% of new smear+ cases detected	Population coverage
1	**India**	998	1 847 000	185	827 000	6.4	14
2	**China**	1 267	1 300 000	103	584 000	32	64
3	**Indonesia**	209	590 000	282	265 000	19	90
4	**Nigeria**	109	327 000	301	142 000	12	45
5	**Bangladesh**	127	306 000	241	138 000	28	90
6	**Pakistan**	152	269 000	177	121 000	2	8
7	**Philippines** (the)	74	234 000	314	105 000	20	43
8	**Ethiopia**	61	228 000	373	96 000	22	63
9	**South Africa**	40	197 000	495	80 000	68	66
10	**Russian Federation** (the)	147	181 000	123	81 000	1.6	5
11	**DR Congo** (the)	50	151 000	301	65 000	53	62
12	**Viet Nam**	79	149 000	189	67 000	80	99
13	**Kenya**	30	123 000	417	51 000	53	100
14	**Brazil**	168	118 000	70	53 000	4	7
15	**UR Tanzania** (the)	33	112 000	340	47 000	51	100
16	**Thailand**	61	86 000	141	38 000	40	59
17	**Myanmar**	45	76 000	169	34 000	33	64
18	**Uganda**	21	72 000	343	31 000	59	100
19	**Afghanistan**	22	71 000	325	32 000	5	14
20	**Zimbabwe**	12	65 000	562	26 000	55	12
21	**Cambodia**	11	61 000	560	27 000	57	100
22	**Peru**	25	58 000	228	26 000	95	100
	TOTAL	**3 741**	**6 621 000**	**178**	**2 936 000**	**23**	

* estimates have been updated according to WHO Report 2001 (reference 14)

5.1 Existence of a medium-term plan to reach targets

A critical element for DOTS expansion is the presence of a national medium-term plan that details all the technical and financial requirements and mechanisms of collaboration with different sectors of the government and other sectors. Nine countries (Cambodia, Ethiopia, Kenya, Myanmar, Peru, Philippines, Thailand, United Republic of Tanzania, Viet Nam) have a plan that includes almost all the necessary elements; 3 countries (Brazil, Democratic Republic of the Congo, Pakistan) have a less comprehensive plan that can be improved easily with some relevant technical input; the remaining 10 countries (Afghanistan, Bangladesh, China, India, Indonesia, Nigeria, Russian Federation, South Africa, Uganda, Zimbabwe) have either an incomplete plan that covers a short period, or a part of the country or part of the activities, or no plan at all. Since the Amsterdam conference, all remaining 10 countries have started to review or to develop a plan for DOTS expansion. This demonstrates how quickly governments have responded to the challenge. The international community has also begun to show increased interest in TB control.

Since the Amsterdam conference, G8 leaders and the European Community have committed increased support for a "massive effort" against diseases of poverty, with prioritized action for HIV/AIDS, malaria, and tuberculosis. WHO, the Joint United Nations Programme on HIV/AIDS (UNAIDS), and other organizations have been called upon to help control these diseases.

5.2 Status of country plans

An analysis of country plans for TB control reveals a variety of contents. To summarize:

- In general, four out of the five components of DOTS are well covered in detailed plans, and a sound strategy for DOTS expansion is described. Political commitment is a complicated issue that implies many different activities and approaches. Plans rarely describe activities related to this issue.
- The notion of DOTS expansion is well understood, but sometimes replaces the targets of 70% case detection and 85% cure rates; 100% DOTS coverage (in terms of health facilities, for example) can be achieved in a certain country and yet case detection may remain low if access to health facilities is poor. Proper planning should aim at reaching targets using the DOTS strategy as a means. Activities specifically designed to increase cure rates or case detection need to be clearly described in detailed plans.
- In many countries, the private sector and NGOs play a major role in TB control. With the exception of Kenya, Philippines, and Viet Nam, which describe activities with private practitioners, plans are usually restricted to the public health sector. Government collaboration with other sectors and the possible synergy of activities are still new concepts and are not yet translated into plans.

6. Resources required for TB control in the 22 high-burden countries and beyond

Accurate estimates of the financial investments required to achieve global TB control targets on a country-by-country basis are essential, both for resource allocation at country level and to allow donors to mobilize aid funds. Much work has already been done within the framework of the GDEP to produce such estimates, and this will continue until estimates are available for all countries. As part of the GDEP process, these will be periodically updated. WHO is also now in the process of establishing a global financial monitoring system, which in future will facilitate the estimation of expenditures, resource needs, funding sources and gaps on a routine basis.

6.1 Status of country-by-country cost estimates

At present, the status of the financial cost estimates for the 22 high-burden countries varies. Details are presented in Annex 2 and Annex 3.

Of the 22 high TB burden countries, 18 have developed estimates of the total financial expenditure required, either for the forthcoming year only (Ethiopia, Uganda), for 2004–2005 (India[21]), or for a 3–5 year period. Estimates are in the process of being prepared in Indonesia and should be available soon. Estimates remain to be prepared for South Africa and Zimbabwe, and for those parts of the Russian Federation (approximately 50%) not being covered by World Bank loan funds. Of the 18 countries with estimates of the total expenditures required, 15 have estimated the total government contribution available, existing donor funds that have been pledged, and the remaining resource gap (the exceptions are Cambodia, India, and the United Republic of Tanzania). Data for Cambodia and the United Republic of Tanzania are expected to be available in the near future.

Of the 22 countries, 2 have no resource gap (Peru, Thailand), and due to their middle-income status, two other countries are assumed to have no, or only a small, resource gap (South Africa, Brazil). For 10 of the remaining 18 countries (Afghanistan, China, Ethiopia, Kenya, Myanmar, Nigeria, Philippines, Uganda, United Republic of Tanzania, Viet Nam), cost estimates are sufficiently detailed to allow a breakdown of required funding according to 6 major categories.[22] In these cases, a summary table is provided at the end of the country profile. Where data are available, sources of funding and remaining gaps are also identified for each category.

The existing cost estimates vary in terms of four important criteria:

- Whether or not costs focus on TB programme expenditures specifically or whether they also include the costs associated with use of general health service facilities and staff. Except for China, expenditure estimates focus on TB programme-specific needs only. This is not a problem if there is sufficient capacity within general health services to diagnose and successfully treat the number of patients associated with reaching global targets, and if the costs associated with general health services are already funded. However, it is likely that in some countries considerable strengthening of general health services will be required if TB control targets are to be achieved. This may require substantial investments that are not yet budgeted for.
- The type of financial inputs (i.e. staff, equipment, buildings, vehicles, and supplies) included in the cost estimates. Some countries include all inputs (e.g. China, Peru); others only a subset, with the usual exclusion being staff (e.g. Bangladesh, Viet Nam).
- Whether or not cost estimates include all major components of DOTS and a breakdown by component. Most countries do have estimates for each component, but there are some exceptions.
- The extent to which cost estimates are explicitly related to achievement of global targets. To be realistic, estimates need to be clearly linked to the number of patients who will need to be diagnosed and treated if global targets are to be met. This is especially relevant for items whose costs increase directly in line with the number of patients diagnosed and treated, for example drugs and diagnostic supplies. In some instances, however, the funds estimated to be required appear more related to existing levels of case detection than to the 70% target or progress towards it. In addition, where targets have not yet been reached, budgets need to include investments to raise case detection and cure rates. Such budgets are not always included in existing estimates, and further costing and related budgeting work is therefore necessary in some countries. This will need to be based on identification of the reasons why targets are not met at present, and identification of strategies to address these.

6.2 Estimated resources required for TB control in the 22 high-burden countries, and existing funding sources

These differences among existing cost estimates need to be borne in mind when comparing and interpreting the country-by-country estimates shown in Annex 2.[23]

Nevertheless, by analysing the estimates made by countries in combination with a mixture of data from costing studies and reasonable assumptions, it is possible to provide more standardized estimates of total costs, existing contributions from high-burden country governments through regular budgets or World Bank loans, donor funds pledged, and the remaining resource gaps. This analysis builds on the figures provided by countries, but standardizes them by including the following:

- estimates of the costs known to be missing from the figures provided by countries;
- estimates of the costs associated with utilization of general health services i.e. the non-TB programme specific costs associated with diagnosis and delivery of treatment. As highlighted above, these are usually not included in existing country estimates, but are important for illustrating the full extent of high-burden country government contributions to TB control;
- estimates of the costs associated with the expansion in the number of patients diagnosed and treated that is required to meet global targets, where existing estimates have not been explicitly linked to such targets.

In addition, for Cambodia and the United Republic of Tanzania, funding sources were estimated based on recent discussions with country-based staff and consultants involved in resource allocation discussions.

Standardized estimates are presented below for two important scenarios. Details of sources of data and the assumptions made for each country are provided in Annex 3.

Low estimates

Table 2 shows figures representing low estimates, in which the 1998 case detection rate is assumed unless existing country cost estimates have been explicitly linked to progress towards the case detection target. This indicates that US$ 674.5 million per year is required, with existing funding totalling US$ 509 million from governments (of which US$ 23.5 million represents loan funds) and US$ 26.5 million from grant funds.

Table 2. Scenario 1: Estimated annual costs associated with TB control, assuming the 1998 case detection rate except for those countries where estimates are explicitly linked to global targets, in US$ millions

Country	Total cost	Government contribution		Donor funds (grants)	Gap	Distribution unknown
		Regular budgets	Loan funds			
India*	100	50	??	??	??	50
China*	88	43	0	3	42	0
Indonesia	9	7.5	??	??	??	1.5
Bangladesh	6	3	0	3	0	0
Pakistan	7	5	??	??	2	0
Nigeria[24]	8	3	0	5	0	0
Philippines (the)*	13	9	0	2	2	0
South Africa[25]	170	170	0	0	0	0
Ethiopia	7.5	1	0	4.5	2	0
Viet Nam*	12	8	2	1	1	0
Russian Federation (the)[3]	150	120	20	??	??	10
DR Congo (the)	10	0	0	1.5	8.5	0
Brazil[26]	15	15	0	0	0	0
UR Tanzania (the)	10	5	0	4	1	0
Kenya	15.5	12	0.5	0.5	2.5	0
Thailand	10	10	0	0	0	0
Myanmar*	1.5	0.5	0	0	1	0
Afghanistan	2	0	0	0	2	0
Uganda	5	2.5	1	1	0.5	0
Peru*	20	20	0	0	0	0
Zimbabwe	11	??	??	??	??	11
Cambodia*	4	1 + ??	??	1 + ??	0	2
TOTAL	**674.5**	**485.5**	**23.5**	**26.5**	**64.5**	**74.5**

*indicates cost estimates are clearly linked to achieving, or sustaining achievement of targets.

This leaves a known gap of US$ 64.5 million per year, and an additional US$ 74.5 million for which the distribution among regular budgets, loans, grants and gap is unknown. The total gap at existing case detection levels therefore probably lies in the range US$ 64.5–139 million per year, with almost all the uncertainty due to the lack of a breakdown in total cost estimates for three countries: India, the Russian Federation, and Zimbabwe.

It is striking that government contributions at existing levels of case detection and cure represent a large percentage of total costs—75% of the total. Grant funds at present account for a low proportion of total costs, at 4% of total costs.

More generous, but still conservative estimates

Table 3 shows more generous, but still conservative, estimates. Here, it is assumed that a 70% case detection target is achieved, and that the average cost per patient treated is stable as the proportion of patients detected and treated increases[27] unless alternative detailed estimates have been made of the costs associated with expansion.

Table 3. Scenario 2: Estimated annual costs associated with global TB control targets, excluding costs associated with new interventions specifically designed to raise case detection and cure rates unless these are already included in country cost estimates, in US$ millions

Country	Total cost	Government contribution		Donor funds (grants)	Gap	Distribution unknown
		Regular budgets	Loan funds			
India*	100	50	??	??	??	50
China*	88	43	0	3	42	0
Indonesia	89	7.5	??	??	??	81.5
Bangladesh	26	3	0	3	??	20
Pakistan	23	5	??	??	2	16
Nigeria	36	3	??	5	??	28
Philippines (the)*	13	9	0	2	2	0
South Africa	170	170	0	0	0	0
Ethiopia	13.5	2	0	4.5	2	5
Viet Nam*	18	14	2	1	1	0
Russian Federation (the)	170	120	20	0	20	10
DR Congo (the)	10	0	0	1.5	8.5	0
Brazil	15	15	0	0	0	0
UR Tanzania (the)	11	5	0	4	1	1
Kenya	15.5	12	0.5	0.5	2.5	0
Thailand	24	24	0	0	0	0
Myanmar*	1.5	0.5	0	0	1	0
Afghanistan	2	0	0	0	2	0
Uganda	10	2.5	1	1	0.5	5
Peru*	20	20	0	0	0	0
Zimbabwe	11	??	??	??	??	11
Cambodia*	8	5 + ??	??	1 + ??	0	2
TOTAL	874.5	510.5	23.5	26.5	84.5	229.5

*indicates cost estimates are clearly linked to achieving, or sustaining achievement of, targets.

In this scenario, the total estimated cost increases to US$ 874.5 million per year (US$ 193 per case), with a known gap of US$ 84.5 million (the increase from scenario 1 is due to an additional US$ 20 million for the Russian Federation for areas not benefiting from the World Bank loan funds). Given more assumptions are necessary in this table, the total funds for which the distribution among regular budgets, loans, grants and gap is unknown is high, at US$ 229.5 million per year. The total gap in this scenario probably lies in the range US$ 84.5–314 million per year, with most of the uncertainty reflecting the need for more precise estimates for Indonesia, India, Nigeria, Bangladesh and Pakistan. The importance of these 5 countries is due to two factors: their large contribution to the total number of tuberculosis cases in the 22 high-burden countries, and their need to make substantial improvements in case detection rates if targets are to be reached.

6.3 Estimated resources required—and gaps—outside the 22 high-burden countries

There are many resource-poor countries with a high incidence of TB outside the 22 high-burden countries. This means that although the 22 high-burden countries have been the initial focus of the GDEP, it is important to consider resource needs more broadly.

This is not easy to do at present, given the lack of detailed estimates for most countries. In addition, global estimates are likely to be distorted if they include high-income countries, since while they have a relatively small share of cases, they have high treatment costs per patient. Moreover, these countries are not relevant to analyses of resource gaps. Middle-income countries may also distort estimates of resource gaps—of the 22 high-burden countries, the only country with an annual per capita income greater than US$ 1000 that is estimated to have a resource gap is the Russian Federation.

Nevertheless, it is possible to provide some provisional estimates[28]. Excluding the 22 high-burden countries, North America, Western Europe, Japan, and 27 other countries with per capita incomes above US$ 3 500 per year,[29] the total additional resources required probably total around US$ 200 million per year, and the gap is probably US$ 20–100 million per year.

6.4 Estimated gaps at global level, and what filling them could achieve

Based on the estimates shown above, the existing resource gap for TB control in the 22 high-burden countries probably lies in the region of US$ 100–300 million per year, and the global gap in the region of US$ 150–400 million per year. These gaps would be larger in the absence of donor funding and loans, which are worth a total of US$ 50 million per year in the 22 high-burden countries and may be close to US$ 200 million globally.[30] It is therefore important that such external financing is sustained.

It is also important to emphasize that while filling some or all of the resource gap will enable important progress in TB control, it is unlikely to be enough to guarantee achievement of global targets in the 22 high-burden countries or beyond.

As the title of Table 3 highlights, in at least some of the 22 high-burden countries, additional funding is likely to be required for new kinds of interventions that are specifically aimed at raising case detection and cure rates to target levels. Such interventions may include increased engagement of private-for-profit practitioners in TB control through strengthened public/private partnerships,[31] patient incentives, improved registration and reporting systems,[32] extra and qualitatively different types of health promotion activities, and implementation of community-based care. In some countries, additional funds will also be required to cope with the impact of the HIV/AIDS epidemic. In Tables 2 and 3, for example, it is assumed that the existing level of resources available for TB control in South Africa is sufficient. This seems increasingly likely to be unrealistic, given the scale of the HIV/AIDS epidemic and its impact on TB caseloads in this country.

The type of interventions that are required to raise case detection and cure rates, and their associated costs, will need to be carefully worked out on a country-by-country basis. This is because relevant interventions are likely to vary by setting, both among and within countries. The cost of interventions will also vary because of, for example, variations in input costs, existing infrastructure and access to health facilities, and the proportion of cases currently being treated in the private sector.

6.5 Priority actions for country-by-country cost estimates

In summary, there are five immediate priorities for estimates of the resources required to meet global TB control targets:

- to develop estimates for the four countries for which there are no estimates at present (Indonesia—work already under way, South Africa, Zimbabwe, and the Russian Federation for areas of the country not covered by the World Bank loan);
- to identify the government contribution, donor contribution, and resource gap for the countries for which such a breakdown is not available at present (Cambodia—work currently in progress, and India);
- to develop estimates for the time periods currently not covered (i.e. 2004 and 2005 for Pakistan and Bangladesh, and 2002–2005 for Ethiopia and Uganda);

- to review whether existing estimates are sufficient to cover all financial costs associated with making progress towards global targets and revise estimates where appropriate, paying special attention to the costs associated with new interventions specifically designed to raise case detection and cure rates to target levels;
- to expand estimates so that they include other countries beyond the 22 high-burden countries. This will be facilitated by development of a global financial monitoring system within WHO.

Work is already under way, or planned, to support further country-specific work. For example, budgeting guidelines have been developed by WHO and are being field-tested.

As costing and related budgeting work proceeds, funding requirements are made more precise, and more resource allocation decisions are made, the type of estimates shown in Tables 2 and 3 can be refined and updated.

6.6 Practical suggestions for allocation of new funds to TB control

Ultimately, as pointed out in Section 4, a strategic and prioritized Global Investment Plan (GIP) that details the total resources required to effectively control, and eventually eliminate, the TB epidemic is needed.

The GDEP and the recently established GDF are two major steps forward towards such a GIP. Moreover, there is a strong case for making both of these the focus for newly available resources, since they respond immediately to the pressing need to cure patients and prevent disability and death.

The GDF has estimated that funding of approximately US$ 50 million per year is required for drug costs, if global targets are to be met. However, drugs alone are not enough to meet global TB control targets. As has been repeatedly pointed out with reference to antiretrovirals for HIV/AIDS, drugs will only be useful if there are functioning health and community-based care systems capable of delivering them to patients. It is therefore of paramount importance that investments in the GDF are accompanied by other investments in NTPs, health systems, and communities as a whole.

What should be the ratio of GDF investments to more general investments? Costing studies have shown that drugs typically account for about 10%–30% of the costs of successfully treating a TB patient under DOTS, and sometimes less.

This implies that:

- for every US$ 1 invested in the GDF, about US$ 2–9 should be invested in other DOTS inputs—health staff and infrastructure, diagnostic supplies, training, health promotion, incentives, recording and reporting systems, etc.
- based on the GDF estimated requirement, US$ 100–450 million per year should be invested in another, more general DOTS implementation fund;
- the combined funds required by the GDF and a more general DOTS implementation fund would total US$ 150–500 million per year.

Interestingly, this is consistent with the total gap of US$ 150–400 million per year gap estimated above, especially given that this explicitly excluded some inputs designed to raise case detection and cure rates.

A practical way of investing new resources could therefore operate as follows:

- invest funds jointly in the GDF and a more general DOTS implementation fund for TB control;
- for every US$ 1 invested in the GDF, invest US$ 2–9 in the more general DOTS implementation fund.

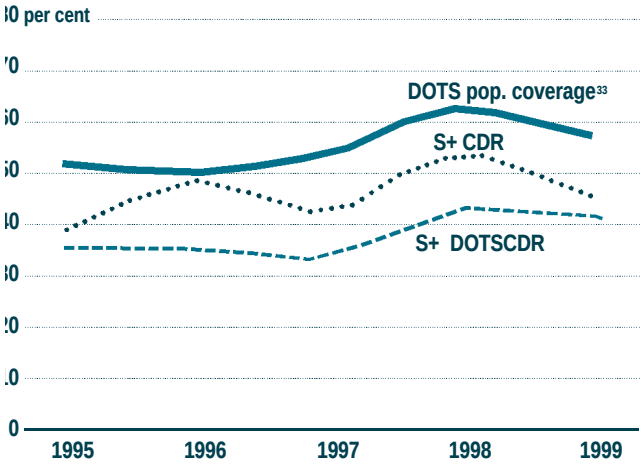
Conclusion

This report provides the first assessment of the status of tuberculosis control financing and of the resources necessary to expand DOTS coverage in the 22 countries with the highest number of estimated cases of tuberculosis. It also provides an understanding of the involvement and commitment of international agencies, both technical and financial, in country assistance. Partners, technical and financial, are encouraged to use this report as the basis for their future action in countries. The next step will be, on the basis of the report, to clearly define responsibilities of endemic country governments and international (and national) agencies in finalizing and implementing plans and in expanding DOTS coverage. This must be accompanied by allocation of resources, as well as establishment of deadlines for action, and clearly defined objectives, targets, and monitoring indicators for each high-burden country.

AFRICA
Regional profile

1999 data

- Population: 616.4 million
- Countries and territories: 47
- High TB burden countries: Democratic Republic of the Congo, Ethiopia, Kenya, Nigeria, South Africa, Uganda, United Republic of Tanzania, Zimbabwe
- Estimated new cases of TB: 2 015 000 equivalent to 326.9 per 100 000 inhabitants
- Estimated new cases of TB with HIV co-infection: 30%–50%
- Estimated new cases of smear-positive TB: 797 000 equivalent to 129.3 per 100 000 inhabitants
- Smear-positive cases notified: 321 260 equivalent to 40.3% of estimated cases
- DOTS population coverage: 54.9%
- Smear-positive cases notified under DOTS: 278 725 equivalent to 35% of estimated cases
- Smear-positive cases treated successfully under DOTS: 178 411 equivalent to 70%
- Smear-positive cases treated successfully under non-DOTS: 4 682 equivalent to 55.7%



Regional plan

A mid-term regional strategic plan 2001–2005 has been developed following the Amsterdam conference that emphasizes activities to expand DOTS, confronting the TB/HIV dual epidemic, and provision of support to several sub-regional initiatives.

Regional partnership

Technical partnership is an essential component of the sub-regional initiatives. Major financial partners are Belgium, DFID, and USAID.

International course in AFRO

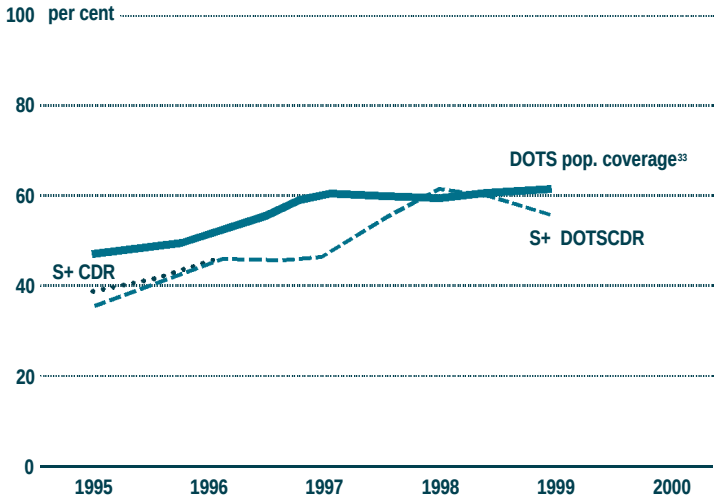
Yearly international courses are held in AFRO. The IUATLD organizes two TB management training courses in Benin and Tanzania. The Pasteur Institute organizes one laboratory course in Algeria.

Future needs to expand DOTS in high-burden countries in AFRO

- Review and operationalize the revised regional strategic plan 2001–2005.
- Reactivate the Regional Task Force on TB Control established in 1997.
- Establish a regional TB partners group (ICC).

DR CONGO

1999 data



- Population: 50.3 million
- Estimated new cases of TB: 151 000 equivalent to 301 per 100 000 inhabitants
- Total new cases notified: 59 531
- Estimated new cases of smear-positive TB: 62 000 equivalent to 124.5 per 100 000 inhabitants
- Smear-positive cases notified: 34 923 equivalent to 55.9% of estimated cases
- DOTS population coverage: 62%
- Smear-positive cases notified under DOTS: 34 923 equivalent to 55.9% of estimated cases
- Smear-positive cases treated successfully under DOTS: 23 523 equivalent to 70.3%
- Estimated new cases of TB with HIV co-infection: 25%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

Primary health care was seen as a route to achieving affordable universal coverage. Health policy is to improve equity and accessibility to essential health services that include all essential public health interventions such as TB care. TB services are decentralized at peripheral health centre level in order to reach the most disadvantaged. Links and collaboration between the primary care services and private providers remains limited despite increasing private sector involvement.

TB planning status and constraints

A central unit directs the TB programme with international assistance. The unit comprises three professional staff and is severely understaffed for such a vast country. Despite instability and poor socioeconomic conditions, the DOTS strategy has been expanded to two-thirds of the population as a result of integrated TB services in general health services, motivated central and intermediate TB teams, and external technical and financial assistance provided by NGOs.

The TB recording and reporting system is highly effective following implementation of the DOTS strategy, and planning meetings and reviews are held regularly. Securing TB drugs is the major challenge. Drug supply is regularly endangered by rapid increases in cases in areas with a high HIV/AIDS prevalence, limited national and external financial resources, and lack of buffer stocks. There are severe constraints to sustain and decentralize the DOTS strategy associated with staff capacity, competing demands, and areas with high political instability. The motivational aspects of the human resource constraints are related to the financing constraints.

Despite long-term external support, the quality of services provided by government facilities remains low in some areas. Prior to further geographical expansion, improving TB services to achieve better success rates with the DOTS strategy is a challenge that resides in increasing national staffing levels, securing funding, and ensuring drug supplies.

International partners who offer services ensure international standard quality assurance—indicating that with the right input, the national health services can also achieve acceptable quality standards. Although there is a strong likelihood that technical and financial partnerships will need to continue in the future, it is obvious that effective TB control is ultimately the responsibility of the Government of the Democratic Republic of the Congo, and that improved health services need increased efforts focused on TB services.

Action taken to expand /sustain DOTS since Amsterdam

- National and provincial plans of action drafted; 2001-2005 mid-term plan under preparation.
- Cost analysis studies conducted to better assess needs.
- USAID interest indicated in becoming a new partner.
- Amsterdam Declaration widely disseminated without immediate visible impact.

Action needed to expand /sustain DOTS

Major constraints have long been identified and remain similar:

- Review the mid-term development plan.
- Develop initiatives to strengthen international and bilateral partnerships and engage local partners, including private practitioners, to control TB with the national strategy.
- Secure funds for TB drugs and laboratory reagents through increased national and international funding.
- Engage in social mobilization.
- Strengthen political commitment to advocate an adequate national budget for TB drugs and all components of TB control in order to transform political commitment into action.
- Provide additional staff at central and intermediate levels and ensure adequate training at peripheral level.

Partnerships

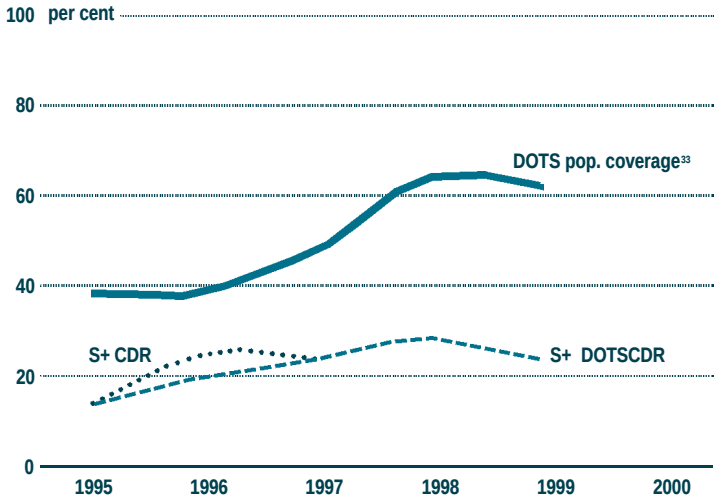
International partners have provided crucial support for TB control since 1990. Overall technical support for the country is led by WHO with DFB support. There is potential for monitoring support in the future by the IUATLD. Financial support is provided by DFB for TB drugs and programme operating costs, WHO for operating costs, and TLM and Aide aux Lepreux et tuberculeux de l'Ituri for TB drugs and operating costs. The NTP has also received external support from the European Union for strengthening health services and from a variety of leprosy-related international NGOs. It is highly likely that technical and financial partnerships will need to continue in the future.

Financial estimates

Costs for the period 2001–2005 are estimated at US$ 48.7 million, or an average of US$ 9.7 million per year. These estimates exclude use of general health services. US$ 7.7 million, or an average of US$ 1.5 million per year, has been pledged. The remaining resource gap is US$ 8.5 million per year.

Further work on the cost estimates is required if they are to include the costs associated with utilization of general health services, and an explanation of how costs have been linked to global targets. The national programme coordinator has expressed a need for assistance in estimating the full costs of implementing DOTS in the country.

ETHIOPIA



1999 data

- Population: 61.1 million
- Estimated new cases of TB: 228 000 equivalent to 373 per 100 000 inhabitants
- Total new cases notified: 72 095
- Estimated new cases of smear-positive TB: 88 000 equivalent to 145 per 100 000 inhabitants
- Smear-positive cases notified: 21 457 equivalent to 24.3% of estimated cases
- DOTS population coverage: 63%
- Smear-positive cases notified under DOTS: 21 457 equivalent to 24.3% of estimated cases
- Smear-positive cases treated successfully under DOTS: 10 950 equivalent to 73.8%
- Estimated new cases of TB with HIV co-infection, urban: 45%; rural: not known
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health services

In 1997, Ethiopia established a twenty-year Health Sector Development Programme to improve the health of all Ethiopians by enhancing accessibility to a basic package of quality primary health care, focusing on cost-effective interventions, and expanding health services in rural areas. The positive impact of the health reform has enabled TB services to become integrated with general health services delivery and progressively decentralized at peripheral health centre level in order to reach the most disadvantaged without compromising TB quality assurance.

TB planning status and constraints

A five-year 1997–2001 Project Development Plan that includes the DOTS strategy has been formulated. A standardized planning process has ensured rapid DOTS expansion, with 85% population coverage achieved in 2000 with satisfactory treatment success. Recording and reporting systems are more reliable and regular except for TB death registration. Laboratory quality assurance has been established in three major regions: the over-reliance on X-ray and inappropriate diagnostic procedures is decreasing.

The programme has suffered several problems including high staff turnover, delays in the government central disbursement of funds, and delays in procurement and drug distribution. Chronic understaffing of the central unit and of the regional health bureaux has hampered regular supervision. Ethiopia experiences regular shortages of human resources, especially when DOTS expansion is widespread and rapid and staff turnover is high. Health status is very low and endangered by a rapid HIV/AIDS related-increase in TB case detection.

Action taken to expand /sustain DOTS since Amsterdam

- Plan of action 2000 implemented; plan of action 2001 completed, approved and funded.
- Independent local supplier contracted by the Government of Ethiopia to manage TB drugs storage and distribution.

Action needed to expand /sustain DOTS

- Train a core group of managers and laboratory technicians at all levels of the system to address high staff turnover and lack of qualified staff.
- Extend quality control of AFB to all regions in the programme.
- Develop guidelines and checklist to improve supervision and on-the-job training.
- Conduct an evaluation of the first five-year plan.
- Engage in social mobilization and strengthen community education in areas where TB services have been established.
- Study new approaches on TB service and HSR.

Partnerships

National commitment to effective planning has aided the management of donor and national resources, and strengthened local ownership. HSR has enabled effective international partnerships for TB.

Overall technical support for the country is led by KNCV, with one WHO expert posted at central level. MSF provides technical and financial support in one region. The government established donor coordination in 1998, and major donors guide investments in TB control and DOTS implementation. The Dutch Government provides the main financial support for TB drugs and operational costs. The German Leprosy Relief Association and WHO also provide programme support costs.

The dependence on donors is unavoidable in the short term, and there is a strong likelihood that technical and financial partnerships will need to continue in the future.

Financial estimates

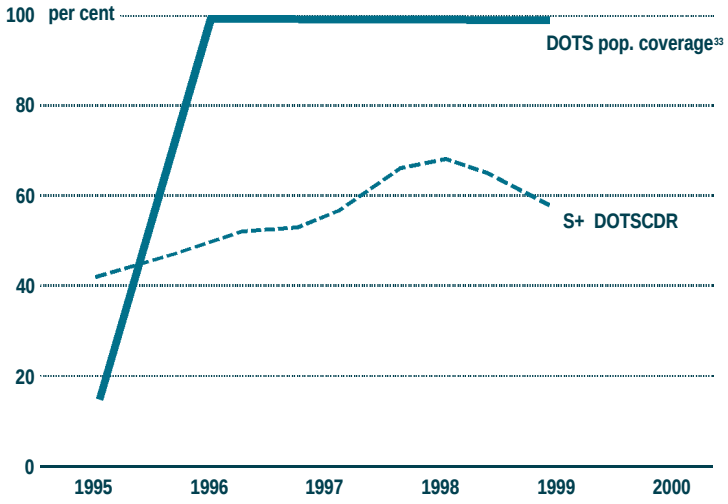
Detailed cost estimates are only available for the external funding required for the TB programme in 2001. The total estimated budget is US$ 6.5 million; US$4.4 million has been pledged. The resource gap for 2001 is US$ 2.1 million.

Cost estimates are being developed for the period 2002–2005 and will be linked to the achievement of global control targets.

Estimated budget required for TB control activities, 2001, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	0.3			??	
2. Drugs (including distribution costs)	4.2			??	
3. Training	0.4			0.4	
4. Programme management and supervision (excluding staff costs)	0.6			0.6	
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.1			??	
6. Miscellaneous	0.9			??	
TOTAL	**6.5**			**4.4**	**2.1**

KENYA



1999 data

- Population: 29.5 million
- Estimated new cases of TB: 123 000 equivalent to 417 per 100 000 inhabitants
- Total new cases notified: 57 266
- Estimated new cases of smear-positive TB: 46 000 equivalent to 157 per 100 000 inhabitants
- Smear-positive cases notified: 27 197 equivalent to 58.7% of estimated cases
- DOTS population coverage: 100%
- Smear-positive cases notified under DOTS: 27 197 equivalent to 58.7% of estimated cases
- Smear-positive cases treated successfully under DOTS: 16 854 equivalent to 77%
- Estimated new cases of TB with HIV co-infection: 40%
- Prevalence of MDR-TB in cases not previously treated: 0%

Overall health service

Health policy seeks to improve equity and accessibility to essential health services that include all essential public health interventions such as TB care. The positive impact of the health reform has enabled TB services to become progressively more decentralized at peripheral health centre level in order to reach the most disadvantaged. Links and collaboration between primary care services and private providers remains limited despite increasing private sector involvement.

TB planning status and constraints

The development of effective TB control has taken place through high-level political commitment to TB services as a public good. DOTS was introduced in 1993 and now covers the entire population with excellent results in increasing case detection and high success rates. A mid-term development plan 2001-2005 has been developed.

There are five staff members at the central level, and all provinces and districts have programme coordinators. Strong managerial and operational structures have been put in place and have helped to successfully sustain effective TB services under increasingly difficult conditions. The recent integration of TB in the general health service during the HSR process succeeded in maintaining the same high level of achievement; and provided an opportunity for DOTS expansion and better population access to TB services.

Nationwide coverage of TB services is ensured through community participation, a coordinated TB and HIV/AIDS response, and innovative pilot projects with the private sector. Securing TB drugs and effective TB services are endangered because of the rising TB burden associated with the HIV/AIDS epidemic and a decline in the socioeconomic status of a substantial part of the population.

Action taken to expand / sustain DOTS since Amsterdam

- Mid-term development plan 2001-2005 developed to continue to strengthen TB control within the context of HSR.

- Donor coordination partners' meeting and high-level political meeting held in Nairobi.
- Central Reference Laboratory re-equipped.
- Strengthened collaboration between TB and HIV/AIDS control programme.

Action needed to expand /sustain DOTS

- Continue to hold donor coordination partners' and high-level political meetings.
- Extend partnerships to the private sector to ensure standardization of treatment.
- Continue to develop operational research through innovative strategy.
- Strengthen community education and social mobilization campaigns to continue to expand community participation in the fight against TB.

Partnerships

Partnerships are a key component of Kenya's success in combining international collaboration with effective community involvement for DOTS delivery and national political commitment. Political commitment has enabled longstanding international partnerships with the Netherlands Government and KNCV. Although half of the drugs used in the country have been supplied by donors, Kenya is well aware that it must assume a greater share of costs against many odds.

Overall technical support for the country is led by KNCV and WHO, with NLR and CDC and CDC LIFE support. The Dutch Government provides financial support for TB drugs and programme operating costs; WHO provides for operating costs. Kenya has enlarged its alliance with the World Bank in the TB and HIV/AIDS programmes.

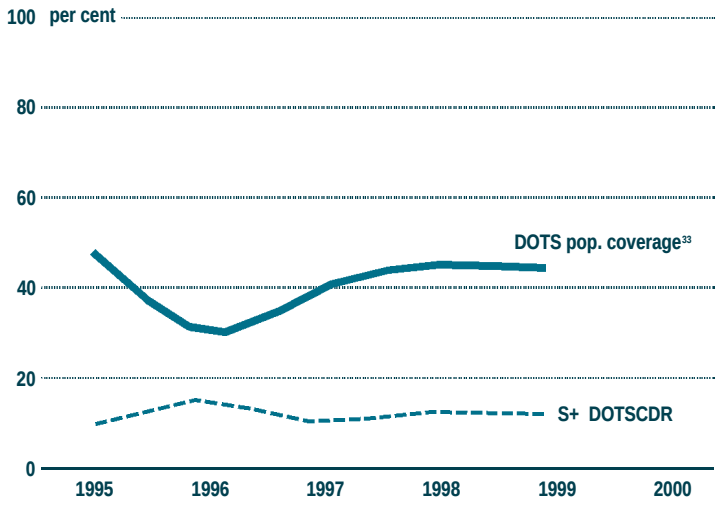
Financial estimates

Cost estimates for the TB programme are available for the period 2001-2005. The total is US$ 27 million million, an average of US$ 5.4 million per year. It is estimated that a further US$ 50 million will be required for inpatient care, which is funded through general health service budgets. Data concerning what the government can provide, what existing partners have pledged, and what the resource gap is, are also available, though donor funding is only secure for one year at present. Discussions with donors are currently underway, and figures can be updated in the near future. Further details regarding how the costs are linked to achievement of global targets would be useful.

Estimated budget required for TB control activities, 2001–2005, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	3.6	3.45	0	0.15	0
2. Drugs (including distribution costs)	15.5	6	2	0	7.5
3. Training	4.3	0	0	1	3.3
4. Programme management and supervision (excluding staff salaries)	1.8	0	0	1	0.8
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	1	0	0	1	0
6. Miscellaneous	0.8	0	0	0	0.8
TOTAL	**27**	**9.45**	**2**	**3.15**	**12.4**

NIGERIA



1999 data

- Population: 108.9 million
- Estimated new cases of TB: 327 000 equivalent to 301 per 100 000 inhabitants
- Total new cases notified: 24 143
- Estimated new cases of smear-positive TB: 135 000 equivalent to 124 per 100 000 inhabitants
- Smear-positive cases notified: 15 903 equivalent to 11.8% of estimated cases
- DOTS population coverage: 45%
- Smear-positive cases notified under DOTS: 15 903 equivalent to 11.8% of estimated cases
- Smear-positive cases treated successfully under DOTS: 9 577 equivalent to 72.8%
- Estimated new cases of TB with HIV co-infection: 14%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

The Federal Ministry of Health supports states through its normative technical and strategic planning functions. Planning and implementation of the health system including TB services is largely decentralized to 36 fairly autonomous states and the Federal Capital Territory. Nigeria is engaged in HSR to strengthen the primary health care infrastructure and to build human resource and operational capacity throughout the country. As part of the reform process, all states are presently developing strategic plans of action within which the plans for expansion of DOTS will be included.

In addition, the Government of Nigeria recently established a multisectoral committee to mount a concerted response to the worsening HIV/AIDS epidemic. The committee has embraced a partnership approach, working with the Ministry of Health to further strengthen the health sector to address the serious effects of an HIV/AIDS epidemic on the health system. This focus on the health sector includes strong support for TB control.

TB planning status and constraints

An effective DOTS strategy is implemented in 20 out of 36 states. DOTS expansion has been stagnant for the past two years. A five-year plan 2001–2005 for phased expansion was developed but is yet to be funded by the government.

The central unit comprises a national coordinator, three medical officers, one logistic officer, and some support staff. The unit is short-staffed and underfunded. Nigeria has a long way to go in order to seriously address TB and reach nationwide DOTS coverage and global targets on success and case-finding.

Expanding DOTS to the Federal Capital Territory and the remaining 17 states of the country is the most significant challenge. State TB coordinators have been trained and are positioned in each of the states. There is insufficient funding, however, to implement their plan of work.

The role of partners in implementing DOTS in Nigeria cannot be understated. Where the strategy is being implemented, it is due to the support of NGOs and donors. Increased state ownership (and budget allocation) for TB control will be required if DOTS is to be expanded.

Action taken to expand /sustain DOTS since Amsterdam

- Federal government commitment to increase the budget allocation for TB control.
- Strategic plans under development for strengthening the primary health care network. States have been encouraged to include plans for DOTS expansion within the overall plan.
- Budget for TB drugs included in the three-year plan of Presidential Committee on HIV/AIDS (this has guaranteed funding from a consortium of donors and the World Bank) thereby enabling rapid DOTS expansion.

Action needed to expand /sustain DOTS

- Continue to raise political commitment especially at state and local (district) areas to ensure adequate resources are directed to DOTS expansion.
- Enlarge partnership-building efforts with community health workers and with universities.
- Train core group of TB state and district coordinators and laboratory technicians at district level.
- Establish a national reference laboratory; technical support to accompany DOTS expansion.

Partnerships

Partnerships are a key factor for DOTS implementation in 19 states. Overall technical collaboration for the country is led by WHO and complemented by GLRA, DFB, and the NLR. IUATLD national technical partnership-building efforts have been established with colleges of medicine and the School of Health Technology para-professional training system. Major international funding partners are the GLRA in 14 states, the NLR in three states, and DFB in two states. Nigeria is planning to increase its alliance with the World Bank in HIV/AIDS programmes and in strengthening the health sector by incorporating TB services with TB drugs and other support costs. CDC LIFE is a potential resource to support some TB activities.

Financial estimates

The total budget for TB-specific inputs has been projected for 2001–2005. The total is US$ 21.8 million, plus approximately US$ 20 million for drugs to be funded by non-NTP funds—an average of US$ 8.3 million per year; US$ 15.9 million will be funded from federal and state budgets. The amount covered by donors is US$ 6.1 million for non-drug inputs, plus about US$ 20 million for drugs—an average of about US$ 5.2 million per year. It would be useful if the costs associated with utilization of general health services could be estimated. In addition, cost estimates have not been related to global control targets, but to the costs associated with expansion of DOTS to the whole country. Further investments will be required if targets are to be met.

Estimated budget required for TB control activities, 2001–2005, US$ millions

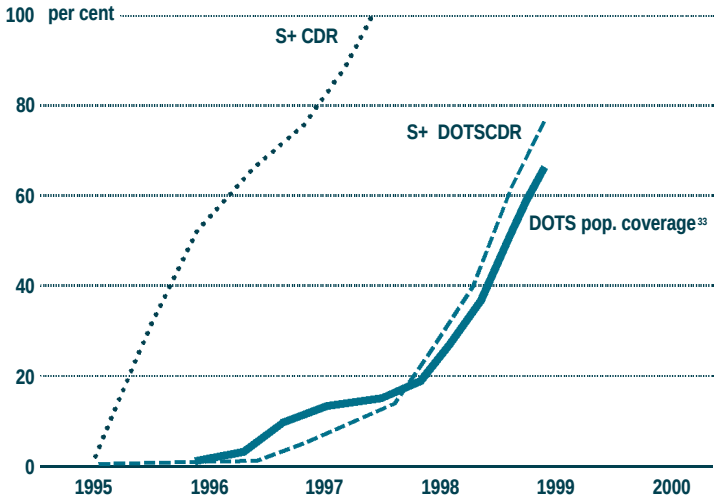
Cost item	Total budget	Government contribution Regular budgets / loans*	Donor funds pledged	Gap
1. Diagnosis and case management	5.9	5.4	0.5	0
2. Drugs (including distribution costs)	28.3	8.3	20	0
3. Training	2.1	0.3	1.8	0
4. Programme management and supervision (excluding staff salaries)	3.7	0.5	3.2	0
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.85	0.6	0.25	0
6. Miscellaneous	0.5	0.4	0.1	0
TOTAL	**41.35****	**15.5**	**25.85**	**0**

* :no distinction is made in the national plan between regular budgets and loan funds

**: the total budget includes a further US$ 0.5 million for staff salaries, bringing the tota of US$ 41.8 million

SOUTH AFRICA

1999 data



- Population: 39.9 million
- Estimated new cases of TB: 196 000 equivalent to 492 per 100 000 ininhabitantss
- Total new cases notified: 129 055
- Estimated new cases of smear-positive TB: 71 000 equivalent to 178.4 per 100 000 inhabitants
- Smear-positive cases notified: 78 071 equivalent to 97% of estimated cases
- DOTS population coverage: 66%
- Smear-positive cases notified under DOTS: 54 404 equivalent to 76.4% of estimated cases
- Smear-positive cases treated successfully under DOTS: 25 549 equivalent to 74.2%
- Estimated new cases of TB with HIV co-infection: 45%
- Prevalence of MDR-TB in cases not previously treated, Mpumalanga Province: 1.5%

Overall health service

Government health services are delivered through three separate structures:

- National Health Services responsible for health care programmes such as TB and HIV/AIDS.
- Provincial Health Authorities responsible for general hospital and clinic services and mainly funded by the national level. Peripheral clinics are usually staffed by nurses and focus on PHC activities; rural districts are served by mobile clinics.
- Local Health Authorities provide hospital and clinic services in urban areas, funded by local taxes, with little coordination with provincial services.

Many organizations provide services for TB patients, including government, NGOs (e.g. SANTA), mission hospitals, employers, and the private sector, with some overlap.

Tuberculosis services are routinely delivered within all government health facilities throughout the country. The general structure (which varies somewhat from one province to another) is that the health activities of the district are under the direction of a district manager. The district TB coordinator works under the direction of the district manager with technical support from the communicable diseases coordinator at the provincial level.

Specialized TB facilities are often overcrowded and patients admitted for long periods. In rural health facilities TB patients are under the responsibility of nursing staff.

TB planning status and constraints

The TB programme is one of the national health priorities in South Africa. The Government of South Africa has determined that diagnosis and treatment for TB should be a free service, helping to ensure access to the poor—the most seriously affected by TB.

A revised national TB control programme with the DOTS strategy was established (in 1996) to expand effective and accessible TB services throughout the country by the end of 2001. TB coordinators have been appointed in all provinces. A rapid increase in the detection of TB, associated with the HIV/AIDS epidemic and the emergence of MDR-TB has led central and provincial Government to identify TB as a priority.

Major challenges lie ahead. Poor outcomes at the district level reflect inadequate skills and highlight the need for better training and monitoring of provincial and district coordinators. Links between the different components of the TB services (case-finding and laboratory results) have not been firmly established, revealing managerial and organizational weaknesses.

Action taken to expand /sustain DOTS since Amsterdam

- Increased political commitment at national level; monthly meetings with Director-General.
- Commitment to rapid expansion with standardized recording and reporting system.
- Improved collaboration between TB/HIV/AIDS programmes; development of MDR-TB guidelines.
- Review of NGO hospitals providing TB services.

Action needed to expand /sustain DOTS

- Continue to increase political commitment especially at provincial level to ensure adequate resources are directed to DOTS expansion.
- Engage in social mobilization and strengthen community education in areas where TB services have been established.
- Prepare donors' coordination and high-level political meetings.
- Enlarge partnership-building efforts with community health workers, the private sector, the mining sector, prisons, and universities.
- Train core group of TB provincial and district coordinators and laboratory technicians at the district level of the system.
- Continue to strengthen recording and reporting systems at district level.

Partnerships

National technical partnership-building efforts have been established through innovative means with national NGOs (SANTA and TADSA, Life Care), the university research community, and other government departments (including the establishment of collaborating TB-HIV/AIDS/STI services in pilot districts).

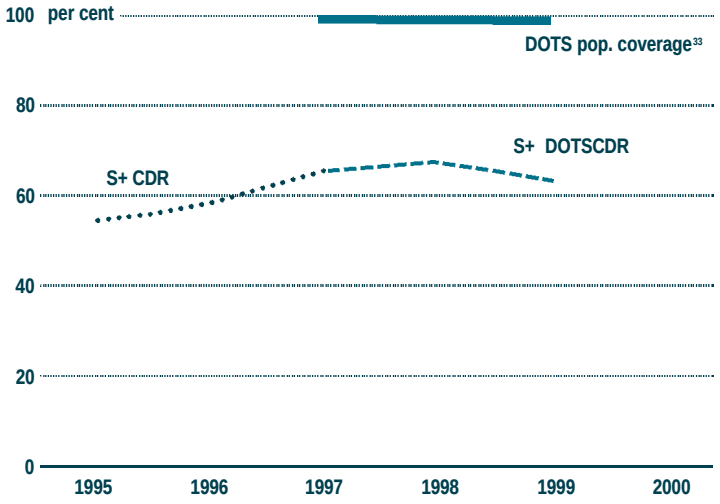
Progress has been enhanced by international partnerships with WHO as overall technical support for TB control, DFID, CDC, and IUATLD. DFID is assisting the programme to strengthen services at district level and through operational research. CDC has helped to establish an international standard reporting and recording system.

USAID, DFID, and the Government of Belgium provide financial support; USAID provides support for drug-resistant TB Surveillance, Belgium provides support for TB/HIV.

Financial estimates

There are no estimates at national level of the costs required for DOTS expansion over the period 2001-2005. South Africa receives some external assistance, but the government funds almost all of the costs of tuberculosis diagnosis and treatment. With the escalating HIV/AIDS epidemic and associated growth in TB cases, an assessment of the resources required to provide diagnosis and treatment over the next five years and identification of potential resource gaps in the specific context of HIV/AIDS may be appropriate.

UGANDA



1999 data

- Population: 21.1 million
- Estimated new cases of TB: 72 000 equivalent to 339 per 100 000 inhabitants
- Total new cases notified: 34 994
- Estimated new cases of smear-positive TB: 28 000 equivalent to 134 per 100 000 inhabitants
- Smear-positive cases notified: 18 149 equivalent to 63.9% of estimated cases
- DOTS population coverage: 100%
- Smear-positive cases notified under DOTS: 18 149 equivalent to 63.9% of estimated cases
- Smear-positive cases treated successfully under DOTS: 8 246 equivalent to 62.3%
- Estimated new cases of TB with HIV co-infection: 50%
- Prevalence of MDR-TB in cases not previously treated, GLRA supported zones: 0.5%

Overall health service

Uganda has made significant progress in dealing with the devastating socioeconomic effects of high levels of HIV/AIDS and TB. Sustained and extensive awareness campaigns have led to a decline in the HIV infection rate since the late 1990s. TB is being addressed within the overall HSR process and the sector-wide approach. A TB plan and budget are part of the Health Sector Strategic Plan 2000-2005. The country has pioneered community-based TB control to improve equity and accessibility to essential public health interventions such as TB care in order to reach the most disadvantaged.

TB planning status and constraints

A strong central level has enabled the provision of support and supervision, guaranteed quality assurance, advice to districts on policy, and managerial guidance. Flexible management approaches combined with good analysis of reported data have stimulated the development of innovations such as community-based care.

Community-based efforts have doubled the success rate, and global targets for success have been achieved where DOTS is implemented. The extensive experience within Ugandan communities for effective care and support of persons living with HIV/AIDS has facilitated the introduction of TB interventions designed by the community and health personnel.

A key operational challenge is to maintain quality control during the expansion phase of community-based care as well as high quality TB services in large urban populations.

The management of resources needs improvement to ensure the timely provision of funds at each level.

Action taken to expand /sustain DOTS since Amsterdam

▷ Community-based TB care adopted in the Health Sector Strategic Plan 2001–2005; TB indicators adopted to monitor implementation of the HSSP.

- Community-based TB care included in the Minimum Health Care Package of the Health Sector Strategic Plan
- Guidelines for introduction and implementation of community-based TB care finalized and distributed.
- Drugs quantified and blister packs adopted.
- Protocol for community-based TB care expansion submitted to WHO.

Action needed to expand /sustain DOTS

- Develop a mid-term plan to expand DOTS strategy through community-based TB care nationwide.
- Prepare donors' coordination and high-level political meetings to support DOTS expansion, especially community based TB care, surveillance of MDR-TB, and quality assurance.
- Train core group of managers and laboratory technicians at all levels on national guidelines for TB control.

Partnerships

Partnerships are a key component of Uganda's success in combining international collaboration with effective pioneer community involvement for DOTS delivery and national political commitment. Uganda has successfully established partnerships with a number of international agencies and NGOs.

Overall external technical support for the country is led by WHO, with technical assistance provided by GLRA, Leprosy Mission International, and the Italian Government. The IUATLD may also contribute in the future.

External financial support is provided by the GLRA, ICD, CESAL for programme operating costs, and DFID for TB drugs. CDC LIFE is a potential resource to support TB activities.

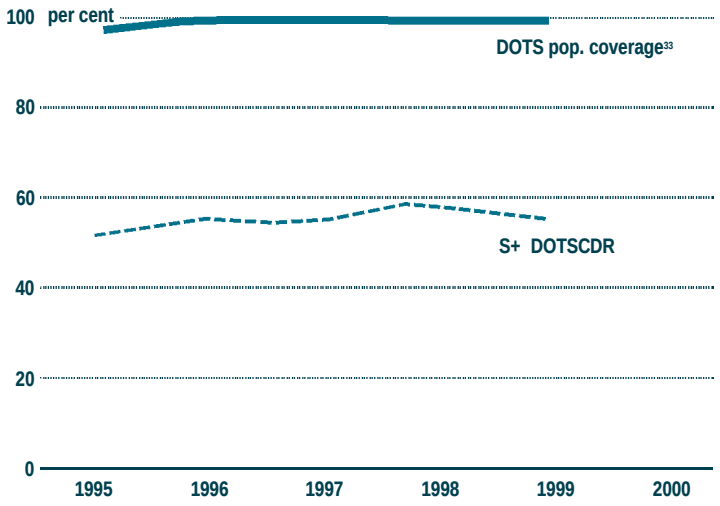
Financial estimates

Financial estimates have been made in detail for the period July 2001-June 2002. The estimated total budget required is US$ 2.1 million, of which US$ 0.8 million will be available through government contributions (almost entirely loan funds). An additional US$ 0.8 million has been pledged by donors. The remaining gap is US$ 0.5 million. Estimates for the years 2002-2005 remain to be developed.

Estimated budget required for TB control activities, July 2001–June 2002, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	0.15	0	0.03	0.06	0.06
2. Drugs (including distribution costs)	1.30	0	0.52	0.52	0.26
3. Training	0.35	0	0.14	0.14	0.07
4. Programme management and supervision (excluding staff salaries)	0.16	0	0.05	0.06	0.05
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.03	0.009	0	0.02	0.01
6. Miscellaneous	0.1		0.02	0.04	0.04
TOTAL	**2.1**	**0.009**	**0.76**	**0.84**	**0.49**

UR TANZANIA



1999 data

- Population: 32.8 million
- Estimated new cases of TB: 112 000 equivalent to 340 per 100 000 inhabitants
- Total new cases notified: 52 437
- Estimated new cases of smear-positive TB: 44 000 equivalent to 135 per 100 000 inhabitants
- Smear-positive cases notified: 24 125 equivalent to 55% of estimated cases
- DOTS population coverage: 100%
- Smear-positive cases notified under DOTS: 24 125 equivalent to 55% of estimated cases
- Smear-positive cases treated successfully under DOTS: 36 835 equivalent to 71.9%
- Estimated new cases of TB with HIV co-infection: 44%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

The health care delivery system is well developed and emphasizes self reliance, equal distribution, and equality in access to various social services. As a result, there was an expansion of health services to the rural areas to serve the majority of the population. By 1980, about 45% of the population lived within 1 kilometre of a health facility, 72% within 5 kilometres, and 93.1% within 10 kilometres. The Government of the United Republic of Tanzania through the Ministry of Health and the Prime Minister's Office (Regional Administration and Local Government) provides the majority of health services (approximately 60%). Other key players in health care delivery include NGOs and voluntary agencies, and private-for-profit organizations and individuals.

A well-developed primary health care system has ensured the accessibility of TB and leprosy control activities of the NTLP to the majority of the population. The former policy of the government of free universal health care for all is no longer sustainable. Health sector reforms aim to increase the effectiveness of the health sector through the following strategies:

- alternative financing options (cost-sharing and community health funds);
- reorganization of the structure of health services delivery (integration of vertical programmes);
- capacity-building at all levels (training);
- private sector participation in health service provision (public/public mix).

These reforms call for modification in the structure and functions of programmes including the NTLP.

TB planning status and constraints

The United Republic of Tanzania in partnership with the IUATLD and KNCV is at an historical juncture in the development of the DOTS strategy and is maintaining success despite a high incidence of HIV/AIDS and TB. In deteriorating socioeconomic conditions, however, TB control continues to rely on partnerships with donors.

The integration of effective TB control within a PHC system that reaches to the periphery is a key component of success. Despite effective organization of TB services, including ongoing

monitoring, there is a need to continue to build on national capacity to maintain a high TB managerial level. The major expected challenges are the impact of HIV/AIDS, regulating the private sector, accommodating health care financing, and mainstreaming TB control in the general health services.

Action taken to expand /sustain DOTS since Amsterdam

- Strengthened decentralization process through enhanced capacity-building.
- Increased community participation through social mobilization.
- Mid-term TB control plan 2001–2004 under development.

Action needed to expand /sustain DOTS

- Arrange partners' meeting to coordinate donors.
- Enhance national and regional management and planning capacity through training of staff and laboratory technicians at all levels.
- Decentralize TB services in large urban populations with increased risk of HIV/AIDS.
- Strengthen community education in areas where TB services are established.
- Strengthen collaboration between TB and HIV/AIDS services and develop a new strategy.
- Enhance drug resistance surveillance.

Partnerships

Long-term international partnerships have been important to success. The partnerships with the Swiss Government, IUATLD, GLRA, WHO, and the current overall technical collaboration from KNCV have supported strong technical capacity. Although donor partnerships provide bridging finance, the long-term financing position remains unclear. The main financial support is provided by the Royal Netherlands Government, Swiss Government, Ireland, and GLRA. CDC LIFE is a potential resource to support some TB activities.

Financial estimates

Cost estimates are available for the TB/Leprosy programme for the three year plan period July 2001-June 2004. The total is US$ 16 million, an average of US$ 5.3 million per year. Contributions by different partners are not yet certain. Donors have expressed interest in providing support, but concrete amounts have not yet been committed.

It would be useful to have further details regarding how the cost estimates are linked to global targets, and whether any investments in general health services are required.

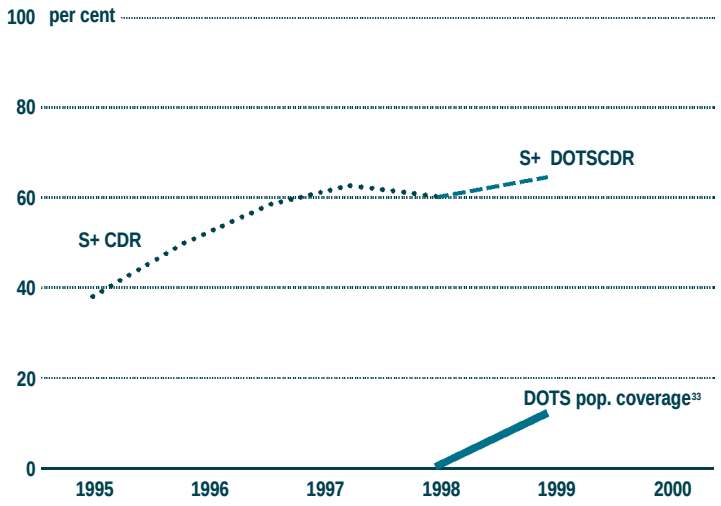
Estimated budget required for TB control activities, 2001–2004, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	0.3				
2. Drugs (including distribution costs)	7.9				
3. Training	2.3				
4. Programme management and supervision (excluding staff salaries)	2.5				
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.5				
6. Miscellaneous	1.6				
TOTAL	**15.9**				

ZIMBABWE

1999 data

- Population: 11.5 million
- Estimated new cases of TB: 64 500 equivalent to 562 per 100 000 inhabitants
- Total new cases notified: 50 138
- Estimated new cases of smear-positive TB: 23 000 equivalent to 198 per 100 000 inhabitants
- Smear-positive cases notified: 14 414 equivalent to 63.2% of estimated cases
- DOTS population coverage: 12%
- Smear-positive cases notified under DOTS:
- Smear-positive cases treated successfully under DOTS:
- Estimated new cases of TB with HIV co-infection: 65%
- Prevalence of MDR-TB in cases not previously treated: 2%



Overall health service

Health sector reforms undertaken in the 1990s aim to improve equity and accessibility to essential health services that include all essential public health interventions such as TB care. Primary health care is seen as a route to achieving affordable universal coverage. New reforms are being directed to further decentralization, new health financing schemes, regulation of the private sector, and strengthening of management. At present TB is still free to patients, and private sector involvement is vigorously pursued.

TB planning status and constraints

The DOTS strategy was adopted in 1997 and success rates have steadily increased between 1997 and 2000. Funding and political support are needed to pursue DOTS expansion and strengthen managerial capacity.

The high mortality in TB patients is due primarily to underlying HIV/AIDS. The 1995-2000 estimated toll is 1.1 million deaths, and TB contributes significantly to the large national death rate. Coping with the devastating socioeconomic effects of the HIV/AIDS epidemic is a major challenge. MDR-TB is present with a rate of 2% among new cases.

Insufficient laboratory staff, shortage of laboratory supplies, and a low commitment by physicians to follow-up represent major expected constraints for DOTS expansion. The TB surveillance and monitoring system requires major strengthening; implementing DOTS without due attention to that component is counterproductive.

Action taken to expand /sustain DOTS since Amsterdam

- Continue to expand DOTS.
- Establish district DOTS steering committees.
- Start to strengthen diagnostic capacity and monitoring of laboratory quality.

Action needed to expand /sustain DOTS

- Major constraints have long been identified and remain similar.
- Strengthen political commitment to advocate an adequate national budget for TB drugs and all components of TB control in order to transform political commitment into action.
- Secure funds for TB drugs and laboratory reagents through increased national and international funding.
- Attract funding to expand effective TB services in general—training, monitoring, and the recording and reporting system.
- Enhance national and regional management and planning capacity through training of staff and laboratory technicians at all levels.
- Provide additional staff at central and intermediate levels and ensure adequate training at the peripheral level.
- Engage in social mobilization to strengthen partnership-building efforts and to bring on board local partners, including private practitioners, to control TB within the framework of the national strategy.
- Strengthen collaboration between TB and HIV/AIDS services and develop a new strategy.
- Provide technical support to accompany DOTS expansion.

Partnerships

National partnerships have enabled a holistic approach to TB patient management that integrates TB and HIV/AIDS care. CDC LIFE is planning to support some activities to control TB.

WHO leads overall external technical support for the country; the IUATLD may contribute in the future.

The Dutch Government provides financial support, WHO programme operating costs, and DANIDA laboratory support. Zimbabwe has enlarged its alliance with the World Bank in TB.

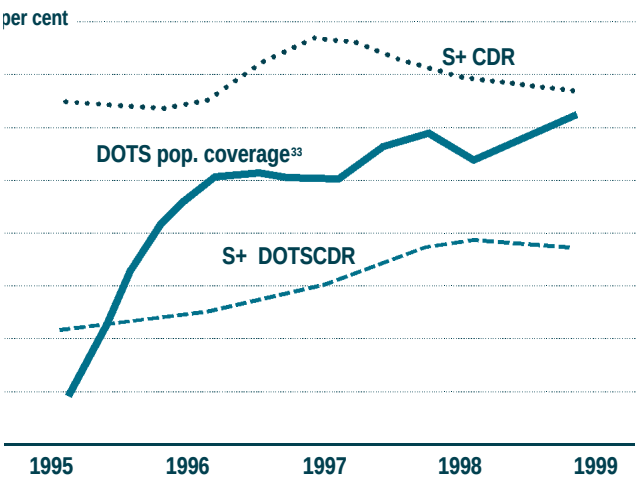
Financial estimates

Cost estimates for 2001–2005 are not available. In 2001, the Dutch government will provide US$ 0.7 million. External partners have recently been withdrawing support.

AMERICAS
Regional profile

1999 data

- Population: 817 million
- Countries and territories: 44
- High TB burden countries: Brazil, Peru
- Estimated new cases of TB: 402 838 equivalent to 49.3 per 100 000 inhabitants
- Estimated new cases of TB with HIV co-infection: 5%
- Estimated new cases of smear-positive TB: 182 029 equivalent to 22.3 per 100 000 inhabitants
- Smear-positive cases notified: 133 363 equivalent to 67.4% detection rate
- DOTS population coverage: 63%
- Smear-positive cases notified under DOTS: 68 134 equivalent to 37.4% detection rate
- Smear-positive cases treated successfully under DOTS: 50 796 equivalent to 80% success rate
- Smear-positive cases treated successfully under non-DOTS: 22 966 equivalent to 49% success rate



Regional plan

A strategic plan for DOTS/TAES expansion in the region is being developed with the objective of expanding DOTS/TAES coverage in all countries of the region by the end of 2005 and of reaching WHO targets by this date. The 5-year plan of action is based on the magnitude of the TB problem and identified challenges and on DOTS/TAES expansion in 15 of 25 countries with a population greater than one million. Particular focus will be given to the 8 regional priority countries.

Regional partnership

Major financial partners are the World Bank, CIDA, DFID, USAID, and DFB.

International course in AMRO

The IUATLD organizes a yearly international TB management training course in Nicaragua. WHO supports a yearly international TB management course in Peru. A further two courses are organized by AMRO: one is in Chile, the other in Cuba.

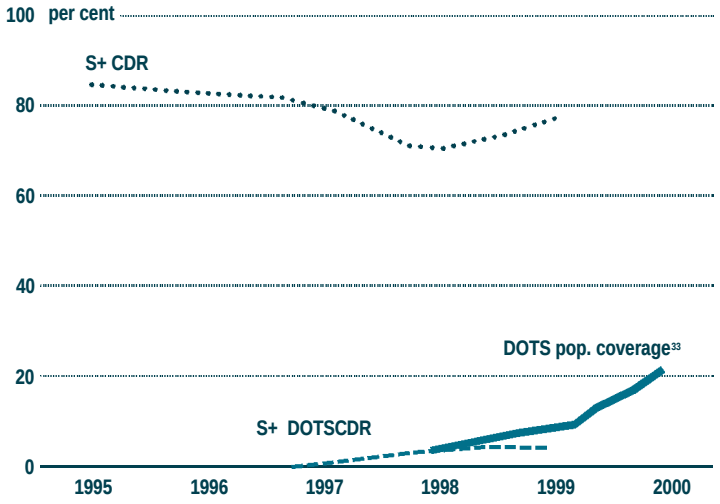
Future needs to expand DOTS in high-burden countries in AMRO

- Develop a mid-term regional strategic plan.
- Form a Regional Advisory Group.
- Establish an interagency coordination committee.

BRAZIL

1999 data

- Population: 168 million
- Estimated new cases of TB: 124 000 equivalent to 74.7 per 100 000 inhabitants
- Total new cases notified: 78 460
- Estimated new cases of smear-positive TB: 54 000 equivalent to 32.2 per 100 000 inhabitants
- Smear-positive cases notified: 41 434 equivalent to 76.5% detection rate
- DOTS population coverage: 7%
- Smear-positive cases notified under DOTS: 2 108 equivalent to 18% detection rate
- Smear-positive cases treated successfully under DOTS: 75 equivalent to 91.5% success rate
- Estimated new cases of TB with HIV co-infection: 5%
- Prevalence of MDR-TB in cases not previously treated: NA



Overall health service

Brazil has a population of 168 million (1996 census) distributed unevenly among the federal district and the 26 states, which are themselves grouped administratively into five macroregions (north, north-east, south, south-east, central-west). More than 75% of the population lives in urban areas, primarily in coastal cities. Brazil is considered a middle-income country, with a per capita GDP of US$ 6 100 in 1998, but large sectors of the population remain impoverished and undernourished, particularly in the north-east. Population growth has slowed in the last two decades to 1.4% p.a. (1991–1996); gains in public health have been substantial, despite the expenditure of only 1.9% of the gross domestic product and 4.7% of federal spending on health care.

Health sector reform has provided opportunities to decentralize TB services at the periphery and bestow authority to mayors in order to ensure accessibility to the general population. The NTP may, however, risk losing its core identity with the decline of effective TB services given the limited number of managerial and administrative staff able to control TB at the municipal level.

TB planning status and constraints

Brazil established a renewed commitment to effective TB control in 1998 through adoption of the DOTS strategy. A new strategic plan for 1999–2001 has been developed together with the reintroduction of a TB central unit. TB services are to be integrated in all health facilities. The national plan includes innovative incentive schemes for each confirmed case of a cured TB patient. Currently, the success rate for smear-positive cases treated in non-DOTS areas is only 39.7%.

Standardized guidelines on TB case management and on recording and reporting were introduced to facilitate adoption of national norms of international standard in all 5000 municipalities. TB drugs are procured and distributed by the Government through the national treasury.

The immediate constraints arise from the integration and decentralization processes. The programme has been suffering from a number of problems including understaffing of the central unit and of the state level, which hampered managerial capacity and regular supervision at municipal level. With a large number of municipal districts running their own TB control activities without applying the national standardized norms, an increase in MDR-TB may result.

Action taken to expand /sustain DOTS since Amsterdam

- Continued HSR; NTP moved to Department of Primary Health Care.
- Guidelines developed for TB control at primary health level.
- Laboratory register developed.

Action needed to expand /sustain DOTS

- Implement DOTS expansion plan to strengthen the TB control component within the HSR, and quality services for TB control within an emerging health sector reform process.
- Continue to enhance managerial and supervisory capacity at both central and state level.
- Train a core group of laboratory technicians and develop a network of laboratories to address the lack of qualified staff.
- Strengthen community education and social mobilization campaigns to continue to expand NGO and community participation in the fight against TB.
- Strengthen community education and social mobilization campaigns to continue to expand NGO and community participation in the fight against TB.

Partnerships

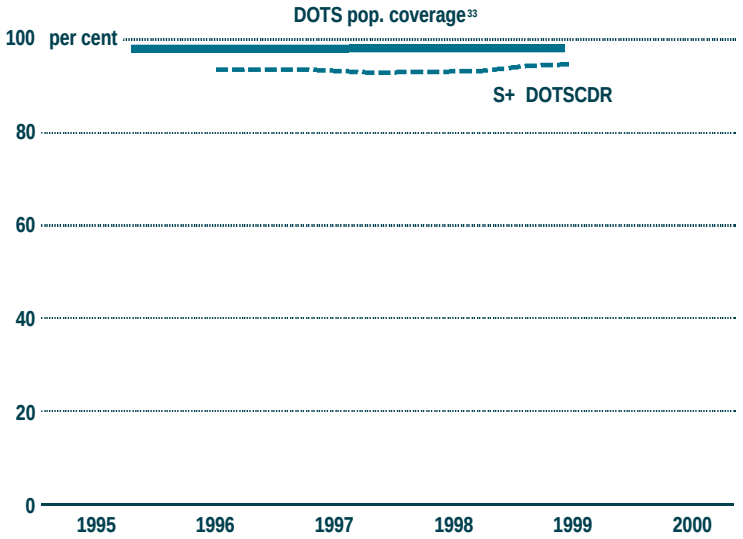
Overall external technical collaboration for the country is led by WHO/PAHO. Other partners are GLRA and DFB for training and monitoring activities. OPAS provides technical expertise; the IUATLD and CDC are sources of potential support in the future. National technical partnership-building efforts have been established through innovative means with national NGOs and community health volunteers.

Financial estimates

Costs have been estimated at federal level. The total required is approximately US$ 15 million per year. No resource gap is identified in the 2001-2005 five-year plan.

Further details regarding how cost estimates are linked to global targets, and which financial inputs are covered in the estimates, would be useful.

PERU



1999 data

- Population: 25.2 million
- Estimated new cases of TB: 57 600 equivalent to 228 per 100 000 inhabitants
- Total new cases notified: 40 345
- Estimated new cases of smear-positive TB: 26 000 equivalent to 102.2 per 100 000 inhabitants
- Smear-positive cases notified: 24 511 equivalent to 95% detection rate
- DOTS population coverage: 100%
- Smear-positive cases notified under DOTS: 24 511 equivalent to 95% detection rate
- Smear-positive cases treated successfully under DOTS: 24 177 equivalent to 92.5% success rate
- Estimated new cases of TB with HIV co-infection: 2%
- Prevalence of MDR-TB in cases not previously treated: 3%

Overall health service

Since 1990, the Government of Peru has made the political and financial commitment necessary to guarantee that TB control is a national priority. The NTP is part of the Basic Health Programme that has improved coverage and quality of health services at the primary, secondary, and tertiary levels of care in an effort to successfully fight against poverty. During the past decade, great emphasis has been placed on providing patient treatment at local health facilities, improving local laboratories, and developing human resources as a means to improve access to services. The coverage of diagnosis and free TB treatment has thus been increased 10-fold nationwide.

The development of TB control in Peru has taken place in the context of a sector-wide approach with the highest level of political commitment. TB services are seen as an integral part of the government's social programme against poverty. The development of a high-quality management system has provided TB services with efficient disease control and stimulated other parts of the health system to be equally effective.

TB planning status and constraints

Peru has reached and surpassed global targets in less than 10 years through effective TB services using the DOTS strategy, and deals now with potential new disease threats such as MDR-TB and HIV/AIDS-TB. As a result of intense and sustained efforts in DOTS implementation, the country is experiencing a yearly 8% reduction in incidence of TB that translates into 78 000 cases averted and 77 000 deaths prevented.

Effective management characterizes Peru's success and now maintains the essential core TB control functions that guarantee quality. Stability and strong leadership in the management for TB control at central, regional, and district levels have ensured efficient training of multi-disciplinary health teams throughout the country, strong levels of supervision, free TB diagnosis and treatment in each one of the 6 350 health centres of the Ministry of Health, and regular procurement and distribution of TB drugs and laboratory supplies.

An efficient information system has enabled appropriate planning, monitoring, and implementation. Twice-yearly national meetings that convene over 250 participants (doctors, nurses, laboratory technicians, social assistants, etc.) review and analyze collected information and determine priority strategies for the following year.

The NTP implemented in 1997 a standard ambulatory regimen for MDR-TB cases on a national level with encouraging results of smear conversion and 70% cure rate for patients completing treatment.

Action taken to expand /sustain DOTS since Amsterdam

- Sustain global TB control targets by maintaining effective TB control.
- Sustain DOTS-Plus strategies to include MDR-TB as part of routine activities.
- Develop international partnerships to address MDR-TB cases and strengthen the DOTS-Plus strategy.

Action needed to expand /sustain DOTS

- Guarantee the sustainability of the NTP for at least two decades to maintain its epidemiological impact on TB transmission.
- Develop vigorous intervention strategies for high risk groups and zones (TB "hot spots").
- Monitor the impact of the HIV/AIDS-TB association.
- Continue to strengthen the DOTS-Plus strategy for MDR-TB patients.
- Continue operational and epidemiological research on TB.

Partnerships

Effective government leadership is a hallmark of Peru's success in combining international partnerships with effective national political commitment.

Overall external technical collaboration for the country is led by WHO/PAHO, PIH/SES for MDR, CDC/DTBE for operational research, and by the IUATLD for training; KNCV is a potential collaborator in the near future. National technical partnership-building efforts have been established with other health sector institutions including social security, the armed forces and the private sector.

The Government of Peru is part of the Partners Coallition (WHO, CDC, PIH, TFCS, and NTP Peru) formed to address MDR-TB in Peru and to create a model that could be used in other countries. Peru demonstrates how adequate resources can be effectively mobilized to address TB control as a public good.

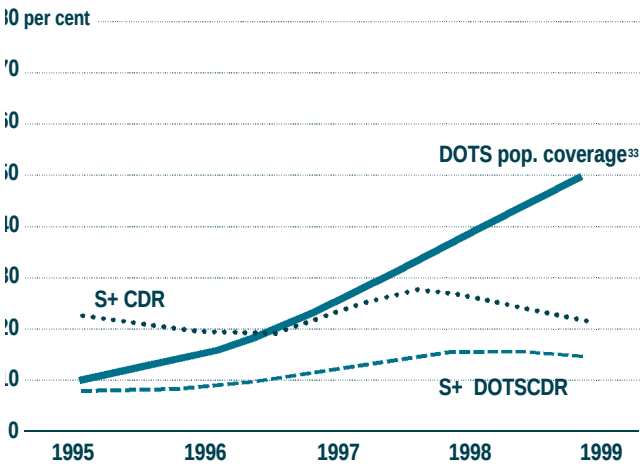
Financial estimates

Cost estimates for TB control, excluding the costs associated with use of general health services, are available for each year 2001–2005. The total each year is US$ 5 million for DOTS, with additional funding available for DOTS-Plus. Existing resources cover all needs for sustained achievement of control targets. There is no resource gap.

EASTERN MEDITERRANEAN
Regional profile

1999 data

- Population: 486.3 million
- Countries and territories: 23
- High TB burden countries: Afghanistan, Pakistan
- Estimated new cases of TB: 617 000 equivalent to 126.8 per 100 000 inhabitants
- Estimated new cases of smear-positive TB: 277 000 equivalent to 57.0 per 100 000 inhabitants
- Smear-positive cases notified: 67 135 equivalent to 24.2% of estimated cases
- DOTS population coverage: 49.9%
- Smear-positive cases notified under DOTS: 43 906 equivalent to 15.8 % of estimated cases
- Smear-positive cases treated successfully under DOTS: 29 065 equivalent to 73.9%
- Smear-positive cases treated successfully under non-DOTS: 16 649 equivalent to 37.8%



Regional plan

Following the Amsterdam conference, the Eastern Mediterranean Regional Committee has endorsed new regional targets that aim to expand DOTS by 2005 and halve TB prevalence and deaths by 2010.

Regional partnership

Good collaboration with partners is in place in high-burden countries: the World Bank, JICA and DFID in Pakistan, and Norway and Italy in Afghanistan. Partnership is also developed in other regional high-burden countries: Norway in Sudan and Somalia, the Netherlands in Egypt, and JICA in Yemen.

International course in EMRO

An Inter-Country Training Workshop on DOTS is held annually to train national and/or intermediate-level TB programme managers on the DOTS strategy.

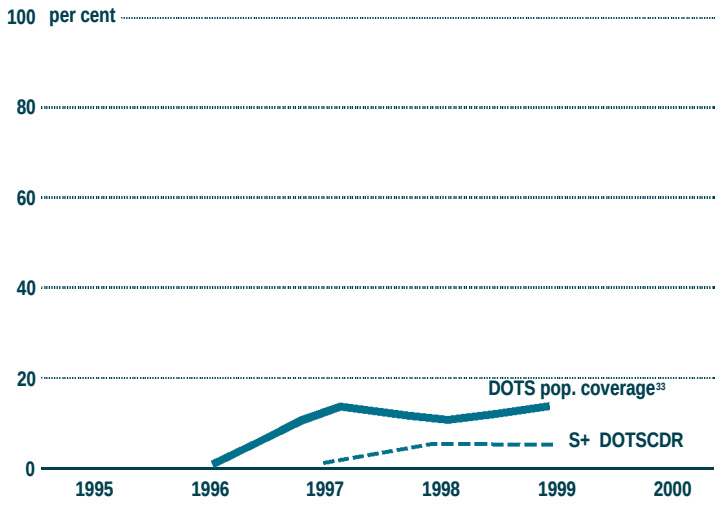
Future needs to expand DOTS in high-burden countries in EMRO

- Develop a mid-term regional strategic plan.
- Form a Regional Technical Advisory Group.
- Establish a Regional Interagency Coordination Committee (ICC).
- Promote research networks concerned with operational research and private public mix issues.
- Implement anti-TB drug resistance surveillance.

AFGHANISTAN

1999 data

- Population: 21.9 million
- Estimated new cases of TB: 71 000 equivalent to 325 per 100 000 inhabitants
- Total new cases notified: 3 314
- Estimated new cases of smear-positive TB: 32 000 equivalent to 146 per 100 000 inhabitants
- Smear-positive cases notified: 1 669 equivalent to 5.2% of estimated cases
- DOTS population coverage: 14%
- Smear-positive cases notified under DOTS: 1 669 equivalent to 5.2% of estimated cases
- Smear-positive cases treated successfully under DOTS: 971 equivalent to 33.3%
- Estimated new cases of TB with HIV co-infection: 5%
- Prevalence of MDR-TB in cases not previously treated: NA



Overall health service

Longstanding strife and poor socioeconomic conditions have weakened Afghanistan's overall health infrastructure and seriously hampered the ability of the National TB Institute to function. The financial, technical, and managerial capacity of the nationals is extremely limited. Most of the health services in the country are provided with assistance from WHO, the UN and other international agencies, and NGOs.

TB planning status and constraints

In the absence of a functioning central unit, WHO in collaboration with NGOs and international agencies has assisted local authorities in efforts to rehabilitate TB control. TB control guidelines have been developed, translated, and distributed.

At present 30 health institutions in seven regions reportedly provide TB treatment services in the community. Maintaining these services has been extremely difficult due to an absolute shortage of funds. WHO is therefore negotiating with potential donors (the Italian and Norwegian Governments) to obtain sufficient funds for DOTS expansion.

DOTS expansion to achieve the target for TB control remains challenging because of political instability, security problems, and a weak infrastructure.

Action taken to expand /sustain DOTS since Amsterdam

Afghanistan was not invited to the Amsterdam conference. An NTP Unit has, however, been established and a new NTP director appointed. The Italian and Norwegian Governments are requested (and expected) to provide funds for DOTS expansion in the next two years.

Action needed to expand /sustain DOTS

- Major constraints have long been identified and remain similar.
- Develop a mid-term development plan.

- Strengthen political commitment to ensure an adequate national budget for TB drugs and all components of TB control directed for DOTS expansion.
- Organize coordination meetings for donors and NGOs to strengthen partnerships.
- Technical support is needed to accompany DOTS expansion.
- Strengthen political commitment to increase the national budget for TB drugs and DOTS expansion activities from the limited governmental resources.
- Engage in social mobilization and strengthen community education in areas where TB services have been established.
- Train core group of national and regional level TB managers and laboratory technicians at district level of the system to address the lack of qualified staff.
- Continue to strengthen recording and reporting systems at all levels of the programme.
- Establish a national reference laboratory.

Partnerships

WHO leads overall technical and financial support for the country, with training courses run by WHO. MEDAIR, GMS and other NGOs provide TB diagnostic and treatment services in their catchment areas. ICD provides training for laboratory personnel and quality control services. Operational activities depend on external aid.

Financial estimates

Cost estimates for TB control, excluding the costs associated with use of general health services, are available for a five-year timeframe. The total required is US$11.25 million, an average of US$ 2.25 million per year. The existing plan does not indicate what the Government can provide, but it is anticipated that provision of TB control will depend heavily on donor assistance for several years.

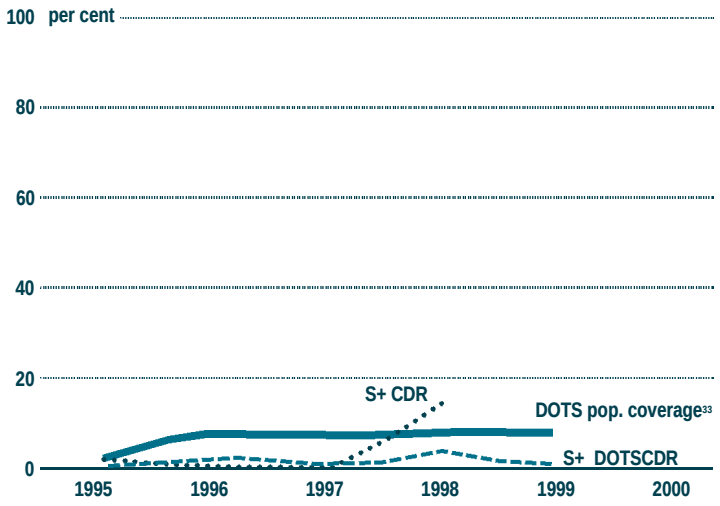
It would be useful if the costs of strategies specifically designed to raise detection and cure rates were identified in the estimates.

Estimated budget required for TB control activities, 2001–2004, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	0.4	negligible	NA	0	0.4
2. Drugs (including distribution costs)	8.4	" "	NA	0	8.4
3. Training	0.2	" "	NA	0	0.2
4. Programme management and supervision (excluding staff salaries)	1.0	" "	NA	0	1.0
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0	" "	NA	0	0
6. Miscellaneous*	1.25	" "	NA	0	0
TOTAL	**11.25**	" "	NA	0	11.25

* this represents staff costs of US$ 250 000 per year, to cover employment of international (one person) and national (several people) staff

PAKISTAN



1999 data

- Population: 152.3 million
- Estimated new cases of TB: 269 000 equivalent to 177 per 100 000 inhabitants
- Total new cases notified: 20 936
- Estimated new cases of smear-positive TB: 121 000 equivalent to 79 per 100 000 inhabitants
- Smear-positive cases notified: 6 248 equivalent to 5.2% of estimated cases
- DOTS population coverage: 8%
- Smear-positive cases notified under DOTS: 2 269 equivalent to 1.9% of estimated cases
- Smear-positive cases treated successfully under DOTS: 1 264 equivalent to 65.9%
- Estimated new cases of TB with HIV co-infection: 1%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

Pakistan is an Islamic Republic Federation that consists of four provinces (Balochistan, NWFP, Punjab, Sind), Northern Areas, and Azad Jamu Kashmir. Health expenditures (public sector) are 0.7% of GNP, while total health sector investment is 2.7% of GNP. Health is primarily a provincial matter in Pakistan; provinces assume overall responsibility in the implementation of health care services in the community. Pakistan is, however, in the middle of a devolution process that aims to provide autonomy to districts. Governmental health services are in general not functioning well in providing health services in the community. One study indicates that government health services cover only 20% of overall health services in Pakistan.

TB planning status and constraints

Pakistan adopted the DOTS strategy in 1995 and started DOTS demonstration activities in some areas. It could not, however, expand DOTS because of a lack of action-oriented political commitment in the Government. Since 1999, the Government has begun to rehabilitate provincial TB programmes through the scheme of the Social Action Programme Project II (SAPP II). SAPP II is a sector-wide approach including health supported by the World Bank, DFID, the European Union, and others.

In 2000, federal and provincial Ministries of Health allocated good amounts of funds for DOTS expansion through SAPP II and regular budgets. For the next three years, provinces have allocated 355 million Pakistan Rupees (approximately US$ 6 million), while Balochistan, Punjab and Sindh have also secured funds for drug procurement from their regular budgets. With this allocation, federal and provincial ministries have established posts for TB managers and their staff, and started DOTS pilot activities. Balochistan, NWFP and Sindh are planning to achieve 100% DOTS coverage by 2003. Punjab—the largest province in Pakistan—is planning to achieve 100% DOTS coverage by 2005.

Due to the high burden of TB and the weak infrastructure of health services in Pakistan, the above-stated input of the government is insufficient to ensure successful, high-quality DOTS expansion and maintenance in Pakistan. Moreover, in view of the presence of a

strong private health sector and NGOs, collaboration with these partners is critical in TB control. There is an urgent need to move to DOTS expansion as the treatment success of smear positive cases in non DOTS areas is only 20%.

Action taken to expand /sustain DOTS since Amsterdam

- Posts established for federal and provincial TB managers.
- Allocation of funds for DOTS expansion in provinces for 3 years (2000–2002).
- Anti-TB drugs purchased.
- DOTS activities sustained in Balochistan and NWFP.
- DOTS activities started in some areas; newly started in one district in Punjab and Singh.
- Establishment of a TB Inter-Agency Coordination Committee.
- Delivery of "Islamabad Declaration to Stop TB", which is the Pakistani version of the Amsterdam Declaration.

Action needed to expand /sustain DOTS

- Continue to increase political commitment to ensure adequate resources for TB control and DOTS expansion.
- Develop a comprehensive mid-term plan for DOTS expansion and nationwide TB control.
- Engage in social mobilization and strengthen community education in areas where TB services have been established.
- Train a core group of TB coordinators and technicians at district and provincial level.
- Continue to strengthen the recording and reporting system at all levels of the programme.
- Technical support is needed to accompany DOTS expansion.

Partnerships

WHO leads overall technical collaboration for Pakistan. The IUATLD, KNCV, GLRA, and ICD support DOTS expansion. Major international funding partners are SAPP II (WB, DFID etc) GLRA, DFID, and ICD. Pakistan increased its alliance with the World Bank in strengthening the health sector to include TB services with TB drugs and other support costs.

Financial estimates

Provinces have developed DOTS expansion plans for the next 3 years. These include funds of US$ 6 million. Additional funds from regular budgets are available for drug procurement. The NTP has also identified the resource gap as approximately US$ 5 million per year, broken down as follows:

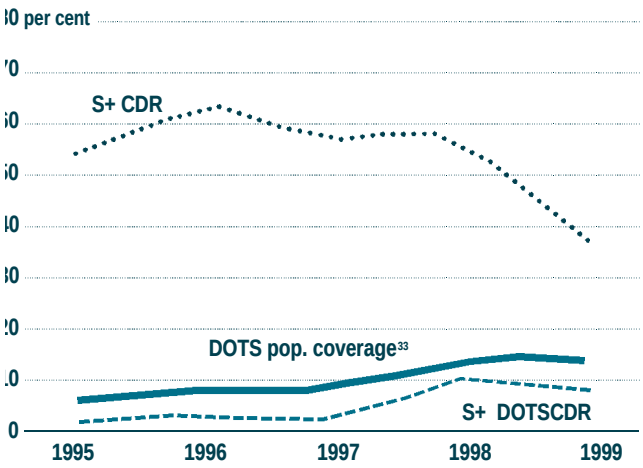
- Diagnosis and case management: US$ 1 million (including US$ 700 000 for procurement of equipment at reference lab.)
- Drugs: US$ 2 million
- Training: US$ 100 000
- Programme management: US$ 500 000 (including vehicles)
- Activities specifically designed to raise case detection and cure rates: US$ 200 000 (for advocacy and operational research)
- Miscellaneous: US$ 1 million (US$ 750 000 for 5 international staff, and US$ 250 000 for recruitment of 15 national staff)

It will be appropriate to develop a 5-year plan based on the 3-year provincial plans and the estimated annual gap.

EUROPE
Regional profile

1999 data

- Population: 871.8 million
- Countries and territories: 51
- High TB burden countries: Russian Federation
- Estimated new cases of TB: 475 000 equivalent to 54.5 per 100 000 inhabitants
- Estimated new cases of TB with HIV co-infection
- Estimated new cases of smear-positive TB: 213 000 equivalent to 24.4 per 100 000 inhabitants
- Smear-positive cases notified: 86 271 equivalent to 40.5% of estimated cases
- DOTS population coverage: 14.6%
- Smear-positive cases notified under DOTS: 18 870 equivalent to 8.9 % of estimated cases
- Smear-positive cases treated successfully under DOTS: 9 638 equivalent to 72.8%
- Smear-positive cases treated successfully under non-DOTS: 20 252 equivalent to 58.3%



Regional plan

A regional strategic document to control TB has been developed. The regional strategic plan to expand DOTS will be available by September 2001.

Regional partnership

The ICC has expanded its scope of work and incorporated tuberculosis in 2000. National donors meetings were held for the first time in Kazakhstan (in 1999) and in the Russian Federation (in 2000) to ensure optimal coordination among partners and consistency in direction and policies in implementing the DOTS strategy. Major financial partners are the World Bank, EU, DFID, and USAID.

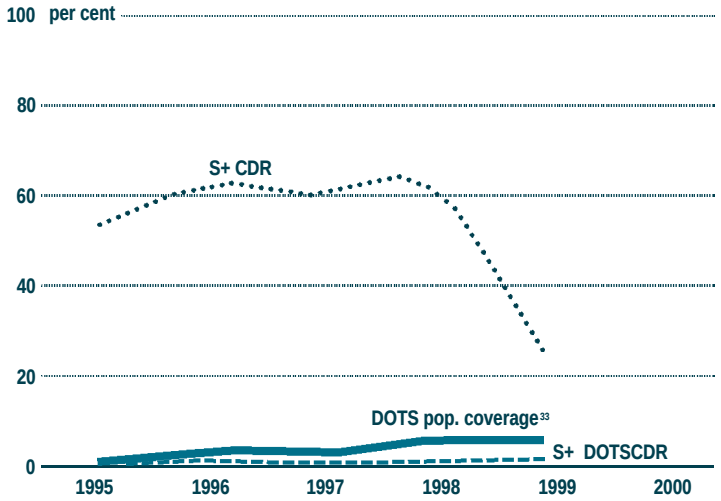
International course in EURO

Two yearly international TB management training courses are held in Poland and in Tartu. An international course for laboratory managers is being introduced in 2001.

Future needs to expand DOTS in high-burden countries in EURO

- Develop a regional strategic plan for DOTS expansion.
- Develop a plan of action in the Russian Federation and other identified high-burden countries in the region.
- Form a Regional Advisory Group.
- Establish a regional TB partners group.

RUSSIAN FEDERATION 1999 data



- Population: 147.2 million
- Estimated new cases of TB: 181 000 equivalent to 123 per 100 000 inhabitants
- Total new cases notified: 134 360
- Estimated new cases of smear-positive TB: 81 000 equivalent to 55 per 100 000 inhabitants
- Smear-positive cases notified: 21 744 equivalent to 26.8% of estimated cases
- DOTS population coverage: 5%
- Smear-positive cases notified under DOTS: 1 274 equivalent to 1.6% of estimated cases
- Smear-positive cases treated successfully under DOTS: 505 equivalent to 67.8%
- Estimated new cases of TB with HIV co-infection: 1%
- Prevalence of MDR-TB in cases not previously treated, Ivanovo Oblast: 9.0%; Tomsk Oblast 6.5%

Overall health service

The Russian Federation has a network of primary health facilities that are widely spread across the whole territory. In some parts of the country, Siberia for example, access to these facilities is difficult for the rural population because of the vast distances. TB control is provided by a specialized network of TB facilities that are not integrated into the general health system. In addition, TB patients are treated in the penitentiary institutions which are not integrated within the NTP. The Ministry of Health is currently working on the reorganization of the system to link the TB system with the primary health care network.

TB planning status and constraints

The Russian Federation does not have a formally established NTP. TB care is provided by the network of TB specialized dispensaries and hospitals. The role of the “central unit” is carried out by the Research Institute of Phthysiopulmonology (RIPP) in Moscow. The Director of RIPP has been nominated a Chief Phthysiologist of the Ministry of Health (equivalent to the NTP manager). A second research institute in Moscow, the Central Tuberculosis Research Institute (CTRI), is responsible as a WHO collaborating centre for DOTS implementation and expansion.

DOTS was first introduced in one area in the Russian Federation in 1995 with WHO assistance. By the end of 2000, DOTS had been implemented in 10 regions and seven prisons. DOTS-Plus has been implemented in one prison. The government is currently negotiating a loan for TB with the World Bank that will allow increased DOTS coverage and attempt to address the MDR-TB problem.

The TB control network presently comprises 500 dispensaries, 9 300 TB specialists, 500 surgeons, 38 000 nurses, 83 000 TB beds, 6 500 children beds, 31 000 sanatoria beds, 6 000 surgical beds and nearly 650 bacteriological laboratories. Due to the recent political and economic transition, decentralization of health facilities and reductions in the health budget, this costly TB system is no longer able to cope with the increasing TB caseload. A sharp reduction in funds for TB control has led to drug shortages (most acutely in 1998), and a less effective system of patient diagnosis and management. Delays to diagnosis became longer, and cure rates lower. The lack of anti-TB drugs and the use of non-standardized and sub-optimal therapies have resulted in high numbers of drug resistant TB, including MDR, both in the civilian and prison populations. Surveillance of drug resistance in selected oblasts showed MDR TB from 6% to 9% of new cases notified in 1998. A survey carried out in one prison in Siberia has documented a 16,7% rate of MDR TB.

Constraints identified

- Socioeconomic crisis in the Russian Federation.
- Inadequate TB treatment and monitoring system as well as high prevalence of drug resistance.
- Insufficient education of both physicians and the general population.
- Laboratory system: improper organizational structure of laboratory network and no sustainable system of drug supply.

Action taken to expand /sustain DOTS since Amsterdam

- High-level Working Group established between WHO and MOH to update the TB control strategy of the Russian Federation in line with international recommendations and make the strategy more accessible to the population.
- World Bank approached to secure a loan to finance TB and HIV/AIDS control.
- High-level donors' meeting held; "Moscow Resolution to stop TB" adopted.
- Anti-TB drugs were procured by federal government and supplied to all territories.

Action needed to expand /sustain DOTS

- Implement revised TB policy in the Russian Federation.
- Train staff and educate the general population.
- Develop a plan to improve TB diagnosis and treatment (standardized treatment regimens; treatment outcome monitoring system; patient adherence to treatment through DOT, social support).
- Address the MDR-TB problem (standardized drug susceptibility testing on a national surveillance basis; implement DOTS Plus in selected Centres of Clinical Excellence).
- Establish and maintain a federal system of drug supply.
- Develop funding mechanisms to support a long-term nationwide TB control plan.
- Introduce DOTS into the medical school curricula.

Partnerships

The Russian Federation has attracted many donors and partners in TB control who have provided support to the programme for the last six to seven years. The coordination of these efforts and activities has been identified as a constraint to unify the approaches of the different partners and to obtain reliable information on results. The Government has requested assistance from WHO in this matter and the country office plays a key role in mobilizing funds for Russian TB control and interagency coordination.

Major donors and partners include governmental agencies such as USAID, CDC Atlanta, DFID, World Bank, GTZ, and the IFRC and several NGOs such as Merlin (GB), FILHA (Finland), EPOS (Germany), PHRI (USA), and NLHA (Norway). These agencies and NGOs support the government in the restructuring of the health system, revising the TB control policies and strategies, and implementing DOTS, including financial support to drugs and equipment and social support to TB patients.

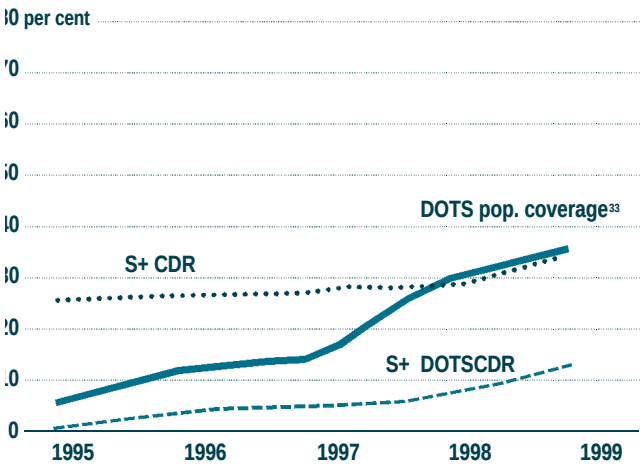
Financial estimates

The main cost estimates for strengthening TB control between 2001 and 2005 are available as part of a proposed World Bank loan of approximately US$ 100 million, which is designed to cover about 55% of the country. This is in addition to existing Federal and regional (oblast) budgets for the specialized TB dispensary system, which amounted to approximately US$ 90 million in 1999 (the full cost may be approximately US$ 120 million when building costs are included). Donors provided funding of approximately US$ 8 million in 1999. Cost estimates that show the total funds needed, the contributions available from the government and donors, and the resource gap need to be developed for those areas not covered by the World Bank loan.

SOUTH-EAST ASIA
Regional profile

1999 data

- Population: 1 508.2 million
- Countries and territories: 10
- High TB burden countries: Bangladesh, India, Indonesia, Myanmar, Thailand
- Estimated new cases of TB: 3 010 000 equivalent to 199.5 per 100 000 inhabitants
- Estimated new cases of smear-positive TB: 1 348 000 equivalent to 89.4 per 100 000 inhabitants
- Smear-positive cases notified: 485 790 equivalent to 36.0% of estimated cases
- DOTS population coverage: 35.9%
- Smear-positive cases notified under DOTS: 176 793 equivalent to 13.1% of estimated cases
- Smear-positive cases treated successfully under DOTS: 82 692 equivalent to 72.3%
- Smear-positive cases treated successfully under non-DOTS: 75 519 equivalent to 26.5%



Regional plan and partnership in SEARO

Most countries in the South-East Asia Region have prepared a national strategic plan for tuberculosis control in coordination with other departments and units in the ministries/departments of health and with the participation of multilateral and bilateral agencies. A regional strategic plan is in preparation following the Amsterdam conference that aims to cover 100% of the population with DOTS within five years, and to mobilize and unify national and international efforts.

Major financial partners are the World Bank, DFID, USAID, DANIDA, CIDA, AUSAID, Norway, and Japan. Other partners including KNCV also provide technical assistance.

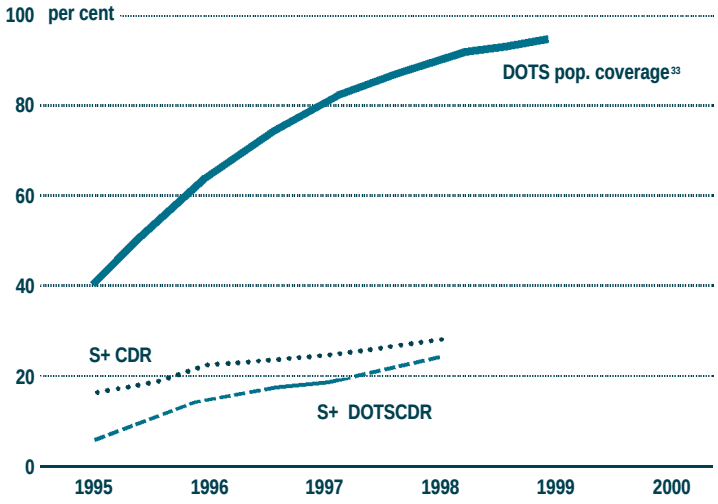
International courses in SEARO

SEARO held in 2000 an annual international training course on TB control, an inter-country course on leadership and strategic management, and an inter-country course on laboratory techniques for diagnosis and multidrug resistance.

Future needs to expand DOTS in high-burden countries in SEARO

- Develop five-year strategic plans for all Member countries followed by a regional strategic plan for 2001–2005 to expand and sustain DOTS.
- Mobilize partnerships for TB control.
- Establish a regional TB partners group.
- Strengthen capacity for diagnosis and treatment in Member countries through technical support and assistance with resource mobilization.

BANGLADESH



1999 data

- Population: 126.9 million
- Estimated new cases of TB: 306 000 equivalent to 241 per 100 000 inhabitants
- Total new cases notified: 79 339
- Estimated new cases of smear-positive TB: 138 000 equivalent to 108 per 100 000 inhabitants
- Smear-positive cases notified: 37 821 equivalent to 27.5% of estimated cases
- DOTS population coverage: 90%
- Smear-positive cases notified under DOTS: 34 047 equivalent to 24.7% of estimated cases
- Smear-positive cases treated successfully under DOTS: 26 828 equivalent to 80.1%
- Estimated new cases of TB with HIV co-infection: 0%
- Prevalence of MDR-TB in cases not previously treated: 0.9%

Overall health service

A major health sector-wide approach to health reform—the 1998–2003 Health and Population Sector Programme HPSP—integrated the National TB programme as part of the Essential Services Package. Health policy is to improve equity and accessibility to essential health services that include all essential public health interventions such as TB care. The positive impact of the health reform has enabled TB services to strengthen TB control and enhance the health services through appropriate cost-savings and improvements in the efficiency of service delivery.

TB planning status and constraints

The DOTS strategy was introduced in 1993 and now covers more than 95% of the population with excellent results in increasing success rates. The recent integration of TB in the Essential Services Package has succeeded in maintaining this high level of achievement, and has provided an opportunity for DOTS expansion and better population access to TB services.

The nationwide coverage of TB services is ensured through direct community participation; national NGOs such as the Bangladesh Rural Advancement Committee (BRAC) and DFB serve 40% of the population and cases.

The HSR process aims to include extension of TB partnerships to the private sector to ensure standardization of TB treatment. Private health care is a significant provider of services and the implementation of DOTS within the private sector is vital. Ensuring access to TB drugs is endangered by an increase in TB case detection.

Action taken to expand /sustain DOTS since Amsterdam

- DOTS strategy expanded to 95% of the population.
- Private health sector involved in some urban areas.
- Private practitioners trained in use of the DOTS strategy.

Action needed to expand /sustain DOTS

- Organize a programme review.
- Develop a plan to continue to strengthen the TB control component within the HSR.
- Prepare donor coordination through partners' and high-level political meetings.
- Extend partnerships to the private sector, starting with four major urban areas, to ensure standardization of treatment.
- Improve drug procurement procedures to ensure uninterrupted supply of quality TB drugs and proper buffer stocks at every level.
- Strengthen community education and social mobilization campaigns to continue to expand NGO and community participation in controlling TB.

Partnerships

Partnerships are a key component of Bangladesh's success in combining international collaboration with effective NGO involvement for DOTS delivery and national political commitment.

WHO leads overall technical support, which is complemented by NGOs. Technical partnership-building efforts have been established with WHO since the introduction of DOTS in 1993 and with RIT and NGOs since 1994.

The Government of Bangladesh has increased its alliance with the World Bank in its health sector reform. Support costs for TB have been partially shared recently with WHO, NGOs, UNICEF, USAID. CDC LIFE is a potential resource to support some activities on TB control.

Financial estimates

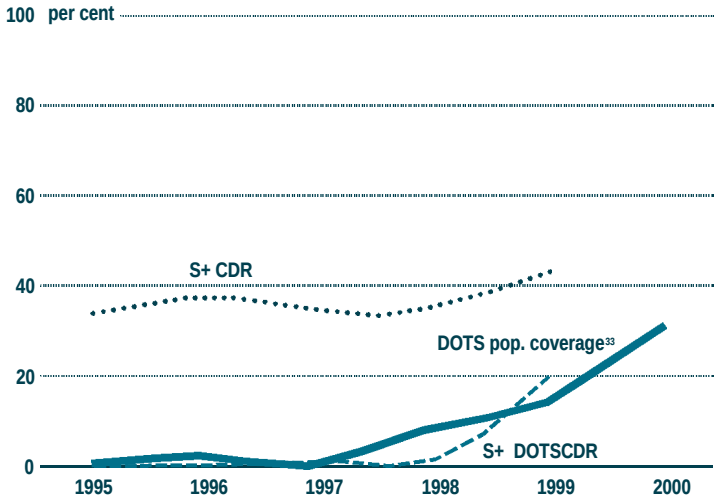
The budget for TB control specifically for the period July 2001–June 2002 is US$ 3.7 million, of which about US$ 3.6 million is for drugs and laboratory supplies. In addition, funding of US$ 0.4 million has been allocated for joint tuberculosis and leprosy control activities, such as programme management and supervision. Of the total of US$ 4.1 million, US$ 1.1 million is to be provided by the government, and US$ 3 million by donors. There is therefore no resource gap for drugs, laboratory supplies, programme management and supervision. It is estimated that the budget and funding shares will be similar in 2002–2003, but after 2003 when the current HPSP (Health and Population Sector Plan) ends, funding is uncertain.

Further work is required if cost estimates are to include all components of DOTS implementation, the costs associated with use of general health services, and the additional investments required to raise case detection and cure rates to target levels.

INDIA

1999 data

- Population: 998.1 million
- Estimated new cases of TB: 1 870 000 equivalent to 187 per 100 000 inhabitants
- Total new cases notified: 1 223 127
- Estimated new cases of smear-positive TB: 837 000 equivalent to 84 per 100 000 inhabitants
- Smear-positive cases notified: 349 770 equivalent to 41.8% of estimated cases
- DOTS population coverage: 14%
- Smear-positive cases notified under DOTS: 53 034 equivalent to 6.3% of estimated cases
- Smear-positive cases treated successfully under DOTS: 10 431 equivalent to 84%
- Smear-positive cases treated successfully under non-DOTS: 66 010 equivalent to 24.3%
- Estimated new cases of TB with HIV co-infection: 3%
- Prevalence of MDR-TB in cases not previously treated, Tamil Nadu State: 3.4%



Overall health service

India has 35 States/Union Territories comprising nearly 600 districts. State populations range from 0.07 to 170 million; district populations range from less than 0.1 to 9.5 million. State governments are primarily responsible for health care. Some national health programmes are supported by central level funds, such as family welfare, malaria, AIDS, leprosy, blindness, and TB.

One Deputy, Director-General of Health (DDG) supervises the Central TB Division that coordinates the TB control programme. A revised TB control strategy is being implemented in a growing number of districts (Revised National TB Control Programme (NTCP) districts) with the support of a World Bank loan. The rest of the districts continue with the previous strategy, with some modifications and partial support for strengthening.

The district is the basic demographic, economic, administrative, and political unit in India. One district encompasses 1 800 to 2 000 villages and has an average population of about 1.5 million. Health institutions generally include one district hospital in the headquarters town, about 10 Community Health Centres (CHC), about 40 primary Health Centres (PHC) per district and varying number of sub-centres. There are also district tuberculosis clinics, DTC and, in some districts, sanitoria.

India has a very active, unregulated medical private sector, with nearly half a million providers including allopathic, homeopathic, ayurveda and other traditional medicine, and non qualified providers.

TB planning status and constraints

India has the highest number of TB cases of all countries in the world. Through the RNTCP designed by the Government of India in 1993, TB control is back on the priority public health agenda. Large-scale DOTS expansion increased access to DOTS from 2% of the population in 1998 to 30% in 2000. At current rates, more than 400 000 patients will benefit from DOTS in India in 2001 and nearly half of the country's population will have access to DOTS by end 2001. Quality of diagnosis remains excellent and the success rate is 80%.

The RNTCP increased staffing at central, state, and district levels to strengthen managerial and monitoring capacity, ensuring that effective high quality TB services are maintained throughout the rapid expansion phase.

Major constraints to sustain effective TB control include the supervisory capacity at state level, the active private health sector providing poor quality diagnosis and poor results, the growing threat of the HIV/AIDS epidemic, and the spectre of MDR-TB. Lack of confidence in government. TB services due to poor results in the past and in non-DOTS areas is also a major constraint.

Action taken to expand /sustain DOTS since Amsterdam

- Major steps have been taken since the Amsterdam conference to sustain project quality and to expand rapidly the DOTS strategy together with health system development. Main efforts were focused on enhancing management and planning capacity at central and state levels.
- Major conference with NGOS held; partnerships are being promoted throughout the country.
- Successful strategies in some pilot areas have been developed to involve private hospitals, NGOs, and private practitioners, promoting innovative approaches for interaction.
- Research protocols developed on larger involvement of private practitioners, community volunteers, and NGOs and on TB and HIV/AIDS in addition to website and electronic connectivity projects.

Action needed to expand /sustain DOTS

- Establish a specific plan for DOTS expansion to cover the entire country, with timeline.
- Expand political commitment to sustain government funding.
- Continue to enhance managerial and supervisory capacity, particularly at state level.
- Engage in social mobilization and community participation to promote awareness, use of, and sense of ownership of, the DOTS programme.
- Improve drugs procurement procedure and TB drugs support through the GDF.

Partnerships

Partnerships are a key component of India's success in combining international and effective national partners for DOTS delivery with national political commitment.

Technical support is provided by WHO, including a network of 30 locally recruited supervisors who assist state and district officers to implement the programme. DFID and DANIDA support DOTS in one state each. CIDA and USAID also provide support for the programme. National technical partnership-building efforts have been established with national NGOs, community health volunteers, private sector, government employees' health services, armed forces, and railways. India is demonstrating how adequate resources can be effectively mobilized to address TB control as a public good.

Financial estimates

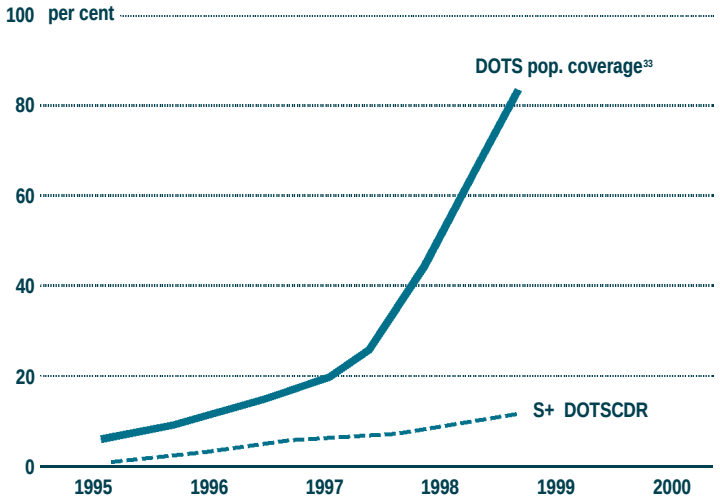
DOTS expansion is funded through regular government budgets, bilateral donors, and a World Bank credit for the period 2001–2003.

For 2004 and 2005, the contributions to be made by the Government, funds to be committed from other sources, and the resource gap are not currently defined. Existing estimates indicate that a total of approximately US$ 50 million is required for national DOTS coverage. The breakdown is as follows: US$ 20 million for diagnosis and case management, US$12 million for drugs, US$ 3 million for training, US$ 7 million for programme management, US$ 3 million for activities specifically designed to raise case detection and cure rates, and US$ 3 million for miscellaneous items.

INDONESIA

1999 data

- Population: 209.2 million
- Estimated new cases of TB: 590 000 equivalent to 282 per 100 000 inhabitants
- Total new cases notified: 69 064
- Estimated new cases of smear-positive TB: 265 000 equivalent to 127 per 100 000 inhabitants
- Smear-positive cases notified: 49 172 equivalent to 18.6 % of estimated cases
- DOTS population coverage: 90%
- Smear-positive cases notified under DOTS: 49 172 equivalent to 18.6% of estimated cases
- Smear-positive cases treated successfully under DOTS: 23 144 equivalent to 57.6%
- Estimated new cases of TB with HIV co-infection: 1%
- Prevalence of MDR-TB in cases not previously treated: NA



Overall health service

Health services in Indonesia strive to adopt a holistic approach that includes all sectors of society, stressing quality, equity, and affordable access to health services. Decentralization of decision-making for health is also taking place. Primary health care was seen as a route to achieving affordable universal coverage. Health policy is to improve equity and accessibility to essential health services that include all essential public health intervention such as TB care. Links and collaboration between the primary care services and private providers or paramedics remains limited despite more than half of the cases being detected in the private sector.

TB planning status and constraints

Indonesia adopted the DOTS strategy in 1994 and is preparing in 2001 its second five-year TB plan. Health sector reform provides an opportunity to broaden the involvement of many sectors of society in the fight against TB. DOTS expansion, however, has been too slow and only reaches a limited number of cases, although the success rate is over 80%.

The Gerdunas TB Movement is a TB alliance to create new partners to mobilize local resources in the long term and to help expand effective TB control. The National TB Steering Committee and its national expert committee are elements of this multisectoral movement that includes other health directorates, development sectors, NGOs, and the private sector and provides guidance for the development of integrated TB services.

As services become decentralized the shortage of skilled human resources at the periphery and at the centre becomes serious. A strong central unit is crucial for successful decentralization. The major issues to be addressed include the urgent need for skilled staff to train and supervise TB services in the 1100 hospitals of the country, quality laboratory diagnosis procedure, availability of quality TB drugs and a proper recording and reporting system.

Action taken to expand /sustain DOTS since Amsterdam

- Gerdunas TB Movement established to coordinate TB control, shared between four different health directorates.

Action needed to expand /sustain DOTS

- Major action is needed to boost TB control in Indonesia and expand DOTS.
- Strengthen the central unit team.
- Develop mid-term DOTS expansion plans in conjunction with the health sector plan.
- Enhance national and regional management and planning capacity through training of staff and laboratory technicians at all levels beginning with the central level.
- Arrange partners' meeting to coordinate donors.
- Improve TB drug procurement and management, the recording and reporting system, diagnostic procedures within referral laboratories, the quality assurance system for smear examination, and epidemiological surveillance.
- Enhance supervisory skills at district level.

Partnerships

National multisectoral partnerships at the central and peripheral levels provide an opportunity to better coordinate TB control closer to local decision-making stakeholders.

Overall external technical collaboration for the country is led by WHO and KNCV.

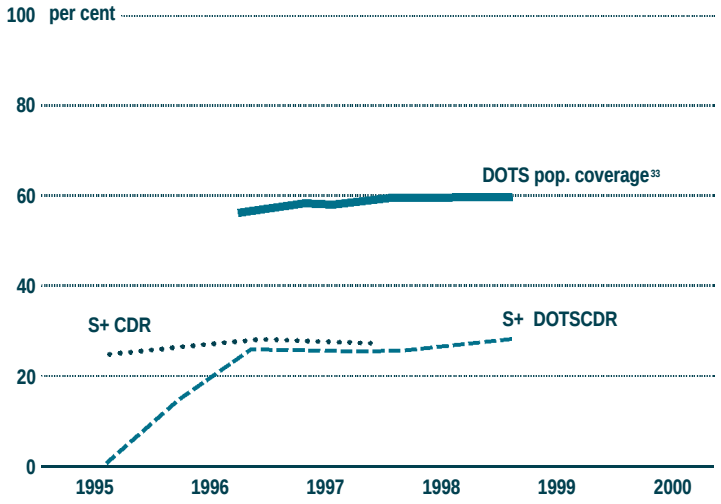
Indonesia receives support from AusAID for staff and TB supportive costs, from the Asian Development Bank for broad health strengthening, and from WHO and the Royal Netherlands Leprosy Relief Organization.

Financial estimates

Cost estimates for DOTS expansion to reach global targets for the period 2001–2005 are currently not available. These estimates are in the process of being developed, with assistance from WHO staff.

In 1999, the national TB programme budget was US$ 408 268, excluding staff and building costs; external funding was US$ 1.5 million.

MYANMAR



1999 data

- Population: 45.1 million
- Estimated new cases of TB: 76 000 equivalent to 169 per 100 000 inhabitants
- Total new cases notified: 19 626
- Estimated new cases of smear-positive TB: 34 000 equivalent to 76 per 100 000 inhabitants
- Smear-positive cases notified: 11 458 equivalent to 33.4% of estimated cases
- DOTS population coverage: 64%
- Smear-positive cases notified under DOTS: 11 458 equivalent to 33.4% of estimated cases
- Smear-positive cases treated successfully under DOTS: 8 501 equivalent to 84%
- Estimated new cases of TB with HIV co-infection: 5%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

Myanmar has a good health infrastructure and a large pool of well-educated and motivated health workers. Administratively there are 16 states and divisions, 55 districts, and 324 townships. A high-level interministerial policy-making body on health matters—the National Health Committee (NHC)—has been formed as part of policy reforms. Ministers of Health have identified TB as the second most important health priority after malaria.

TB planning status and constraints

The DOTS strategy was implemented in Myanmar in 1995 and rapidly expanded to cover 65% of the population in 2000. A five-year plan for phased expansion was developed in 1996. DOTS demonstration projects and rapid expansion up to 60% of the country followed during 1997, after extensive training. There has been limited progress since then, however, mainly due to lack of funds to procure anti-TB drugs. The current health system enables delivery of TB services. The unit of management for TB control are the township hospitals serving an average population of 130 000. Trained community volunteers carry out DOT from the various rural health centres.

Due to a lack of funds to procure drugs, DOTS is currently implemented in only 168 townships, while standard chemotherapy is provided to another 80. The remaining 91 townships do not follow national policy. WHO and UNDP have provided anti-TB drugs for the past few years on an annual ad hoc basis without sufficient quantity to constitute a buffer stock. Unless a solution is found, DOTS expansion will not occur and Myanmar will not be able to reach the targets for TB control.

Action taken to expand /sustain DOTS since Amsterdam

WHO has provided funds for replacing old monocular microscopes and initiated training and building of supervisory capacity of the national staff.

Action needed to expand /sustain DOTS

Given the current funding crisis, no expansion has been planned in 2000. The immediate strategy is to ensure that sufficient stocks of drugs are present in the DOTS townships. Until this situation changes, DOTS expansion should not occur. The main actions necessary to re-start DOTS expansion are:

- arrange a programme review;
- prepare a donors coordination meeting and high-level political meeting;
- conduct a sustainability study;
- engage in social mobilization.

Partnerships

WHO leads overall technical support for the country with monitoring by the IUATLD. The Japanese Foundation for AIDS Prevention (JFAP) is conducting research. Three national NGOs—the Myanmar Maternal and Child Welfare Association, the Myanmar Red Cross Society, and the Myanmar Medical Association—facilitate DOTS activities. Financial support is exclusively provided by UNDP for TB drugs and by WHO for TB drugs and programme support costs.

Financial estimates

Cost estimates for TB control, excluding the costs associated with use of general health services, are available for each year 2000–2004*. The total is US$ 6.9 million, an average of US$ 1.4 million per year.

The national contribution for 2001–2004 needs to be identified, as do the contributions to be provided by other partners and the remaining resource gap. The Government contributed US$ 0.4 million in 1999 so the gap may be approximately US$ 1.1 million per year.

It would be useful if the estimates identified the cost of strategies specifically designed to raise cure and case detection rates, and whether or not there is a need for any investments in general health services. It would also be useful if the estimates included the cost of TB programme staff.

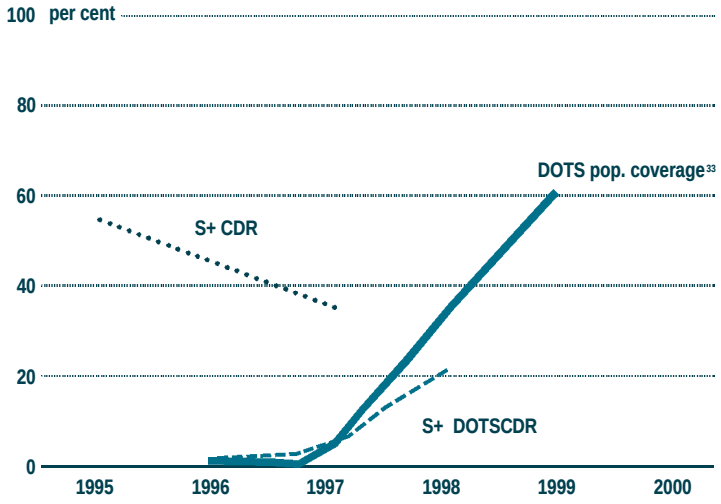
Estimated budget required for TB control activities, 2001–2004, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	0.8		0		
2. Drugs (including distribution costs)	3.7		0		
3. Training	0.5		0		
4. Programme management and supervision (excluding staff salaries)	1.1		0		
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.05		0		
6. Miscellaneous	0.8		0		
TOTAL	**6.90**	**≈ 2.0****	**0**		**4.9**

* see "Review of the National Tuberculosis Programme, Myanmar, and Future Plan to cover the whole country with DOTS (2000-2004)"

** based on 1998 and 1999 figures

THAILAND



1999 data

- Population: 60.9 million
- Estimated new cases of TB: 86 000 equivalent to 141 per 100 000 inhabitants
- Total new cases notified: 29 413
- Estimated new cases of smear-positive TB: 38 000 equivalent to 62 per 100 000 inhabitants
- Smear-positive cases notified: 14 934 equivalent to 39.7% of estimated cases
- DOTS population coverage: 59%
- Smear-positive cases notified under DOTS: 14 934 equivalent to 39.7% of estimated cases
- Smear-positive cases treated successfully under DOTS: 5 374 equivalent to 67.9%
- Estimated new cases of TB with HIV co-infection: 10%
- Prevalence of MDR-TB in cases not previously treated: 2.1%

Overall health service

The health infrastructure of Thailand is well developed. Curative services are offered at more than 900 provincial and district hospitals. In addition, there is a strong network of more than 8 000 health centres offering primary health care services. The private sector plays an important role mainly in urban centres. Future challenges for the government health services include the development of comprehensive financing mechanisms and the decentralization of administrative responsibilities under the ongoing health care reform projects.

TB planning status and constraints

In response to the threat to economic and social development posed by TB, there is strong political commitment to the implementation of the DOTS strategy within the Ministry of Public Health. The generally high proficiency of staff in the public health system has facilitated DOTS expansion. The programme was started in 1996, and population coverage reached 60% in the year 2000. This rapid and effective expansion has been possible due to an overall strengthening of the managerial and supervisory capacity of the programme at national, provincial, district, and village level combined with a comprehensive training and supervision programme.

The high political commitment resulted in a preservation of government resources for tuberculosis even during the severe economic crisis experienced after 1997.

A new five-year DOTS expansion plan 2002–2006 has been developed and included in the Health Care Reform Acts. Full DOTS coverage is to be reached by the year 2002 and TB services will be integrated in all health facilities. Actions are also focused on special groups such as the homeless and marginal populations. DOTS expansion in large urban areas remains a priority. The private sector in large cities strongly influences public opinion and treatment practices. A currently developed Urban TB Control project in Bangkok will promote collaboration with private hospitals and private practitioners through innovative approaches for interaction, such as provision of TB drugs against reporting and recording for use by the TB programme.

Major constraints to sustain effective TB control include the constantly rising number of TB cases attributable to the HIV/AIDS epidemic and the threat of a potential MDR-TB epidemic in areas with a high HIV/AIDS burden. Additional financial resources in areas where the DOTS strategy is newly implemented remain necessary. Operational research on TB Preventive therapy has been implemented in selected areas of Thailand.

Action taken to expand /sustain DOTS since Amsterdam

- Mid-term development plan 2002–2006 for DOTS expansion aiming to achieve full DOTS coverage and to integrate TB services as part of essential health services provided in all health facilities. This plan is included in the Health Care Reform Acts.

Action needed to expand /sustain DOTS

- Continue to raise political commitment, especially at provincial level, to ensure adequate resources for DOTS expansion.
- Develop Urban TB control in collaboration with the private sector.
- Implement operational research on TB-HIV/AIDS response.
- Extend the laboratory quality assurance system for microscopy examinations to all laboratories in DOTS areas.

Partnerships

WHO leads overall technical collaboration in Thailand. The CDC LIFE (Leadership and Investment in Fighting an Epidemic) initiative is a potential contributor for TB.

Some minor financial support is provided by the IUATLD for training and by WHO for operational research.

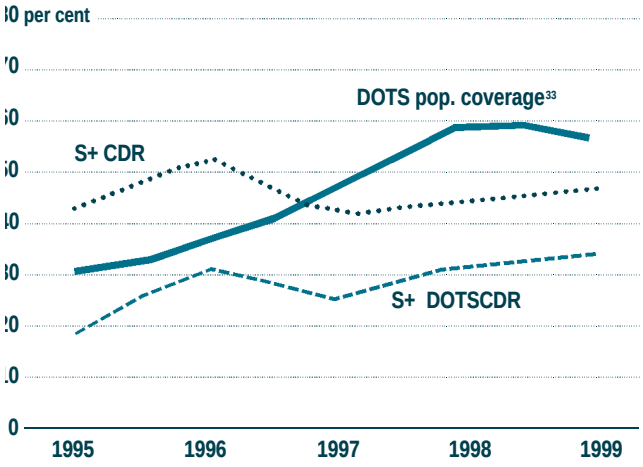
Financial estimates

The existing cost of TB control is approximately US$ 10 million per year, excluding the costs associated with use of general health services. The costs are entirely supported by the national budget. There is no financial gap for TB control in Thailand. When available, details regarding how cost estimates for 2001–2005 are linked to global control targets, and whether or not any investments in general health services are required, would be useful.

WESTERN PACIFIC
Regional profile

1999 data

- Population: 1 674.8 million
- Countries and territories: 37
- High TB burden countries: Cambodia, China, Philippines, Viet Nam
- Estimated new cases of TB: 1 877 000 equivalent to 112.1 per 100 000 inhabitants
- Estimated new cases of smear-positive TB: 843 938 equivalent to 50.4 per 100 000 inhabitants
- Smear-positive cases notified: 391 964 equivalent to 46.4% of estimated cases
- DOTS population coverage: 56.6%
- Smear-positive cases notified under DOTS: 255 679 equivalent to 33.4% of estimated cases
- Smear-positive cases treated successfully under DOTS: 255 679 equivalent to 95.1%
- Smear-positive cases treated successfully under non-DOTS: 31 876 equivalent to 75%



Regional plan in WPRO

A mid-term regional strategic plan 2000–2005 has been developed following the Amsterdam conference that emphasizes activities to expand DOTS, surveillance, laboratory services, supporting activities, and estimated budget requirements. Most countries have a national TB plan contributing to or incorporated into their respective national health policy plan.

Regional partnership in WPRO

A TB Technical Advisory Group (TBTAG) composed of international experts and government officers provides technical guidance to the WPRO Stop TB special project, reviewing and monitoring the regional plan and DOTS implementation. TBTAG proposes mechanisms for coordination among international partners to ensure adequate technical and financial support.

The regional ICC includes representatives from the World Bank, Japan, and USAID.

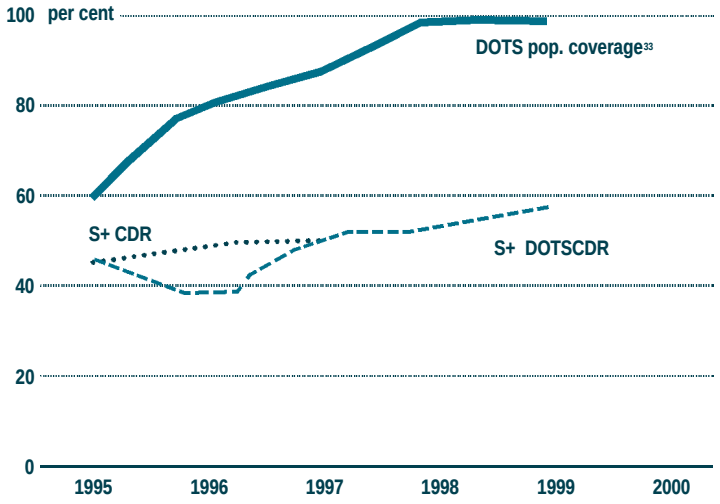
International course in WPRO

Four yearly international TB training courses are held in the Western Pacific Region: a TB management course is organized in Viet Nam by the IUATLD and KNCV, a TB research and epidemiology course is managed by USAID/CDC in Viet Nam, and the Research Institute of Tuberculosis holds a TB course and a laboratory course in Japan with JICA and WHO collaboration.

Future needs to expand DOTS in high-burden countries in WPRO

- Develop a plan of action in China following the high-level advocacy meeting sponsored by the State Council of China in December 2000.
- Consolidate and sustain government commitment in large countries.

CAMBODIA



1999 data

- Population: 10.9 million
- Estimated new cases of TB: 61 000 equivalent to 560 per 100 000 inhabitants
- Total new cases notified: 19 266
- Estimated new cases of smear-positive TB: 27 000 equivalent to 251 per 100 000 inhabitants
- Smear-positive cases notified: 15 744 equivalent to 57.4% of estimated cases
- DOTS population coverage: 100%
- Smear-positive cases notified under DOTS: 15 744 equivalent to 57.4% of estimated cases
- Smear-positive cases treated successfully under DOTS: 12 572 equivalent to 94.6%
- Estimated new cases of TB with HIV co-infection: 10%–15%
- Prevalence of MDR-TB in cases not previously treated: NA

Overall health service

For the last 10 years, Cambodia has been rebuilding a health system dismantled by war. The overall strategy of the re-building is to improve equity and accessibility to essential health services, including TB care. Since the public health infrastructure was very weak when DOTS was adopted in 1994, TB treatment was provided only in hospitals. The positive impact of the health reforms and re-building is demonstrated in the fact that in the year 2000 core primary health care services were available in 73 operational districts through 67 referral hospitals and approximately 500 health centres. The strengthening of the health network will allow TB services to become progressively more decentralized to peripheral health centres, improving access for all. The private health sector meanwhile is also expanding in Cambodia, offering opportunities for the further expansion of DOTS to be explored.

TB planning status and constraints

A large TB central unit composed of 11 full- and part-time medical doctors operates from the only lung health hospital in the country. A multisectoral partnership, the "National Committee against Tuberculosis", has been established and is chaired by the Prime Minister. National TB policies are standardized through technical guidelines on TB case management and laboratory procedures. New five-year (2001–2005) policies and strategies for TB control along with a new national health framework will be released soon.

The availability of DOTS is expanding as the health system itself expands. DOTS is available in all 24 provinces and municipalities. It is planned that within four years TB services will be available in 85% of 940 health centres (one facility per 10 000 population) being developed/built throughout the country in addition to 75 national, referral and NGO hospitals. Through active DOTS expansion, TB services are already available in around 220 facilities. In addition, home-based TB care is available for most of the patients living in the capital city. The primary constraint being faced amidst the rapid expansion of the health system is the lack of staff capacity and the abundance of competing demands. In addition, staff salaries in the public sector remain low.

The NTP is adapting to the rapid changes and expansion of the health system. The inclusion of adequate training on TB control is being carefully considered within the training package on essential services.

Strong political commitment for TB control has translated into an increase in the national budget for TB drugs. International partners have supplemented the national budget, although Cambodia has committed to fund increasingly more of the overall drug needs in the years to come. Addressing concerns of a limited drug supply, the Government recently secured a one-year buffer stock of TB drugs. It is anticipated that drug needs will continue to increase due to improved case detection and a worsening TB/HIV co-epidemic.

Action taken to expand /sustain DOTS since Amsterdam

The Amsterdam conference came at a crucial time for Cambodia, and major steps have been taken to sustain high programme performance:

- DOTS has been expanded to 150 health centres; the reporting and recording system is under revision;
- drug resistance surveillance has started and a TB prevalence survey is under preparation;
- the World Food Programme will continue its support for the next three years;
- a new US$ 8 million TB centre funded by the Government of Japan has been inaugurated;
- various research on TB/HIV has begun;
- an interagency meeting of the STOP TB collaboration committee was held in the capital city, Phnom Penh.

Action needed to expand /sustain DOTS

- Continue to strengthen the TB control component within the HSR process, ensuring that TB is reflected as a priority at the operational district and health centre levels.
- Train health centre staff to implement DOTS at health centre and community levels.
- Train a core group of managers and laboratory technicians at all levels of the system to address turnover of staff and lack of qualified staff.
- Strengthen community education in areas where TB services have been established.
- Strengthen collaboration between TB and HIV/AIDS services.

Partnerships

Cambodia has combined international technical and financial cooperation with highly effective national political commitment and health sector development. Links have been established with WHO to ensure technical and financial coordination since the inception of the DOTS strategy in 1994. More recently, JICA, with support from RIT and JATA, became the leading technical advisory agency to the NTP with a five-year technical assistance project (1999-2004). Cambodia has also established good donor coordination with the World Bank for TB drugs and operations, the World Food Programme for food assistance to TB patients, the Government of Japan for building a national TB centre, and various NGOs for technical assistance and other support especially at hospital and district/ community levels.

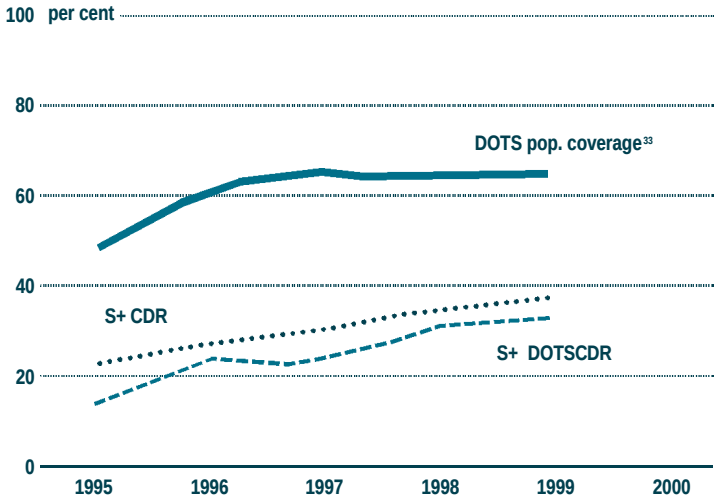
Financial estimates

Cost estimates for the TB programme are available for the period 2001–2004. The total is approximately US$ 10 million, an average of US$ 2.5 million per year. In addition, the World Food Programme provides food worth approximately US$ 1 million per year. Extensive review and discussions on financial assistance are being carried out in collaboration with all major donor agencies in the first half of 2001. There will be no financial gap for DOTS expansion including drug supply, if routine training and supervision can be maintained by the governmental budget and a World Bank loan.

CHINA

1999 data

- Population: 1 266.8 million
- Estimated new cases of TB: 1 300 000 equivalent to 103 per 100 000 inhabitants
- Total new cases notified: 460 169
- Estimated new cases of smear-positive TB: 584 000 equivalent to 46 per 100 000 inhabitants
- Smear-positive cases notified: 212 426 equivalent to 36.3% of estimated cases
- DOTS population coverage: 64%
- Smear-positive cases notified under DOTS: 188 525 equivalent to 32.3% of estimated cases
- Smear-positive cases treated successfully under DOTS: 183 555 equivalent to 96.6%
- Estimated new cases of TB with HIV co-infection: 0%
- Prevalence of MDR-TB in cases not previously treated, Henan Province: 10.8%; Guangdong Province: 2.2%; Shandong Province: 5.0%; Zheijiang Province: 2.0%



Overall health service

The three-tier primary health care system is in place in the rural areas with health units at the country, township, and village levels. Villages have simple clinics staffed by village doctors, townships have a clinic or a small hospital, and counties have several hospitals. In urban areas, the health system is dominated by hospitals of various sizes. Outpatient departments of the hospitals serve as the entry point for patients seeking primary care. Less than 20% of patients have insurance coverage: 80–90% of patients pay out-of-pocket for medical expenses. The public health service is underfunded. Patients therefore have to pay for essential public health services such as childhood immunization.

TB planning status and constraints

The national TB control plan 2001-2010 will unify and harmonize the three present modes of TB control. The plan aims to nearly triple the current case detection rate up to 70% by 2010, keeping the same high rate of treatment success. DOTS will be expanded to 90% of the country within five years through standardized National TB policies.

Currently, the first mode of TB services deliver the DOTS strategy with free TB drugs for infectious TB cases, supported through a World Bank loan until mid-2001 for half of the country. The second TB services mode is the "Promoting and Strengthening TB Control Project" funded by the Government, which covers a population of 160 million with a modified DOTS strategy. The amount of fees paid by patients is based on socioeconomic status. The third mode covers the remainder of China's 480 million people without a well-defined strategy.

Action taken to expand /sustain DOTS since Amsterdam

Major steps have been taken since the Amsterdam conference to sustain high-performing projects and to expand the DOTS strategy to the entire country together with health system development matters.

- High-level advocacy meeting held on TB (sponsored by the State Council and chaired by the Vice-Premier with participation of more than 30 ministries; broadcast by videoconference to all provinces as well as some prefectures, cities, and counties).
- Central government commitment of funds to support TB and request further support from every governor and leader at all levels of government.

- National TB control plan 2001-2010 released by State Council.
- A new World Bank loan with DFID contribution is being planned and will likely cover more than half of the country, especially in poor areas, beginning sometime in 2002.
- The Government of Japan is likely to approve grant aid, primarily to support TB drugs for poor areas, beginning in 2002.

Action needed to expand /sustain DOTS

- Develop a national implementation plan to expand DOTS.
- Ensure sufficient governmental funding from provincial and lower levels of government.
- Strengthen the central TB control unit by providing the needed human and financial resources.
- Train a core group of programme managers, especially at the provincial level, on how to manage a TB control programmeand establish an Interagency Coordination Committee.

Partnerships

China has combined growing national political commitment with international technical and financial cooperation. WHO has provided overall technical collaboration since inception of the World Bank loan project in 1991 and has posted one TB expert in the country since late 1999. KNCV has participated in a regular joint World Bank-WHO monitoring mission. The IUATLD supports the Chinese Anti-TB association. MSF, DFB, and World Vision are supporting projects at county level. As new partners provide their support, China is working to establish donor coordination.

Financial estimates

Detailed financial estimates have been prepared. The total cost of DOTS implementation for the period 2001-2005 is approximately US$ 250 million (average US$ 50 million per year), excluding staff and building costs associated with the specialized TB dispensary system. When these costs are included, the total cost is approximately US$ 88 million per year. Of the US$ 250 million required, central government funding (excluding loan funds) of about US$ 4.8 million per year has already been committed, as have donor funds of about US$ 3 million per year. Staff and buildings are funded at provincial level. This means that the resource gap is about US$ 42 million per year at present. However, further funds are expected to be available through a World Bank loan, and contributions from provincial governments, both of which are currently being discussed.

Estimated budget required for TB control activities, 2001–2005, excluding staff and building costs, US$ millions

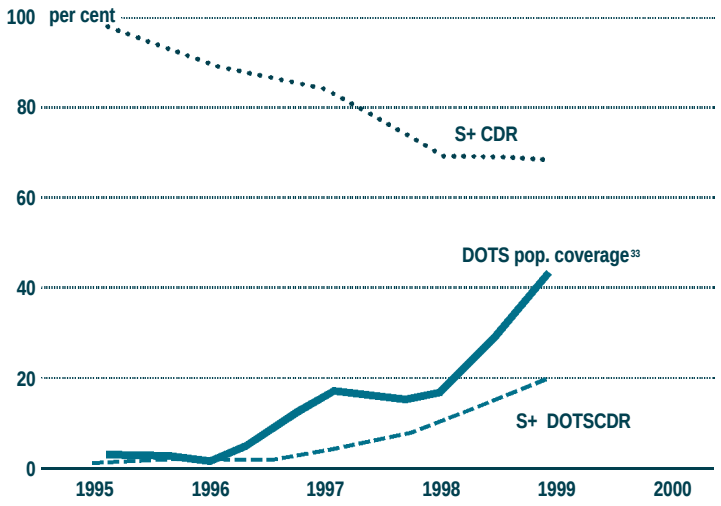
Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets*	Loan funds		
1. Diagnosis and case management	37.2	6.8			
2. Drugs (including distribution costs)	44.3	11.4			
3. Training	22.2				
4. Programme management and supervision (excluding staff salaries)	41.2	0.5			
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	30.0	??			
6. Operating costs of dedicated TB facilities (mainly equipment)	74.8	??			
7. Miscellaneous	–	??			
TOTAL	**249.7**	**24.1**		**16**	

*central government funds only. Further funds are expected from provincial governments.

PHILIPPINES

1999 data

- Population: 74.5 million
- Estimated new cases of TB: 234 000 equivalent to per 100 000 inhabitants
- Total new cases notified: 145 807
- Estimated new cases of smear-positive TB: 105 000 equivalent to 141 per 100 000 inhabitants
- Smear-positive cases notified: 73 373 equivalent to 69.8% of estimated cases
- DOTS population coverage: 43%
- Smear-positive cases notified under DOTS: 20 477 equivalent to 19.5% of estimated cases
- Smear-positive cases treated successfully under DOTS: 7 576 equivalent to 84.4%
- Estimated new cases of TB with HIV co-infection: 0%
- Prevalence of MDR-TB in cases not previously treated: NA



Overall health service

The Philippines has been actively reforming many of its social programmes since 1992. HSR has clearly delineated the role of the central, regional and provincial governments to draw on the comparative advantage of each in delivering quality health care. The central level of the TB control programme is responsible for overall programme management including the formulation of technical norms, providing technical support and drug procurement. The regional level is responsible for coordination with and technical support to provincial governments. The central and regional levels of the TB programme have been working closely with provincial governments to ensure the successful implementation of DOTS and regular drug supply at the lower levels. Provinces are beginning to take ownership for TB as a priority public health issue and have demonstrated political commitment to expanding DOTS throughout the country. In 2000, the budget for TB drugs was shifted to the regional level. The overall reforms have recently focused on the Department of Health, leading to a reengineering of the departments operations and a downsizing of personnel. This has resulted in a decrease in the number of staff working on TB at the central level.

TB planning status and constraints

DOTS was adopted in 1996 and since then DOTS coverage has increased from less than 15% to an estimated 60% by the end of 2000. Treatment success rates are reaching 85%. Plans for TB control therefore focus on further expanding DOTS to the remainder of the country, increasing case detection, and maintaining quality results. The TB control programme has proven to be dynamic and flexible as it continually adapts to the changing health system environment and the need to continue growing. The programme has stimulated ownership and commitment for TB control among health workers of all levels by: a) producing various technical manuals that target the different levels of the health system; b) launching an effective advocacy campaign that promotes ownership of the TB burden by all; and c) seeking community participation and using social mobilization to promote the allocation of local resources for TB control and foster ownership at the "barrangay" [peripheral] level. Through this process, TB was named as one of the nation's five priority diseases. In addition, the programme underwent an active consensus process to move from a policy of passive to active case-finding and to standardize the TB control strategy.

The primary constraints to the continued expansion of DOTS are the downsizing of the central level and weak programme monitoring.

Actions taken to expand /sustain DOTS since Amsterdam

The Amsterdam conference stimulated additional government commitment and resulted in an increase in the national budget for TB drugs and control activities, specifically:

- the national budget has been doubled for NTP activities;
- financing has been secured for free TB drugs for 100% of smear-positive patients (funds from regional and provincial levels and with assistance from the World Bank);
- DOTS has been expanded to 60% of the population;
- JICA jas agreed to support the NTP's plan to strengthen the laboratory quality control network.

Action needed to expand /sustain DOTS

- Strengthen the regional level to provide technical assistance to provinces for expanding DOTS.
- Establish a multi-year budget system to ensure adequate financing for TB drugs.
- Develop a public/private mix model for DOTS delivery; enhance collaboration between private physicians and the NTP.
- Continue and strengthen partner collaboration through the Inter Agency Coordinating Committee.
- Strengthen operational research capacity.

Partnerships

The Philippines has used partnerships to strengthen the programme and support DOTS expansion. Overall external technical collaboration is led by WHO. Other external technical support from JICA, World Vision, KNCV, AND CDC/DTBE has helped to maintain technical quality during the expansion phase. The Philippines Coalition Against TB, an NGO and private sector group of thirty entities, has helped to reach consensus for TB control especially among the private sector and to mobilize more sustainable local resources.

The main funding partners are the World Bank, CIDA, JICA, WHO, and USAID.

Financial estimates

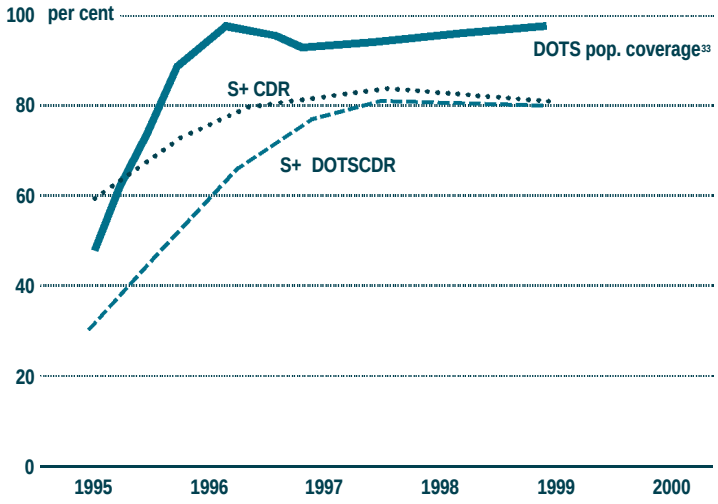
Cost estimates for the period 2000–2004 broken down by year are available as part of the project "Universal DOTS in 2004". The total required is about US$ 13 million per year. The estimated resource gap is US$ 1-2 million per year.

It would be useful to clarify whether the budget covers the costs associated with use of general health services as well as the costs of the national TB programme, and to identify which types of financial inputs are included.

Estimated budget required for TB control activities, 2001–2004, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	7.5				
2. Drugs (including distribution costs)	55.6				
3. Training	0.05				
4. Programme management and supervision (excluding staff salaries)	0.4				
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	0.1				
6. Miscellaneous	1.3				
TOTAL	**64.9**				**5–10**

VIET NAM



1999 data

- Population: 78.7 million
- Estimated new cases of TB: 149 000 equivalent to 189 per 100 000 inhabitants
- Total new cases notified: 88 879
- Estimated new cases of smear-positive TB: 67 000 equivalent to 85 per 100 000 inhabitants
- Smear-positive cases notified: 53 805 equivalent to 80.4% of estimated cases
- DOTS population coverage: 98%
- Smear-positive cases notified under DOTS: 53 561 equivalent to 80.1% of estimated cases
- Smear-positive cases treated successfully under DOTS: 48 892 equivalent to 92.6%
- Estimated new cases of TB with HIV co-infection: 1%
- Prevalence of MDR-TB in cases not previously treated (1996): 2.3%

Overall health service

Viet Nam has a well-developed health infrastructure. The basis of this structure is formed by the over 10 000 commune health centres, each serving a population of approximately 8 000. Viet Nam has about 850 government hospitals and about 27 000 doctors and 46 000 assistant doctors. In recent years the private sector has developed fast, in the urban centres in particular. In 1995 Viet Nam had about 15 000 registered private practices. The challenges for the Government are to expand health services to the remote areas mainly inhabited by minority groups comprising some 10% of the total population of Viet Nam, to modernize and rehabilitate the health infrastructure in the rest of the country, and to regulate the fast developing private sector.

TB planning status and constraints

Viet Nam is one of the few high TB burden countries to have achieved WHO targets on case-finding and treatment success within the context of a low GNP per capita. During the progressive implementation of the DOTS strategy from 1985 until the present day, more than half a million infectious TB cases have been removed from the community and about eight million new infections have been prevented. High political commitment has translated into TB control being given high priority and, subsequently, allocation of government resources for TB, including a World Bank loan ensuring drug supply.

The impressive results of the DOTS strategy have been possible as a result of the guidance by the overall strengthening of the managerial and supervisory capacity of the programme at national, provincial, district, and village level combined with a high degree of social organization and community-development mechanisms within communes. The programme uses both ambulatory DOT as well as hospitalization during the intensive phase of treatment.

Major constraints to sustain effective TB control include the rapidly evolving but underregulated private health sector, the growing threat of HIV/AIDS and the spectre of MDR-TB. One major constraint and opportunity for the future is to develop sustainable quality services for TB control within an emerging HSR process, taking advantage of sophisticated social organization and a highly effective TB programme.

Action taken to expand /sustain DOTS since Amsterdam

The recent NTP development plan 2000–2004 has embarked Viet Nam on an ambitious major challenge to halve TB incidence and prevalence by 2015. The new plan focuses on maintenance of the present system, enhancing management and planning capacity at all levels, improving epidemiological surveillance, and developing strategies to cope with new challenges such as cooperation with the private sector and reaching people in remote areas.

Viet Nam maintains effective high-quality TB services through good donor coordination and long-term resource mobilization. Viet Nam has increased its alliance with the Royal Netherlands Government in 2000.

Action needed to expand /sustain DOTS

- Develop sustainable quality services for TB control within an emerging HSR process.
- Include the private health sector in the alliance against TB to avoid stagnation of notification and risk of shifting activity to the private sector.
- Maintain high-quality TB services in large urban populations with increasing risk of HIV/AIDS and MDR-TB.
- Bring effective TB control to isolated and remote communities and ethnic minority groups.
- Maintain highly effective management of TB drugs.

Partnerships

A distinguishing aspect of TB control efforts in Viet Nam has been effective international partnerships combined with national political commitment. Overall external technical collaboration is led by KNCV; WHO is involved in the coordination of specific issues such as drug resistance surveillance. The US Centers for Disease Control and Prevention has a special interest in research. The Viet Namese alliance with financial funding partners has helped to establish a model programme thanks to the Royal Netherlands Government and the World Bank support.

Financial estimates

During the initial ten-year period, the DOTS strategy was developed gradually to half of the country with modest external financing. From 1996 onwards, dynamic donor coordination succeeded in mobilizing additional resources to develop quality services for TB control countrywide. The total estimated requirement for TB control in Viet Nam is approximately US$ 6 million per year. Available national and international funds for TB are approximately US$ 5 million per year, with about US$ 4 million from regular national budgets and a World Bank loan, and approximately US$ 1 million per year from donor funds. The resource gap is about US$ 1 million per year.

Estimated budget required for TB control activities, 2001–2004, US$ millions

Cost item	Total budget	Government contribution		Donor funds pledged	Gap
		Regular budgets	Loan funds		
1. Diagnosis and case management	4.1	0.6	0	1.3	2.2
2. Drugs (including distribution costs)	17.7	7.1	9.5	0	1.1
3. Training	1.2	0.25	0.35	0.5	0.1
4. Programme management and supervision (excluding staff salaries)	1.8	1.35	0	0.3	0.1
5. Activities specifically designed to raise case detection and cure rates, excluding those already identified above e.g. public/private strategy	3.0	1.4	0	0.3	0.1
6. Miscellaneous	1.8	0.02	0.65	1.0	0.1
TOTAL	**29.6**	**10.8**	**10.5**	**4.6**	**3.7**

Annexes

Annex 1

- Conclusion of the Cairo workshop to accelerate DOTS expansion: main areas of work and next steps

Annex 2

- Summary of existing status of cost estimates

Annex 3

- Sources of data and assumptions used in making cost estimates, by country

Annex 4

- Basic health indicators, TB/HIV, and health sytems indicators

Annex 1—GLOBAL DOTS EXPANSION PLAN

Conclusions of the Cairo workshop to accelerate DOTS Expansion: **main areas of work and next steps—Cairo, Egypt, 20–22 November 2000**

Main areas of work

The Cairo meeting identified nine key areas of work:

- To develop as a matter of priority a five-year mid-term plan (including a detailed budget) to expand the DOTS strategy nationwide within the existing health system and in conjunction with health sector reform in the 10 countries that have not yet developed a plan.
- To increase political commitment at central and, most importantly, at intermediate level to secure sufficient human resources and adequate national budgets for all components of TB control.
- To enhance national and international partnerships.
- To engage in social mobilization to strengthen partnership-building efforts and to attract local partners, including private practitioners, to control TB with a national strategy.
- To improve capacity to provide TB services through training of staff and laboratory technicians in collaboration with medical and health staff.
- To improve TB drugs procurement and management as well as TB drugs support through national and external partner coordination, including use of the GDF.
- To develop diagnostic procedures with the laboratory network and referral laboratory services to provide a quality assurance system for smear examination.
- To strengthen collaboration between TB and HIV/AIDS services and develop new strategies.
- To develop operational research to improve TB control.

Next steps

Seven next steps agreed at the Cairo meeting are considered milestones for future progress in TB control:

- Establish a Working Group on DOTS Expansion under the umbrella of Stop TB .

  The Working Group on DOTS Expansion will increase resources for TB control by involving new partners, fostering and maintaining political commitment for health issues affecting the poor, and stimulating social demand for effective TB programmes. The working group will provide a platform for coordination of activities and resource allocation for the various partners. WHO has agreed to chair the working group.

- Establish a Working Group on TB/HIV under the umbrella of Stop TB .

  The Working Group will promote the ability of health systems to deliver the interventions that will lead to a reduction in the burden of TB in high HIV prevalence populations. It will provide a forum for the coordination of activities.

- Develop the GDEP for TB control as part of the overall health system to achieve global targets on case-finding and success rate.

  The GDEP is a template to allocate the international resources mobilized through the massive effort against diseases of poverty. A sound, clear, strategic GDEP will allow donor agencies to

invest their funds in a rational and coordinated fashion in order to contribute effectively to solve a major public health problem.

- Develop or strengthen a regional mid-term strategic plan for TB control in the six regions of WHO.

  The regional strategic plan emphasizes activities to expand DOTS in the context of health reform processes. The plan covers support activities in all countries of all regions. Regional and inter-country activities complement national efforts, allow the development of expertise through observation of programmes in other countries, and facilitate support and collaboration with countries having smaller populations or smaller numbers of TB cases mainly for management training and technical support.

- Establish an Interagency Coordination Committee to support the regional strategic plan.

  In each region, the strategic plan is developed with partners to organize their efforts for TB control. In order to coordinate activities, identify actions to be supported, and secure support regions convene an interagency coordination committee (ICC).

- Develop or strengthen a mid-term plan for TB control in all 22 high-burden countries, including financial analysis with the collaboration of technical agencies as needed.

  A comprehensive five-year national plan to expand DOTS and strengthen TB control will ensure provision for effective TB control using a variety of approaches to implement DOTS according to the TB burden and the specific situation at national level. The plan will also include financial requirements, the availability of resources, and identify funding gaps.

- Establish country-based partnership mechanisms to support national plans to control TB .

  The full participation of partners at national level will ensure not only technical and financial support but also strengthen political commitment and the long-term stability of efforts to control tuberculosis. Partner coordination is essential to ensure the best use of resources in support of the national control programme. A careful analysis of essential needs and appropriate use of resources must be made to ensure that funds are used effectively, that external resources are additional to available national funds, and that the chosen interventions are cost-effective and sustainable for the country in the long term.

Annex 2—SUMMARY OF EXISTING STATUS OF COST ESTIMATES[1]

Country	Total estimated cost per year (p.a.) according to existing estimates, US$ millions (approx. estimates when all costs included[1,2])	Government contribution (including WB loan funds) p.a., US$ millions	Donor funds pledged p.a., US$ millions	Resource gap p.a., US$ millions	Implied cost per patient in 2000, US prices[3]	Cover period 2001–2004(5) including breakdown by year	Include only TB programme specific costs	Include all financial inputs[4]	Include all components of DOTS and a breakdown by component	Costs explicitly linked to achieving global targets	Allow for cost of treating sm– and extra-pulmonary (EP) patients
India	50 for 2004–2005 (100)	??	??	??	39–44 (78)	2004, 2005	Yes	No	Yes	Yes	Yes
China	88 (88)	43	3	42	220	Yes	No[5]	Yes	Yes	Yes	Yes
Indonesia	?? (9–89)	??	??	??	(215)	NA	NA	NA	NA	NA	NA
Bangladesh	4 (6–17 or 9–26)	1	3	0	19–55 (78–121)	2001–2003 only	Yes	No	No	No	Yes
Pakistan	4 (7–15 or 11–23)	2	??	2	21–45 (78–121)	2001–2003 only	Yes	??	Yes	??	Yes
Nigeria	8 (8–36)	3	5	0	46–413 (200–413)	Yes	Yes	Yes	Yes	No	Yes
Philippines	13 (??)	9	2	2	81–83	Yes	Yes	??	Yes	??	??
South Africa	?? (170 in 1998)	??	??	??	(1 325)	NA	NA	NA	NA	NA	NA
Ethiopia	6.5 in 2001 (7.5–13.5)	0	4.5	2	94 (108–121)	2001 only	Yes	No	Yes	No	Yes
Viet Nam	6 (12–18)	4	1	1	57 (117–177)	Yes	Yes	No	Yes	Yes	Yes
Russian Fed.	≈ 150–170 for whole country	≈ 140	??	??	1 235–1 400	partially[6] (WB loan)	Yes	Yes	Yes	Yes	Yes
DR Congo	10 (??)	??	1.5	8.5	110–170	Yes	Yes	No	partially	??	Yes
Brazil	15 at federal level (??)	15	??	0	167–178 (??)	Yes	Yes	??	Yes	??	Yes
UR Tanzania	5 (10–11)	??	??	1	76–103 (155 sm+, 40 sm–/EP)	Yes	Yes	??	??	??	Yes
Kenya	5 (15.5)	2	0.5	2.5	90–110 (257–314)	Yes	Yes	Yes	Yes	Yes	Yes
Thailand	10 (10–24)	10	??	0	168–631 (401–631)	No[7]	Yes	Yes	??	??	Yes
Myanmar	1.5 (??)	0.4	??	1	26–102 (??)	Yes	Yes	No	Yes	partially	Yes
Afghanistan	2 (??)	0	??	2	38–730 (??)	Yes	Yes	Yes	Yes	partially	Yes
Uganda	2 (5–10)	0.8	0.8	0.5	44–72 (242–446)	2001–2002 only	Yes	No	Yes	No	Yes
Peru	5 (20)	5	0	0	114 (457)	Yes	Yes	Yes	Yes	Yes	Yes
Zimbabwe	?? (11)	??	??	??	?? (250)	NA	NA	NA	NA	NA	NA
Cambodia	3 (4–8)	??	??	0	74–177 (153–283)	Yes	Yes	No	Yes	Yes	Yes
ALL	388–408 + ?? (674.5-874.5)[8]	235+??	21.5+??	64.5+??	19–1 400	partially	Yes except for China	partially	partially	partially	partially

1 For explanation of sources and assumptions used to make estimates in (), see Annex 3; ranges as explained in note 2

2 Ranges reflect two different CDRs for estimated 1998 caseload—one the existing CDR, the other an overall CDR of 70%; ranges in () also reflect alternative estimates of the cost per patient treated in () in column 6; where a single figure is presented it means the existing CDR is ≥ 70%, or costs have been explicitly linked to the number of cases to be treated

3 i.e. total estimated cost divided by number of patients. Ranges before () reflect alternative CDRs as explained in note 2, where numbers to be treated with specified resources are currently not identified; single figure before () means numbers of patients to be treated are specified or CDR of ≥ 70% already achieved. Ranges in () reflect figures used to calculate total estimates in () in column 2

4 i.e. staff, buildings, equipment, vehicles, supplies, equipment. The main exclusion where "No" is entered is staff costs

5 Estimates include all costs—both those associated with the specialized TB dispensary system and the costs associated with use of general health workers (e.g. village doctors) for DOT

6 Other answers therefore apply to areas covered by the World Bank loan only, unless specified

7 Entries in subsequent columns based on data available for previous years – NA = Not applicable (NA written if no cost estimates available at present)

8 i.e. 633–833 + ?? of at least 41.5 (based on subset of costs for Philippines, DR Congo, Brazil, Myanmar, Afghanistan)

Annex 3—SOURCES OF DATA AND ASSUMPTIONS USED IN MAKING COSTING ESTIMATES, BY COUNTRY

India

Sources of data: NTP and WHO staff

Assumptions/major results used: US$ 50 million per year estimated to be required for countrywide DOTS expansion does not include the costs associated with use of general health services (e.g. clinics) used for DOT. Cost of DOT visits estimated based on fact that US$ 50 million allows about US$ 40 per case, that 42 DOT visits are required, and that the cost per DOT visit is about US$ 1. Thus government contribution through general health service funding amounts to about US$ 50 million.

China

Sources of data: Ministry and WHO staff, detailed costing estimates

Assumptions/major results used: Used detailed country estimates, plus Ministry of Health estimate that the cost of operating dedicated TB facilities at county, prefectural and provincial level (the three main administrative levels in the country) is about US$ 38 million per year.

Indonesia

Sources of data: Costing study (Sawert, unpublished WHO Report, 1995)

Assumptions/major results used: Average cost per case US$ 184 in 1995 costing study, which is US$ 215 in 2000 US$. Implied difference between (a) total costs at existing CDR and (b) government TB budget plus donor funding plus gap in 1999 allocated to government regular budget contribution through general health services; additional implied costs with higher CDR allocated to unknown distribution.

Bangladesh

Sources of data: Questionnaires submitted to WHO; unpublished costing study

Assumptions/major results used: Cost per patient treated for all provider costs US$ 69-107 (depending on whether clinic or community-based care is used) in 1996–1997 US$, equivalent to US$ 78-121 in 2000 US$. Implied difference between (a) total costs at existing CDR and (b) government TB budget plus donor funding plus gap allocated to government regular budget contribution through general health services; additional implied costs with higher CDR allocated to unknown distribution.

Pakistan

Sources of data: 3-year provincial plans

Assumptions/major results used: Assumed that cost per patient treated, when all costs are considered, is as for Bangladesh. Implied difference between (a) total costs at existing CDR and (b) government TB budget plus donor funding plus gap allocated to government regular budget contribution through general health services; additional implied costs with higher CDR allocated to unknown distribution.

Nigeria

Sources of data: Country plan 2001–2005

Assumptions/major results used: Plan figures for Table 1; for Table 2, assumed that full cost of treating a TB case is US$ 200—this is fairly conservative for Africa.

Philippines

Sources of data: Questionnaires submitted to WHO; project document “Universal DOTS in 2004”

Assumptions/major results used: Funding identified in questionnaire and project document (US$ 81–83 per patient, depending on the CDR) sufficient to cover all costs—seems justified given most DOT is on an ambulatory care basis and provided by community volunteers.

South Africa

Sources of data: Costing studies undertaken in 1996 and 1998 (Floyd et al, *BMJ*, 1997; vol. 315: 1407–1411; Sinanovic et al, 2001, currently being prepared for publication)
Assumptions/major results used: Cost per patient in 2000 US$ approximately US$ 650 per patient for ambulatory treatment, typical in urban areas, and US$ 2 000 when patients are hospitalized for the intensive phase, as is common in rural areas. Approximately 50% of the population is urban, therefore assume average cost per case of about US$ 1 325.

Ethiopia

Sources of data: "Plan of Action 2001" document, produced by Tuberculosis and Leprosy Control team of the Ministry of Health; interviews with NTP and WHO staff
Assumptions/major results used: In addition to costs specified in plan of action document, NTP staff costs estimated as US$ 0.1 M per year; capital cost of vehicles estimated as US$ 0.1 M per year (based on assumption capital costs = recurrent transportation costs); cost of DOT visit estimated as US$ 0.25–0.50 (or 0.9-1.8 M per year at existing CDR); number of DOT visits estimated as 51 on average (56 for about 90% of patients, 8 for about 10% of patients). Assumptions give estimate of US$ 108–121 per patient.

Viet Nam

Sources of data: Country plan 2000–2004
Assumptions/major results used: Patients are hospitalized for 60 days in the intensive phase and the cost per day in hospital is US$ 1–2. Implied difference between total costs and cost in plan allocated to government regular budget contribution through general health services.

Russian Federation

Sources of data: Ongoing WHO costing studies, donor funding prior to 2000
Assumptions/major results used: 83 000 dedicated TB beds at approximately US$ 4 per day (about US$ 120 M per year), plus US$ 20 M per year from the World Bank loan, plus about US$ 10 M of donor funding. For Table 2, assume covering non-World Bank areas (about 50% of the country) will require the same amount of additional funding as those areas already covered. Mass screening costs not considered.

DR Congo

Sources of data: Questionnaires submitted to WHO
Assumptions/major results used: Assume country plan estimates cover relevant costs, in absence of any better data.

Brazil

Sources of data: Strategic plan
Assumptions/major results used: None, cost estimates apply only to Federal level perspective. Thus estimates for Brazil are too low.

United Republic of Tanzania

Sources of data: National plan, costing studies from Tanzania for new smear-positive pulmonary cases (De Jonghe et al, 1994. *International Journal of Health Planning and Management*, vol. 9:151–181) and Malawi for new smear-negative pulmonary cases (Skeva et al, 2001, currently being prepared for publication)

Assumptions/major results used: Cost to treat smear-positive pulmonary patient is US$ 155, cost to treat smear-negative pulmonary patient US$ 40 (in 2000 US$, inflated from original values of US$ 110 and US$ 38 respectively). Sources of funding and gap estimated based on discussions with country-based staff and consultants.

Kenya

Sources of data: Costing study (Nganda et al, 2001, currently being prepared for publication), recent country estimates
Assumptions/major results used: US$ 10 M per year is required for inpatient care, in addition to the TB-specific budgets shown in the country profile. This is based on recent estimates, which are consistent with a recent costing study in the country.

Thailand

Sources of data: National budget, costing study (Sawert et al, 1997, *Social Science and Medicine,* vol. 44:1805–1816)
Assumptions/major results used: Used estimated national budget for low estimates, average cost of US$ 401 per patient for higher estimate.

Myanmar

Sources of data: National plan document
Assumptions/major results used: Used national plan document only, since items not reflected are probably small due to use of family members/volunteers for DOT.

Afghanistan

Sources of data: Plan Document
Assumptions/major results used: Used plan document estimates only.

Uganda

Sources of data: NTP and WHO staff, 1999 costing study (Okello et al, 2001, currently being prepared for publication)
Assumptions/major results used: Cost per patient ranges from US$ 242–466 for smear-positive pulmonary cases, smear-negative pulmonary cases about 20% of this level. Implied difference between (a) total costs at existing CDR and (b) government TB budget plus donor funding plus gap allocated to government regular budget contribution through general health services; additional implied costs with higher CDR allocated to unknown distribution.

Peru

Sources of data: NTP staff and documents, costing study (Ministry of Health/Vigia/USAID, 2001, ISBN 9772–820–18–1)

Zimbabwe

Sources of data: Interviews with NTP staff
Assumptions/major results used: Assumed a cost of US$ 250 per case.

Cambodia

Sources of data: National plan
Assumptions/major results used: Low estimate assumes 50% of patients are hospitalized in intensive phase, high estimate assumes 85% are hospitalized. Cost per day in hospital estimated as US$ 2, cost per outpatient DOT visit or visit for collection of drugs as US$ 0.5. Implied difference between total costs and cost in plan allocated to government regular budget contribution through general health services.

Annex 4—BASIC HEALTH INDICATORS, TB/HIV AND HEALTH SYSTEMS INDICATORS

Country	Total population[1] (in millions)	Life expectancy at birth[2] (male/female)	Infant mortality rate[2]	Estimated % adults living with HIV/AIDS, end 1999[3]	Number of TB cases notified in 1999[4]	Estimated new cases of TB due to HIV per year[5]	Estimated deaths (1997) from TB per year[5]	% population without access to health care[2]	GNP per capita in US$[2]	Health expenditure a of GDP[6]	Per capita total health expenditure in international $[6]	Per capita public health expenditure in international $[6]	Per capita private health expenditure in international $[6]
India	998.1	62.3/62.9	71	0.70	1 223 127	45 000	437 000	25	370	5.2	84	11	71
China	1 266.8	67.9/72.0	38	0.07	460 169	5 000	258 000	na	860	2.7	74	18	55
Indonesia	209.3	63.3/67.0	45	0.05	69 064	6 000	140 000	57	1 110	1.7	56	21	26
Bangladesh	126.9	58.1/58.2	81	0.02	79 339	1 000	68 000	26	360	4.9	70	32	38
Pakistan	152.3	62.9/65.1	95	0.10	20 936	3 000	64 000	15	500	4.0	71	16	55
Nigeria	108.9	48.7/51.5	112	5.06	24 143	35 000	69 000	33	280	3.1	35	10	25
Philippines (the)	74.5	66.5/70.2	32	0.07	145 807	1 000	48 000	na	1 200	3.4	100	48	49
South Africa	39.9	51.5/58.1	49	19.94	129 055	76 000	72 000	na	3 210	7.1	396	184	183
Ethiopia	61.1	42.4/44.3	111	10.63	72 095	47 000	49 000	45	110	3.8	20	7	13
Viet Nam	78.7	64.9/69.9	32	0.24	88 879	1 000	20 000	na	310	4.8	65	13	52
Russian Federation	147.2	60.6/72.8	20	0.18	134 360	1 000	26 000	na	2 680	5.4	251	193	58
DR Congo (the)	50.3	49.2/52.3	128	6.43	59 531	32 000	39 000	41	110	5.0	101	37	64
Brazil	168.0	63.1/71.0	37	0.57	78 460	6 000	19 000	na	4 790	6.5	428	208	195
UR Tanzania (the)	32.8	46.8/49.1	92	8.09	52 437	36 000	31 000	7	210	4.8	36	22	14
Kenya	29.5	51.2/53.0	57	13.95	57 266	34 000	28 000	na	340	4.6	58	37	21
Thailand	60.9	65.8/72.0	31	2.15	29 413	8 000	17 000	41	2 740	5.7	327	108	214
Myanmar	45.1	58.5/61.8	81	1.99	19 626	na	19 000	52	na	2.6	78	10	69
Afghanistan	21.9	na	na	< 0.01	3 314	na	23 000	na	na	3.2	28	11	17
Uganda	21.1	38.9/40.4	86	8.30	34 994	33 000	30 000	29	330	4.1	44	17	27
Peru	25.2	65.9/70.9	44	0.54	40 345	1 000		na	2 610	5.6	246	98	123
Zimbabwe	11.5	43.6/44.7	53	25.06	50 138	41 000	33 000	29	720	6.2	130	62	67
Cambodia	10.9	51.5/55.0	106	4.04	19 266	2 000	9 000	na	300	7.2	73	7	66

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2 Human Development Report 1999, UNDP
3 UNAIDS, 2000 – Report on the global HIV/AIDS epidemiic, June 2000
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6 WHO World Health Report 2000 (reference 10)

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3 World Health Organization. Fifty-third World Health Assembly. Stop Tuberculosis Initiative, Report by the Director-General. A53/5, 5 May 2000; Resolution WHA53.1, 19 May 2000.

4 When rounded to the nearest US$ 100 million.

5 One thousand million.

6 To treat successfully 85% of detected sputum smear-positive cases of TB and to detect 70% of such cases. Resolutions WHA44.8 and WHA46.36, 1991; *Amsterdam Declaration to Stop TB* (http://www.stoptb.org/conference/Decla.access.html).

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21 For India, funding for 2001–2003 is already covered by government funding (including World Bank loan funds) and donor funding—see also country profile.

22 These are: (i) diagnosis and case management; (ii) drugs; (iii) training; (iv) programme management and supervision excluding salary costs; (v) activities to increase case detection and cure rates; and (vi) miscellaneous. In addition, for China the costs of operating dedicated TB facilities are also provided.

23 It is also worth noting that costs will also vary by country because of differences in approach to delivery of treatment and differences in input prices (which typically reflect a country's general level of wealth, as measured by e.g. per capita GNP).

24 For Nigeria, the US$ 5 million listed under donor contributions includes some loan funds.

25 Total costs for South Africa and the Russian Federation stand out. For South Africa, this reflects both a high number of cases and generally higher cost levels than other countries, reflecting its status as a middle-income country with a per capita income around ten times that of most of the countries listed in the table. For the Russian Federation, high costs reflect both these factors, and in addition the fact that the country has a very extensive specialized TB infrastructure, with many specialist TB hospitals.

26 The estimate for Brazil is an underestimate, because the figures are for costs borne at Federal level only. However, there were no data to estimate costs at other levels. These are needed if a more realistic total figure is to be provided.

27 This is probably conservative. It would be consistent with economic theory to expect that average costs would rise at high levels of case detection.

28 Estimates are based on extrapolating from the 22 high-burden countries, with adjustments to allow for (a) differences in average GDP per capita and (b) differences in estimated numbers of cases.

29 These are: Antigua and Barbuda, Argentina, Bahrain, Bermuda, Brunei, Chile, Croatia, Estonia, Hong Kong, Hungary, Lebanon, Mauritius, Mexico, Poland, Puerto Rico, Saudi Arabia, Seychelles, Singapore, Slovakia, Slovenia, South Korea, St. Kitts and Nevis, Taiwan, Trinidad and Tobago, United Arab Emirates, Uruguay, Venezuela.

30 The global figure is based on data from a recent survey of external financing for TB control (Diana Weil, WHO public health specialist at the World Bank, written communication).

31 For example, in India a majority of patients' first consultation is with a private practitioner. Their increased involvement in national TB control programmes, for example through Public-Private Mix (PPM) DOTS schemes, could help to raise official case detection rates, as has already happened in Hyderabad.

32 In some cases, non-achievement of targets may reflect, in part, failure to register and report cases that are, in fact, treated and cured.

33 • DOTS pop. cov: percentage of population with access to services providing DOTS
- S+ DOTS CDR: case detection rate for smear-positive TB cases is defined as the annual new smear-positive notifications under DOTS over estimated annual new smear-positive incidence
- S+ CDR: case detection rate for smear-positive TB under DOTS cases is defined annual new smear-positive notifications over estimated annual new smear-positive incidence.

Copies of the Global DOTS Expansion Plan
are available from:

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