

# LEPROSY

## Learning from success



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## Developed in collaboration with the Global Alliance for Elimination of Leprosy:

Member States of the World Health Organization  
Danish International Development Assistance (DANIDA)  
International Federation of Anti-Leprosy Associations (ILEP)  
Nippon Foundation, Novartis, Novartis Foundation for Sustainable Development  
The World Bank  
World Health Organization

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*For copies of this document, please contact:*  
CDS Information Resource Centre – World Health Organization  
1211 Geneva 27, Switzerland – E-mail: [cdsdoc@who.int](mailto:cdsdoc@who.int)

# Introduction

Of all the diseases that continue to plague humanity, leprosy has the most notorious history as a cause of deformity, disability, loathing and fear. From ancient times until the recent past, the disease was considered both highly contagious and impossible to cure. Victims were universally shunned, their physical suffering compounded by the misery of being treated as social outcasts. Even at the medical level the sole option for control was the isolation of patients in colonies or leprosaria. As recently as 1897, an international conference of experts concluded that leprosy could not be cured.

All that would change within the short span of a few decades, slowly at first, and then with thrilling speed. The initial breakthrough came with the discovery of dapsone in 1941, introducing the first prospects for cure. Within eight years, the drug's suitability for use in mass campaigns was clear. Countries now had an option: patients could be treated and cured, often in their homes, rather than banished to institutions. Treatment was, however, lifelong in most cases. The spread of resistance to dapsone, which first appeared in 1964, put an end to the hope that leprosy might be defeated.

Science responded to this setback by stepping up its quest for a better tool. Results came in 1981 when a WHO group of experts issued its recommendations for an unbeatable cocktail of drugs: multidrug therapy, with rifampicin and clofazimine bolstering the original dapsone. The results were spectacular. Treatment could be reduced from decades to a matter of months. The drugs were so safe they could be taken by pregnant women. Patients under treatment quickly lost the ability to infect others. Disabilities could be prevented by early detection and complete cure.

A disease, shrouded for centuries in stigma and shame, could now come out into the open with a fresh new face: hard to catch, easy to cure. A new era in the age-old fight had begun.



The number of cases plummeted. Progress was so impressive that, in 1991, government delegations at WHO's World Health Assembly resolved to eliminate leprosy as a public health problem by the end of the century. The international community, notably the Nippon Foundation, came forward with generous financial support.

Control programmes could now begin to reach the remaining pockets of disease—in sprawling urban slums and remote village dwellings—with an offer of cure that was not only safe and effective, but also free. Another major logistical boost came in 1998 when a WHO group of experts announced innovations that vastly simplified leprosy control, reduced its costs, and pushed the world dramatically closer to the goal of forcing leprosy to disappear.

The momentum continued to swell in 1999, when WHO formed a global alliance of partners determined to see leprosy eliminated by the year 2005. Members include representatives of countries where the disease remains a problem, Danish International Development Assistance, the International Federation of Anti-Leprosy Associations, the Nippon Foundation, Novartis and the Novartis Foundation for Sustainable Development, WHO and the World Bank. The partnership aims specifically to bring down the number of cases to a level so low that natural interruption of transmission will occur.

As the stories that follow show, the straightforward WHO blueprint for leprosy elimination is flexible as well as effective. Elimination programmes have been smoothly implemented in countries having a host of distinct problems and dramatically different health systems.

Using the recommended WHO strategy, even an extremely poor country like Burkina Faso has been able to reach all of its people with the best drugs and treatment protocols the world has to offer.

And, as one country after another has learned, the best the world has to offer works extremely well to produce swift and spectacular results. Venezuela, which had one of the worst leprosy problems in all of Latin America just 15 years ago, eliminated leprosy in 1997. Viet Nam, which has suffered from leprosy since at least the 6<sup>th</sup> century and had pockets of disease where an astonishing 30% of the population were affected, reached the elimination goal in 1995.

Thailand, where leprosy was once the rampant and dreaded “disease of social loathing”, fully integrated control activities into its general health services, brought treatment close to people's homes, and vanquished the disease in 1995.

■ ■ ...WHO formed a global alliance of partners determined to see leprosy eliminated by the year 2005. ■ ■

■ ■ Compulsory isolation retains an important place in the fight against leprosy.  
—WHO Expert Committee, 1953 ■ ■



■ ■ . . . these country experiences clearly demonstrate the decisive power of commitment and determination to bring victory, ■ ■

In Togo, procedures for diagnosis and treatment, firmly entrenched at the local and district level, proved tough enough to withstand years of political turmoil. The elimination of leprosy was proudly announced in 1997.

A mass public awareness campaign in Sri Lanka virtually eliminated the stigma attached to leprosy, encouraging people who previously hid their symptoms out of fear of ostracism to come out in the open for early diagnosis and cure. Leprosy was eliminated in 1995. Benin, a small country distinguished by its very large number of leprosaria, also used a fully integrated approach to reach elimination in 1997. The doors of its many leprosaria are now reopened as health centres serving the general population.

Taken together, these country experiences clearly demonstrate the decisive power of commitment and determination to bring victory, even under circumstances that are far from ideal. With the support of presidents, prime ministers, kings, well-trained and motivated health staff, generous donors and dedicated voluntary groups, leprosy can—and will—be completely vanquished from our world. And very soon, too, for a disease that has been one of humanity's oldest and most notorious foes.

■ ■ There is no doubt that the use of improved technologies such as multidrug therapy, added to the possibility of cure, is producing positive changes in public attitudes to leprosy and leprosy patients.  
—WHO Expert Committee, 1988 ■ ■

# Using the mass media to change attitudes and increase case



The great promise that dapsone would cure leprosy and lead to its control prompted the Ministry of Health of Sri Lanka to introduce the country's first antileprosy programme in 1954. Patients, banished to asylums since the 17<sup>th</sup> century, could now be treated in special clinics. Government-trained paramedicals were appointed to conduct surveys and information campaigns in villages and local communities, resulting in a three-fold increase in case detection. But treatment took decades, dapsone resistance emerged, and progress proved slow and fragile.

As elsewhere, the breakthrough came with the advent of multidrug therapy, which was introduced in Sri Lanka in 1983. Although all registered cases were receiving treatment within the short span of a year, transmission continued at a disturbing rate, making it clear that many hidden cases were not being reached. Active case detection via house-to-house searchers was considered far too expensive and, moreover, might actually increase the fear and stigma attached to the disease.



# detection



## The government looked for another solution.

This came in 1990 when the Ministry of Health, assisted by a Swiss charity organization and the Novartis Foundation for Sustainable Development, launched a professional, powerful, and broad-based advertising campaign aimed at nothing less than changing the public image of leprosy. By portraying leprosy as just another treatable disease, the campaign hoped to motivate people with suspicious lesions to come forward for early diagnosis and free cure. Apart from being much less costly, such "passive" case detection, with its reliance on self-reporting, attracted strongly motivated patients who could be counted on to follow treatment carefully.

The campaign was launched in February 1990 on a big scale—and in big-time fashion. Messages were beamed to the masses via radio and TV spots, serials, and popular soap operas. Billboards, buses, and walls were plastered with positive slogans and images. Collaboration at the grassroots level was secured through health education training for close to 5 000 carefully selected opinion-leaders, teachers, and village women. Letters and health education materials were sent to the nation's clergy. School-teachers were provided with flip charts to help them get the word out to children. In remote areas beyond the reach of radio and TV, week-long education sessions were held and supported by "skin camps", which combined leprosy detection activities with the lure of free treatment for skin ailments.





In 1995,  
the national  
prevalence rate  
dropped below

**1 per  
10000**  
population.

But motivation to seek treatment was only part of the goal. The campaign also aimed to make sure that patients seeking treatment would find it easily, close to home, and of the best quality. The country doubled the number of clinics and extended their opening hours. Pocket calendars giving district clinic schedules were distributed to residents to improve clinic attendance and facilitate referrals. Blister packs were introduced to simplify the dispensing of medicines and improve patient compliance. As an added benefit, they also created the impression that a new treatment was available, thus bringing excitement and immediacy to the good news that leprosy could be cured.

The links between the leprosy control services and the general health services were improved. All primary care staff, medical officers working in hospital outpatient departments, and medical staff on plantations were given special training to increase their diagnostic and treatment skills. Since many patients, hoping to avoid stigma, preferred to consult private practitioners, the country's general practitioners were also reached with information on how to diagnose and treat the disease. Collaboration with the private sector was further secured by donating blister packs to dermatologists, who provided statistics on their patients in return.



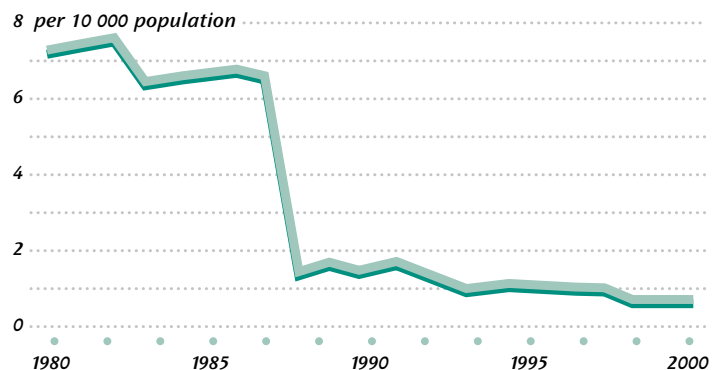
 **The results were spectacular.**

In less than a year, case detection had increased by 150%. Even more impressive was the vast increase in self-reporting. While in the year prior to the campaign, only 9% of new cases were self-reported, the figure rose to 50% by 1991 and has remained high in subsequent years. Since the start of the campaign, more than 20 000 patients have been detected and treated. Awareness of the first signs of leprosy and the availability of a cure is now widespread. The image of leprosy has moved from one of fear and loathing to one of hope and cure.

With greater self-reporting and strengthened services, Sri Lanka was gradually able to clear the backlog of cases and reduce the pool of infection.



*Prevalence rate  
from 1980 to 2000*

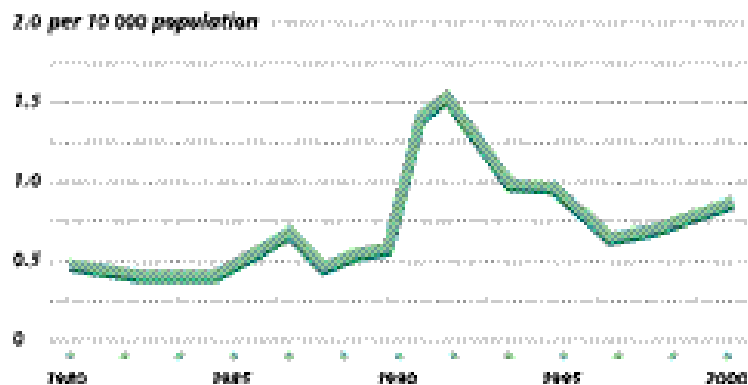




In 1995, the national prevalence rate dropped below 1 per 10 000 population, meeting the WHO definition for the elimination of leprosy as a public health problem. As the number of new cases is expected to continue to decrease, the vertical programme that made leprosy elimination possible has been reoriented. Leprosy control activities are now fully integrated into the general health services, which are competent, equipped, and motivated to maintain the country's triumph over leprosy.



*Detection rate from 1980 to 2000*

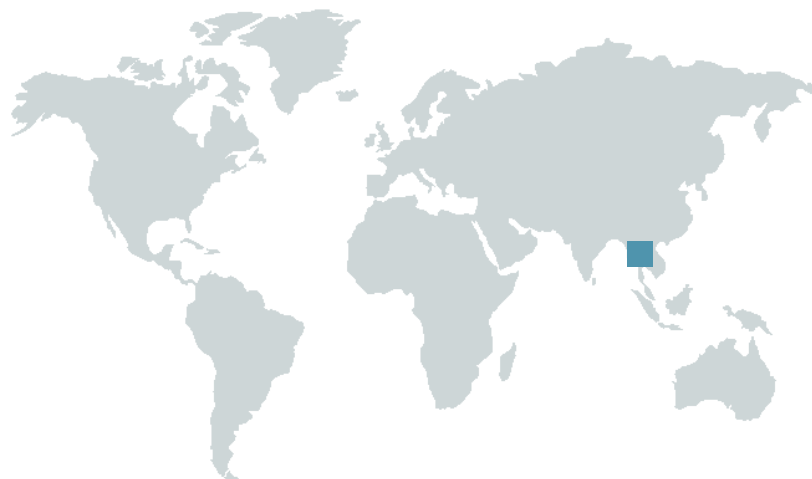


# Integrated services bring cure



At the start of the 20<sup>th</sup> century, leprosy was a rampant and dreaded disease in Thailand. Social attitudes were strongly coloured by the religious notion of leprosy as an incurable disease brought on by sinful acts—an unclean affliction. Even among health workers, leprosy was known as “the disease of social loathing.” Healthy people wanted patients kept at a distance. Isolation and segregation were the main method of control, and many leprosaria were established to care for patients.

In 1953, the largely vertical national leprosy control programme was launched. That same year, a random survey produced alarming statistics: around 140 000 cases and a prevalence rate of 50 per 10 000 inhabitants. Treatment with dapsone began in 1955 when the country introduced a modern control programme based on case finding, health education, and domiciliary treatment. Activities were carried out in provincial leprosy units. With this system, close to 80% of the detected cases were eventually treated. By 1971, the prevalence had declined from 50 to 12.4 per 10 000 population.



# close to homes



A major change came when the country unveiled its Third National Health Development Plan covering the period 1972–1976. The plan called for the dismantling of the vertical programme and the integration of leprosy control activities into provincial primary health care services. Appropriate training was provided, information systems were developed, and 10 regional leprosy control centres were established to supply technical guidance and support.

At the end of 1976, partial integration of leprosy services had been achieved in all but six highly endemic provinces, where the vertical system of control was maintained.

## Coverage reached 89% of the total population.

Integration brought other advantages as well. By avoiding the suspicions and stigma aroused by attendance at special clinics, it encouraged patients to seek treatment at an early stage. It also allowed patients to be treated closer to home, thus facilitating the continuity of care. Moreover, since leprosy control activities in general health services are less dependant on donors, they are easier for governments to sustain.

In line with WHO recommendations, multidrug therapy was introduced in 1982, largely in response to the spread of dapsone resistance, and was initially confined to three hyperendemic provinces.





Progress was so impressive that the government began a drive to extend coverage to the entire country—a process that was greatly facilitated by the integrated infrastructure. The dramatic cure rates and the drastic reduction in the duration of therapy brought an added bonus: costly and time-consuming registration procedures could be vastly simplified.

The introduction of multidrug therapy in 1982 was greatly facilitated by the integrated infrastructure.

**By 1989, multidrug therapy had completely replaced dapsone monotherapy.**

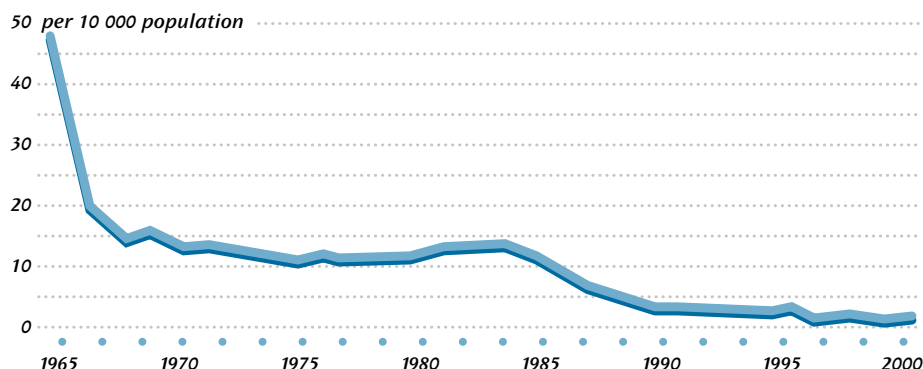
The decline in the number of cases accelerated. Leprosy was clearly in retreat. The government stepped up its drive to defeat the disease and to further reduce the stigma that kept victims from seeking care until it was too late. Thailand's highly revered king, Bhumibol Adulyadej, established a leprosy foundation and urged the public not to treat victims as outcasts. By 1995, the prevalence of leprosy had been reduced from the mid-century high of 50 per 10 000 population to below 1 per 10 000. Thailand had reached the goal of eliminating leprosy as a public health problem.

While support from nongovernmental organizations played a major role in this achievement, the decisive factors were sound technical guidance from WHO and strong determination on the part of the government, which showed persistence in mastering new problems with population-wide solutions. As in many developing countries, leprosy had exacted a heavy economic toll in Thailand owing to the costs associated with permanent and progressive disabilities, loss of productive work force, and the utter social and economic destitution that was so often the lot of patients and their families.

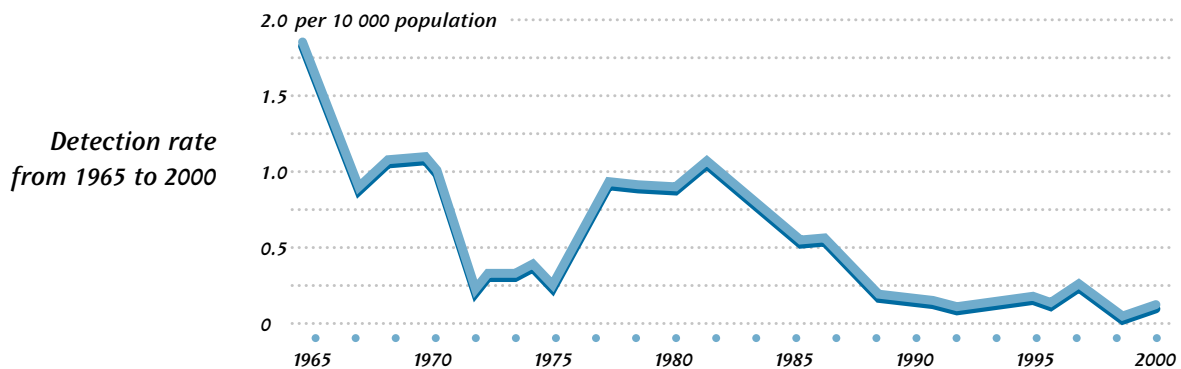
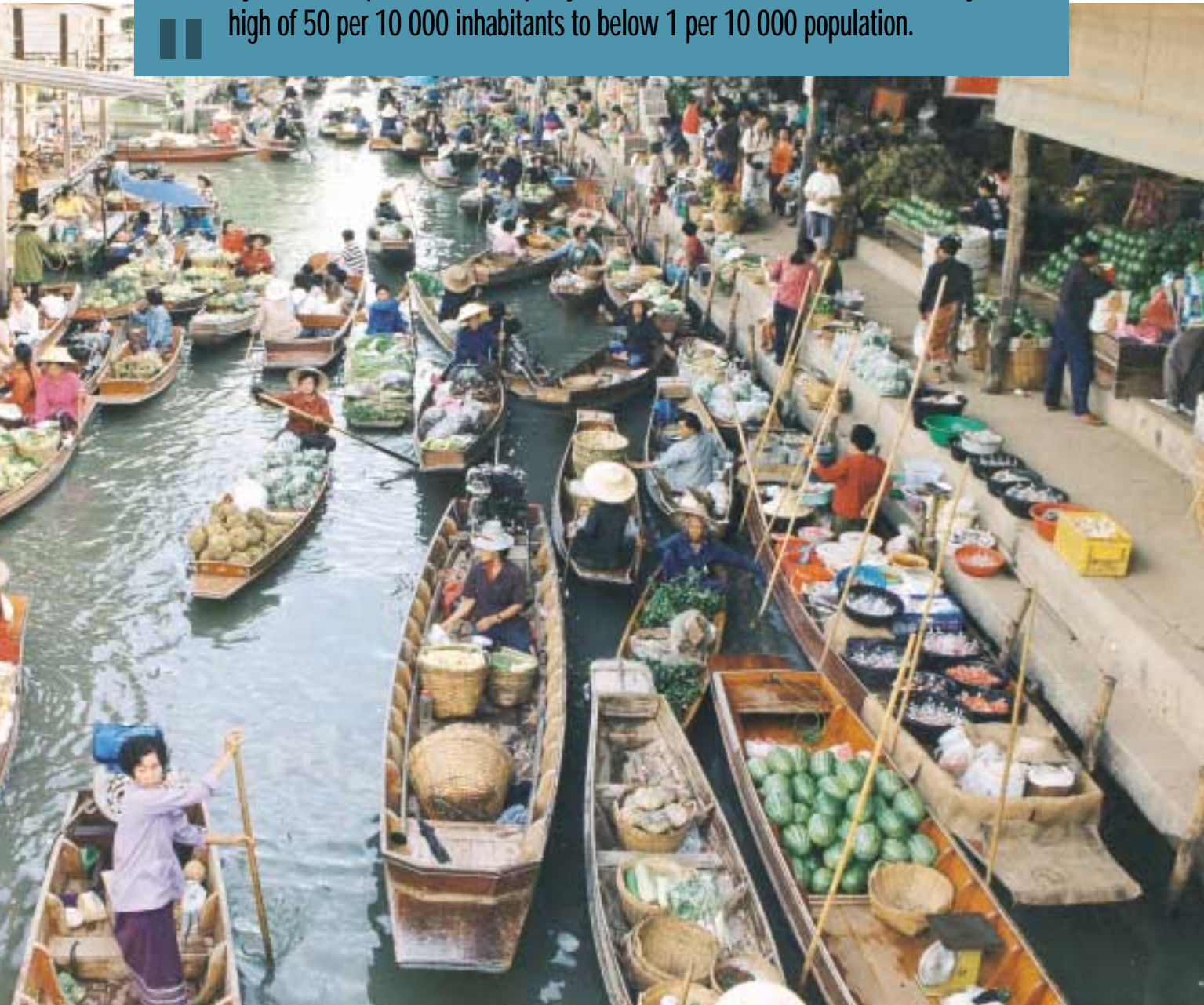
A strong tenet of the Buddhist faith is its compassion and mercy for those who are less fortunate. In Thailand, where staunch government commitment was backed by dedicated NGO support, compassion and mercy prevailed to banish this "disease of social loathing" not to another sanatorium, but to the past.



**Prevalence rate from 1965 to 2000**



By 1995, the prevalence of leprosy had been reduced from the mid-century high of 50 per 10 000 inhabitants to below 1 per 10 000 population.



# Appropriate training and



The history of leprosy elimination in Burkina Faso, one of the world's poorest countries, provides proof that the disease can be conquered despite poverty, high rates of illiteracy, a fragile economy, drought-prone terrain, and a population that migrates to neighbouring countries in search of seasonal work. The country registered its peak number of cases in 1965, when 140 000 patients were recorded. For two decades, control relied on dapsone monotherapy with all its imperfections.

With the advent of multidrug therapy, the government looked to WHO for advice on the best way to bring the benefits of this spectacular new tool to its people. Proverbs are popular in this rural country and one favourite piece of folk wisdom carried very good advice for leprosy control: "Don't test the depth of a river with both feet". In 1983, Burkina Faso introduced multidrug therapy on a pilot basis, testing the ability of health services and staff to meet the WHO strategy of early case detection and complete cure of patients. That river proved so shallow and easily crossed that the country's leprosy control activities began moving with both feet—on the run.



# administration

Guided by WHO's technical recommendations and with the support of dedicated nongovernmental organizations, the government developed a plan to extend coverage with multidrug therapy to the entire population. The plan also included precise measures for ensuring that staff would be adequately trained, supervised and monitored, that the necessary laboratory backup services would be available and functioning properly, and that the drugs would be readily accessible and correctly dispensed. Since the country could never afford active case detection, patients would need to be lured to health centres by the prospect of first-rate care.

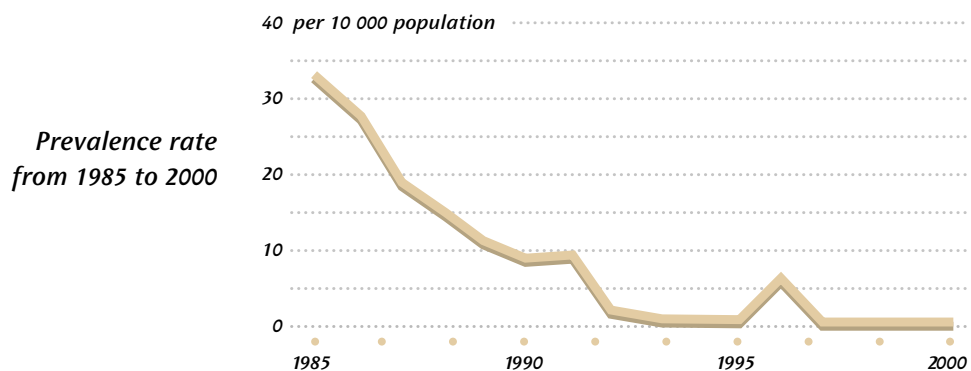
The country set up a well-organized and determined leprosy control programme characterized by a strategy of training, supervision, data collection and reporting that took centrally-agreed procedures to the provinces, and then to the peripheral areas. Health workers received local training in diagnosis and treatment. Laboratory technicians, centrally trained and supervised by specialists, became experts in the confirmation of diagnosis and monitoring of treatment response.

The national programme supervised work at the provincial level every 6 months; supervisors from the provincial services then fanned out to check work in peripheral areas every 1–3 months. Data on registered cases and results were compiled at the peripheral level on a monthly basis and reported to the provincial services. Consolidated reporting to the national level took place quarterly.





The low level recorded in 1994 had been maintained, and Burkina Faso joined the ranks of countries that have reached the goal of leprosy elimination.





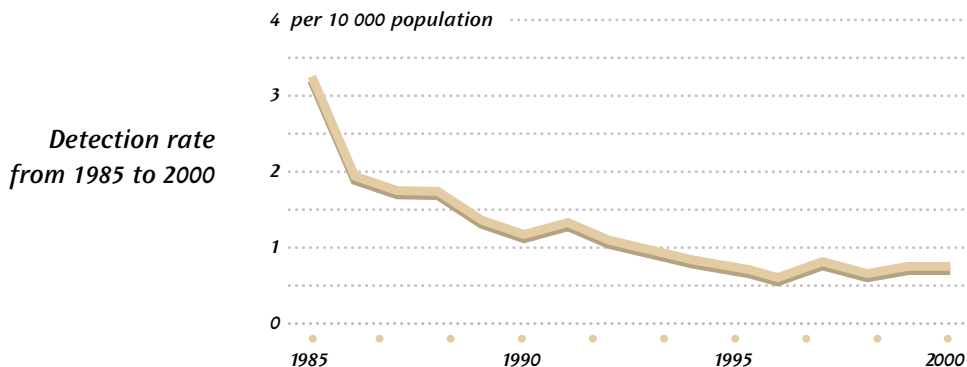
This decentralized structure was further solidified in 1990, when the national programme appointed health directors for each province and provided training in the elaboration of a provincial plan of action. Thorough training allowed decentralization of authority to the provincial level, where health directors were given full responsibility for situation analysis, priority setting, planning, and budget management. One unexpected outgrowth of this provincial “ownership” was the creation of fierce competition between directors, who struggled to outdo each other with the best plan for efficient management and good results.

### The structure was remarkably effective.

Coverage with multidrug therapy soared. In just 11 years, the prevalence rate plummeted from more than 40 per 10 000 inhabitants in 1983, to less than 1 per 10 000 in 1994. In 1991, the country reached another milestone: the carefully maintained reporting system revealed that 100% of all registered patients were receiving modern treatment. Most importantly, the number of newly detected cases declined from 3 per 10 000 inhabitants in 1985 to less than 1 per 10 000 in 1993, offering good evidence that the pool of infection was shrinking.



In 1997, the prevalence rate dipped down to 0.76 per 10 000. The low level recorded in 1994 had been maintained, and Burkina Faso joined the ranks of countries that have reached the goal of leprosy elimination. Though constant vigilance is required to maintain geographical coverage, the country's health services are blessed with well-trained and motivated staff who are proud to have achieved so much in a setting where so few resources are the norm. In this final stage of vigilance, Burkina Faso's fund of folk wisdom again has pertinent advice: “When you fall, look where you slipped, not where you land”. It may be something of this mentality that explains why one of the world's poorest countries never stumbled for long—whether at the level of central planning or in the performance of local health workers—in its steadfast determination to see leprosy defeated.

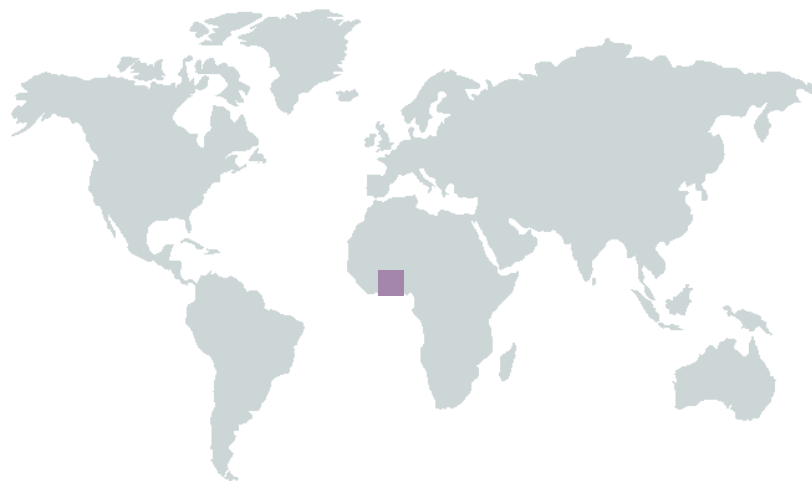


# A robust strategy brings **SUCCESS** despite



In 1961, Togo had over 31 000 registered leprosy cases, making the disease one of the country's most important public health problems. A determined effort to combat leprosy began in 1967, when case control activities based on dapsone monotherapy were rigorously implemented. Mobile teams mounted on bicycles and mopeds combed the country for cases and quite literally delivered the drugs to the doors of patients' homes. The programme was remarkably successful. During the dapsone era, over 26 500 cases were detected and treated, and large numbers were cured.

When the great promise held out by multidrug therapy appeared, the country had a good base to build on. Apart from the success with dapsone and the growing perception in communities that leprosy could be treated and cured, Togo had an excellent infrastructure for the introduction of multidrug therapy into general health services. The population was blessed with relatively easy access to health services, and qualified personnel existed throughout the whole country.



# political unrest

Togo's dense network of laboratory services was the envy of West Africa. The network could be counted on to provide diagnostic and monitoring support, thus avoiding long delays in the start of treatment, increased periods of infectivity, and long journeys for patients. From the outset, full integration into the general health services was the country's goal.

In 1986, WHO issued guidelines to help African countries make the transition from dapsone to multidrug therapy. Of the strategic options proposed, Togo selected an approach that balanced expertise from a core group of leprosy specialists with managerial support from a small army of specially trained "inspectors" and "controllers" drawn from the nursing profession. By assigning supervisory and administrative tasks to paramedics, the country hoped to offset some of the added costs incurred when three drugs instead of one were dispensed. The fact that leprosy could be easily diagnosed after minimal training, and easily and safely treated with modern drugs, lent added support to this reliance on non-specialized personnel.

## Leprosy control activities were organized in three layers.

At the top, a medical doctor, in charge of both leprosy and tuberculosis, headed the national programme. Nurses were given managerial responsibility at both the intermediate (referral) level, and in each district. The country was ready to go,





though cautiously at first. As one official noted, multidrug therapy must not be regarded as a kind of express train sweeping through the country, dropping drugs along the way. To ensure sustainability, introduction should be gradual, with experiences carefully monitored and strategies fine-tuned along the way.

**In 1986, Togo introduced multidrug therapy as a pilot project.**

In 1986, Togo introduced multidrug therapy as a pilot project in the port city of Lome, the country's capital. The superb results produced confidence in the strategy's viability. A four-year plan of progressive expansion, aimed at full national coverage, was launched. By 1990, prevalence rates, which had been as high as 50 per 10 000 in 1978, had dropped to just below 3 per 10 000. Government officials cautiously conceded a "glimmer of hope" that Togo might reach the elimination goal. An accelerated national plan was elaborated to tackle weaknesses in the areas of training, registration procedures, health education in communities, and outreach to the country's remote mountainous areas.

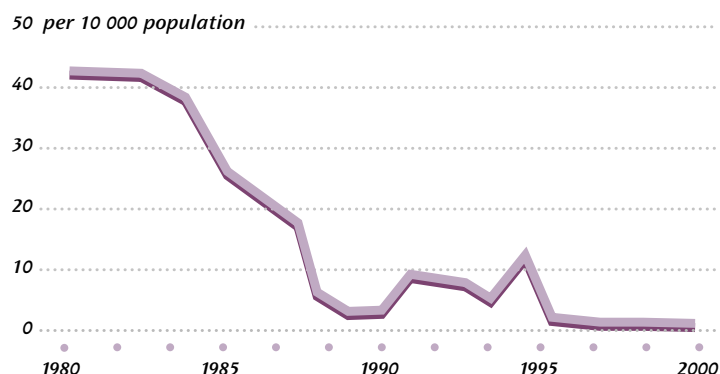
Then, in 1991, plans for accelerated control were put to the test when the country entered a period of political turmoil that would last until 1994. Mechanisms for coordination from central to peripheral levels could not function properly for over a year. As a result, cure rates began to dip while prevalence climbed, peaking at an alarming 10 per 10 000 in 1994.

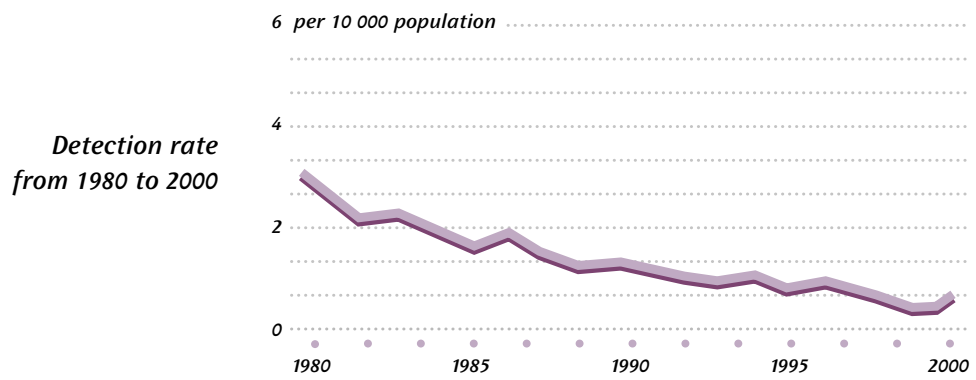
Fortunately, both the strategy and infrastructure for control proved to be extremely rugged and tough. Passive case finding, supervised by the nurses, continued without interruption, as though oblivious to the political situation. The rate of new cases declined, raising hope that the pool of infection was drying up. Despite the odds, the country reached its goal of full national coverage in 1994. Togo's fight against leprosy—bolstered by a robust strategy, committed staff, and the sheer weight of success—was too firmly entrenched to be shaken for long by turbulent events. In 1997, the country could, with fully justified pride, announce the elimination of leprosy as a public health problem.

Fortunately, both the strategy and infrastructure for control proved to be extremely rugged and tough.



Prevalence rate from 1980 to 2000





# Changing professional as well as popular



“ Apart from Brazil, Venezuela has one of the highest morbidity rates from leprosy. It is also the country with the best organized and most efficient antileprosy programme in South and Central America.”

This is how the leprosy situation in Venezuela was viewed in 1985, when an American donor agency began discussions with the government on prospects for introducing multidrug therapy. With a history dating back to 1946, the country’s leprosy programme was well-structured and efficient, with four strong pillars: efficient case detection, health education aimed at families and communities, a standardized system of data registration and monthly reporting, and expert technical and training capacity.



During the dapsone era, the country relied on a vertical programme to achieve high geographical coverage and impressive results. Rigorous case detection by physicians and paramedicals, systematic examination of household contacts, population screening in highly endemic areas, and efficient supervision of treatment combined to have a striking impact on transmission. But treatment with dapsone was lifelong, and the number of patients receiving monotherapy never decreased.



# attitudes

When WHO introduced multidrug therapy in 1981, the government was quick to grasp the many benefits promised by this breakthrough and eager to take advantage of them. Leprosy had long been a severe problem in Venezuela. Prevalence at that time was 10 per 10 000 and even higher in much of the country. The resulting morbidity and disability imposed severe economic hardship. Venezuela began planning to introduce multidrug therapy as rapidly as possible.

## A three-pronged plan was elaborated.

The first goal was to redirect efforts towards the treatment of as many patients as possible. Since multidrug therapy cured so quickly and completely, such an approach would allow more patients to be treated and cured than could ever have been possible with monotherapy. It also promised to halt the spread of resistance to dapsone, which had become a serious problem.

As its second goal, the strategy aimed to detect cases much earlier. By finding more cases and treating them earlier, the country hoped to interrupt the chain of transmission and thus diminish incidence and prevalence to a level where leprosy control activities could be integrated with other health services. Early detection and rapid cure would also vastly reduce the development of disabilities.





Finally, the strategy recognized the importance of stepping up public health education to reduce the stigma of leprosy, spread the word that it was now just another curable disease, and thus encourage spontaneous self-reporting at an early stage.

With all these advantages on the horizon, the government was understandably eager to move quickly. The time required to recruit and train enough workers to carry out such an ambitious plan turned out to be a problem. A step-wise plan was thus devised to introduce the new therapy in 1985 in a phased manner aimed at achieving full national coverage within four years. Though unanticipated logistical and operational problems surfaced early on, the plan for phased introduction was smoothly introduced. The percentage of all new and registered patients receiving multidrug therapy quickly rose to 80%. Good treatment delivery and care of leprosy-related complications resulted in high levels of patient satisfaction and an excellent public image.

Ironically, the programme encountered its major stumbling block in the attitudes of the medical profession. Many physicians, accustomed to treating leprosy for decades, remained sceptical about this new therapy with its incredibly short treatment schedules. In such an atmosphere, official protocol called for post-treatment surveillance of 5 to 10 years. As a result, physicians were reluctant to release patients after the recommended duration of therapy or to remove them from the official registry of cases. While such practices artificially inflated the number of registered cases, they did have one positive effect. Venezuela had always been a model of well-organized leprosy control, and its experiences with multidrug therapy were being closely watched throughout Latin America. In the long run, the years of careful post-treatment monitoring added the convincing weight of field experience to evidence that leprosy could be completely cured in a matter of months.

Although the programme understandably did not have an immediate impact on prevalence, it did secure the most desirable long-term results. The shortened WHO treatment regimens were eventually accepted and formally introduced in 1995, when convenient blister packs also became part of routine treatment. With these two boosts, Venezuela quickly brought its enormous leprosy problem under control. The elimination target was reached in 1997, thus providing a standard as well as an operational model for other Latin American countries to follow.

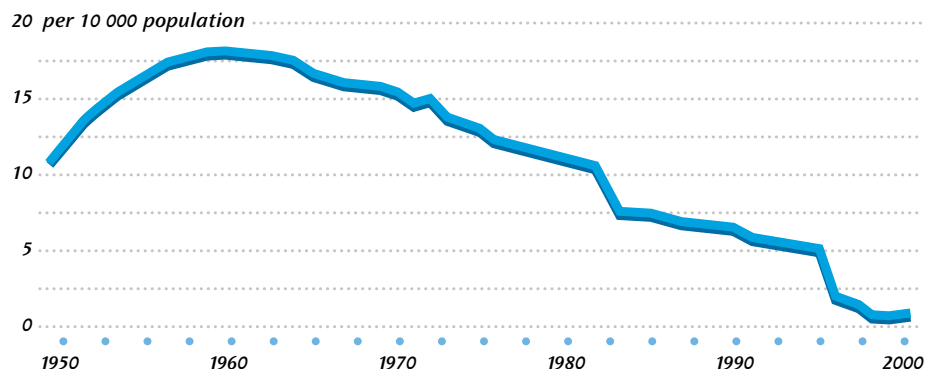
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**1997**

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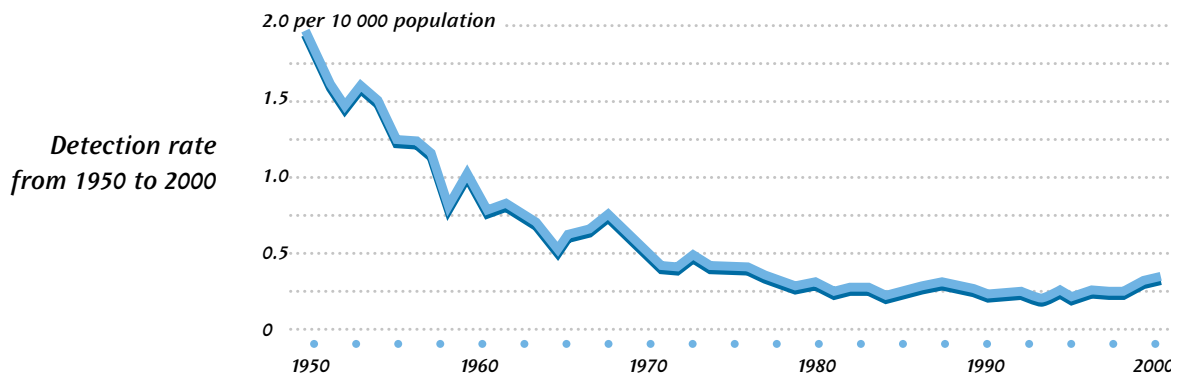


Prevalence rate from 1950 to 2000





■ ■ With these two boosts, Venezuela quickly brought its enormous leprosy problem under control. The elimination target was reached in 1997... ■ ■



# Reaching the last pockets of



Viet Nam is a country of verdant valleys, flat delta plains, remote highlands—and a history of leprosy dating back to at least the 6<sup>th</sup> century. As elsewhere in the world, these centuries saw patients universally feared and shunned, sometimes banished to tiger-infested jungles, sometimes driven into huts and burned, later exiled to small islands or isolated in one of the country's numerous leprosaria.

When case-finding began in earnest in the early 1950s, studies produced astonishing results. As many as 30% of the population in some villages and mountain tribes had leprosy. In 1960, surveys in the highlands uncovered prevalence rates approaching 1000 per 10 000—one of the highest leprosy burdens anywhere in the world. In 1978, a fact-finding team put the country's estimated number of cases at around 200 000, with an overall prevalence rate of about 40 per 10 000. Viet Nam clearly had a very serious leprosy problem.

When the advent of modern drugs opened prospects for treatment and cure, the country jumped into action with a head-start on many counts. Viet Nam's comprehensive network of health services was virtually tailor-made to fit the WHO



# hidden cases



strategy exactly. Access to basic health services was almost universal. Many villages had a self-sustaining health station, operated with funds drawn from the local agricultural cooperative. Centrally-funded provincial services were well-equipped and staffed with a range of experts. The referral system worked well.

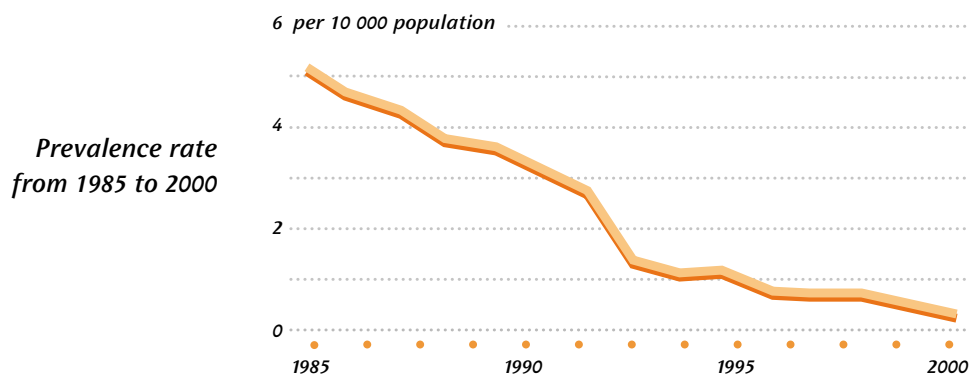
Since infectious disease transmission has long been linked to poor hygiene and sanitation, the provision of toilets and abundant clean water to nearly every household was another distinct plus, as were the brick houses that had largely replaced the traditional village huts. These strong advantages raised hopes that, if leprosy could be pushed below the prevalence level for elimination, the disease would gradually disappear altogether, as it has in most of the industrialized world. Perhaps most important, a programme of persistent and comprehensive health education was so successful that, by the early 1980s, discrimination against leprosy patients and their families had virtually disappeared in many villages, raising the possibility that patients, previously isolated in the country's 27 leprosaria, could be openly treated in their homes.

With all these advantages on its side, the government launched a determined effort to put an end to its leprosy problem in 1981. Multidrug therapy was introduced the following year, and then gradually but systematically expanded until full coverage of the





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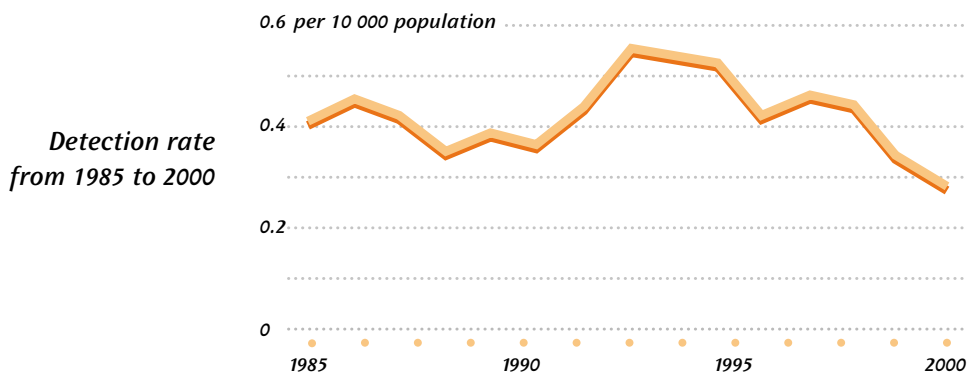
population was reached. Mass screening examinations reaching almost 100% of the population were conducted to improve the detection of cases at the earliest possible stage. Simple but standardized treatment protocols were introduced. While diagnosis was entrusted to specialists travelling from the district or provincial services, local health staff in the villages assumed responsibility for health education, referral of suspect cases, the dispensing of drugs and the monitoring of patients. To maintain a consistently high quality of leprosy services, all doctors at provincial, district and village levels received one-week training or refresher courses every two years.

While the drive to eliminate leprosy in Viet Nam appeared to have every chance of success, officials had known from the outset that victory would ultimately depend on whether the deep pockets of disease, hidden in the highlands, could be reached. In these areas, roads were poor or nonexistent, access was extremely difficult, and the government had no funds to purchase the necessary vehicles and fuel. Since active screening and case detection, which had worked so well in the rest of the country, were out of the question, the programme intensified its health education activities, reaching up to the mountains with messages and spots broadcast by radio and TV. Self-reporting increased considerably.

Prevalence rates, which had declined steadily throughout the late 1980s, began to plummet, moving from 1.64 per 10 000 in 1991 to 0.69 in 1995, when Viet Nam achieved 100% coverage with multidrug therapy. A country that had once had a national prevalence of over 40 cases per 10 000 population, with hard-to-reach pockets harbouring some of the heaviest disease burdens in the world, had achieved its goal of eliminating leprosy as a public health problem.

The decline proved persistent, shrinking to an impressive low of 0.26 per 10 000 in 1999. As the WHO strategy anticipated, leprosy was vanishing from Viet Nam, on the verge of disappearing for good. The social wounds caused by centuries of stigma and discrimination are likewise largely cured. In early 2000, a monitoring team visiting the northern provinces found cured patients completely accepted by communities, their homes visited by neighbours and friends, their food and water shared, the fear and stigma gone.

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# Phasing out the leprosaria



When dapsone monotherapy was introduced in the second half of the 20<sup>th</sup> century, Benin was in many ways very similar to other West African countries in both the magnitude of its leprosy problem and the approaches used for control. In the early 1960s, the country had some 38 000 registered cases, with estimates putting the true figure at well over 40 000. As in neighbouring countries, case detection and drug delivery were handled by polyvalent mobile teams trained to manage several endemic diseases at once. As elsewhere, the appearance and spread of resistance to dapsone dashed hopes of achieving control.



**There was, however, one important difference.**

Benin, a small country with a population of just over 6 million, had 20 leprosaria—an indication of the especially severe stigma attached to the disease. Though leprosy has been feared and shunned by societies and religions the world over, it held a special place in the traditional culture of Benin's many ethnic groups, whose heritage dates back to the powerful Dahomey Empire which had strong traditional religious customs.



Early shelters grew over the years to become large centres where voluntary groups from many religions provided care and rehabilitation.

In this secular tradition of rites and rituals, leprosy embodied evil. In the Adja communities of south-west Benin, it was considered a curse inflicted by nature's darkest forces. In the Fon communities of the ancient kingdom of Abomey, leprosy was a sign of punishment from revered ancestors angered by a breach of age-old customs. Exclusion of these social and religious offenders was merciless. Victims were forbidden to participate in religious ceremonies and were banished to the forests, where they formed isolated communities. Compassion was prohibited. Traditional healers who treated sufferers were likewise banished.

Benin's leprosaria originated as shelters introduced by Christian clergy, who likewise introduced the first compassion and mercy for sufferers. These early shelters grew over the years to become large centres where, as elsewhere in the world, voluntary groups from many religions provided care and rehabilitation.

Such was the situation when Benin introduced multidrug therapy as a pilot project in 1987. Results with the new treatment surpassed even the highest expectations, achieving regular attendance of over 80% and a cure rate approaching 90%. National authorities quickly realized that the safety, simplicity, short treatment times and rapid cure made the therapy entirely suitable for delivery within the general health services, thus saving considerable expense while also ensuring that large numbers of patients could be reached and treated in their homes.





As time would tell, the spectacular results achieved with multidrug therapy proved powerful enough to change social attitudes as well.

Complete national coverage, with full integration into the general health services, became the goal of this country now bent on seeing leprosy eliminated. In order to provide essential support, the country began training specialized nurses to take on the responsibility of supervising control activities in provinces and districts. Whereas the training of nurses for other endemic diseases took place abroad in three-month courses, procedures surrounding the use of multidrug therapy were so simple and straightforward that Benin was able to train its own leprosy nurses at home in just one month. With a suitable workforce in place, the initial pilot project was progressively and systematically expanded. By 1993, coverage with multidrug therapy reached 100% of the country's population. Health education campaigns were organized to encourage self-reporting, while mass screening for cases reached into villages and schools in the escalating effort to find more cases sooner.

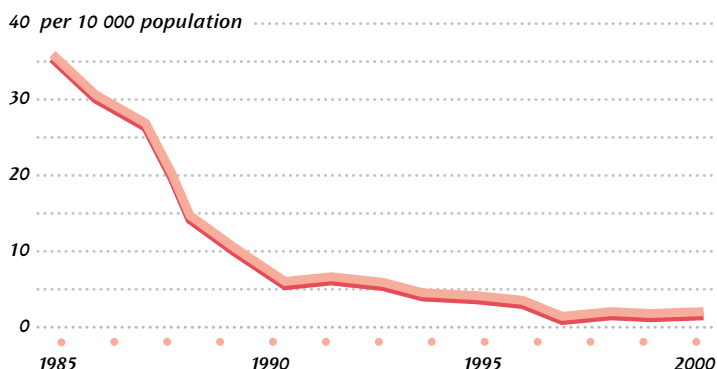
Prevalence dropped to **1.10** in 1996 and then to **0.88** in 1997.

Prevalence, which had been 1.80 per 10 000 in 1993, dropped to 1.10 in 1996, and then to 0.88 in 1997, when Benin could declare that leprosy had been eliminated as a public health problem. This achievement was a boost to staff morale and a source of further motivation that continues to sustain control activities in this first phase of monitoring.



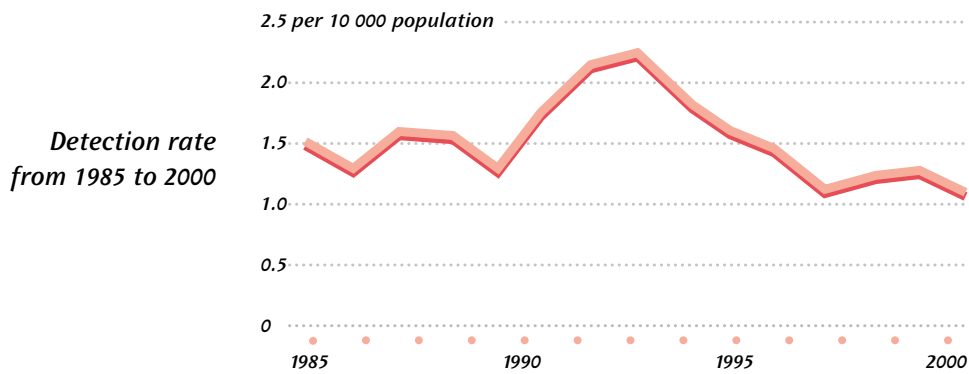
In another time and place, when the leprosarium located off the coast of Massachusetts (United States) was finally closed in 1921, the buildings were dynamited and then burned to cinders. The island, considered forever unfit for healthy humans, was declared a bird sanctuary in 1942. In Benin on the other hand, the leprosaria have had a different fate. With the largest ones in Ouidah, Abomey and Dassa-Zoumè leading the way, all 20 were eventually phased out as homes for the slowly dying, and completely transformed. The largest, including the one in Abomey, now operate as national training centres for health staff. The remainder serve the general population as primary health care centres, providing a backbone of services that reach every province. Benin's leprosaria—once shelters for the socially excluded—are now centres of care for everyone.

Prevalence rate from 1985 to 2000





Benin's leprosaria—once shelters for the socially excluded—are now centres of care for everyone.



# Conclusion

Experts in public health have long agreed that sustainable progress in the improvement of human health cannot take place unless certain key elements are in place. These include community participation, a sense of local ownership, the ability to move from showcase pilot areas to national coverage, integration into general health services, extensive health education, and support from a technology that is safe, accessible, simple and effective. Ideally, too, the health problem should have sufficient emotional and political appeal to attract the support of governments, donors, and voluntary groups.

As these country experiences have shown, the drive to eliminate leprosy has seen all these elements put in place and working well. It has also demonstrated that it is possible to bring lasting improvements in human health by pushing a widespread, devastating and universally dreaded disease close to the verge of disappearance. At the same time, achieving the goal of leprosy elimination will accomplish much more than simply resolving a public health problem. In countries which have reached the goal, it has already enhanced the credibility and confidence of local health services and put in place systems that are being used to tackle other diseases. Moreover, leprosy is closely linked with poverty and typically affects young adults, particularly among the poorest of the poor. A strategy of early detection and treatment not only stops the transmission of leprosy, but also prevents disabilities and thereby halts the downward spiral towards social exclusion and destitution that has ruined so many lives.

The disease is clearly in retreat. In 1996, the total number of registered leprosy cases in the world dropped below 1 million for the first time in recorded history. Since the introduction of multidrug therapy,



about 11 million leprosy sufferers have been cured. Deformities have been prevented in some 2–3 million people. The disease has now been eliminated from at least 98 countries and the global leprosy burden has been reduced by more than 87%.

Yet problems remain. Some cases continue to be detected only at a late stage after irreversible disabilities have set in. Stigma remains a major obstacle, often making patients reluctant to come forward for treatment at an early stage. Leprosy and its disabilities are visibly still with us, though on a dramatically reduced scale.

**In 1970, the world had an estimated 10 780 000 leprosy patients.**

**In 1996, the total number of registered leprosy cases dropped below 1 million for the first time in recorded history.**



### **Prospects for further progress are good.**

The determination of the international community remains strong. Generous support continues. And countries are responding with vigour, refining control strategies and reaching greater numbers with the uplifting message that leprosy can be cured. Radio jingles, bus-stop posters and government motorcades have been added to the arsenal of weapons. Leprosy—a cause of so much misery and anguish for so many years—is in a corner, on the verge of defeat.

With the advent of multidrug therapy, leprosy is no longer a complex technical or medical problem. Nor does its elimination pose any insurmountable operational or logistical problems. Control activities are ideally suited for integration into general health services. With a minimum of training, the disease is easily diagnosed on the basis of clinical signs alone, without the need for sophisticated and expensive laboratory support. All health workers can be trained in simple procedures for diagnosing the disease and prescribing the appropriate treatment, which is now dispensed in convenient calendar blister packs that simplify treatment and encourage full compliance.

Relapse is rare. After completion of treatment, virtually no patients experience a recurrence of disease. No resistance of the causative organism to the multidrug combination has been recorded. Moreover, intensive research conducted in countries having a heavy dual burden of leprosy and HIV/AIDS has failed to detect any interaction between the two diseases.

**It is almost as if leprosy, weakened by the onslaught of powerful drugs in a focused, effective attack, has at last acquiesced to collaborate in its own destruction.**



■ ■ ...the eight countries with the highest prevalence of the disease: Angola, Brazil, Guinea, India, Madagascar, Mozambique, Myanmar and Nepal. ■ ■

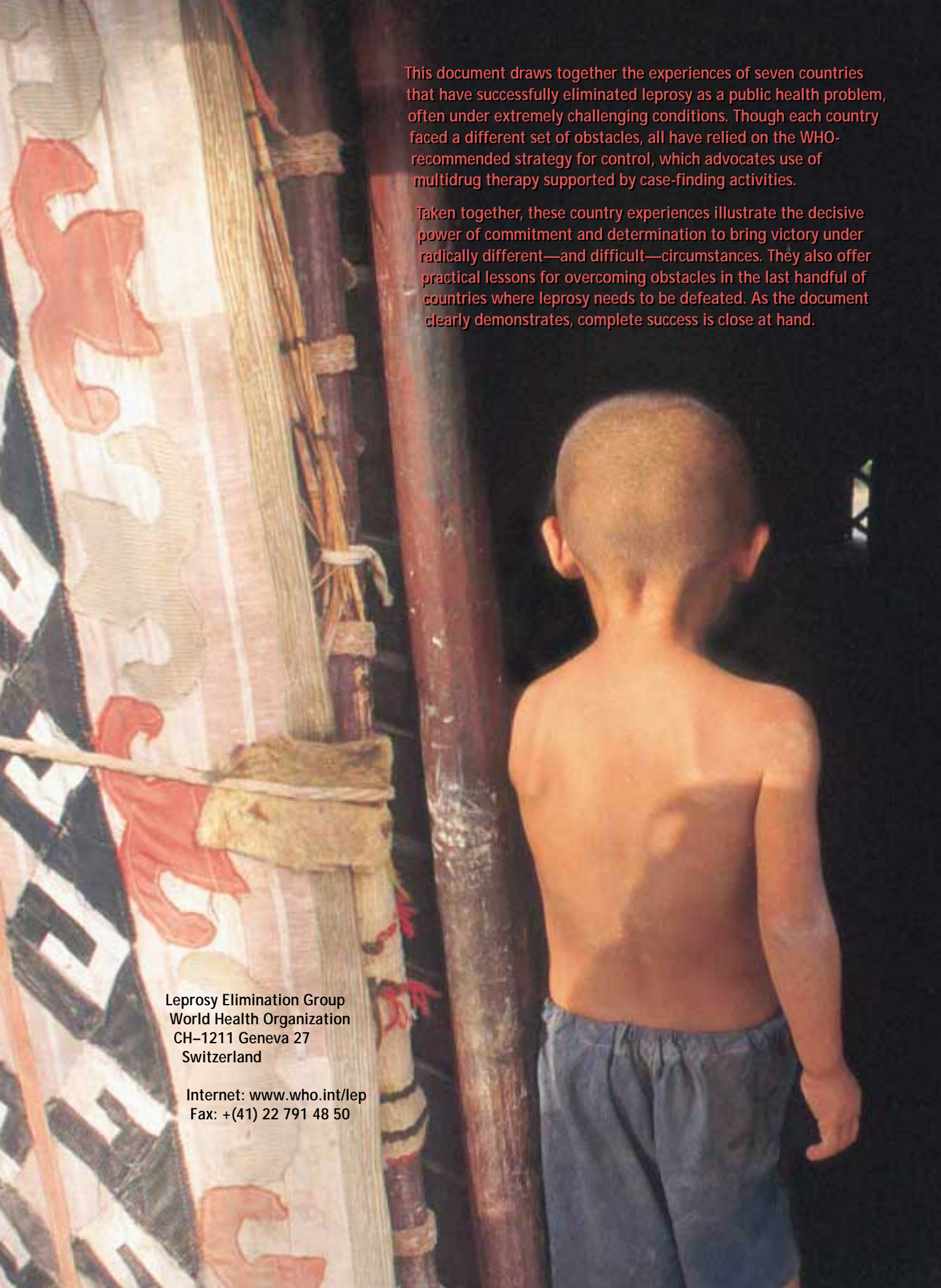
Much of the global leprosy burden is now confined to the eight countries with the highest prevalence of the disease: Angola, Brazil, Guinea, India, Madagascar, Mozambique, Myanmar and Nepal. These countries will need to find everyone suffering from the disease and cure them using multidrug therapy. As the stories collected here have shown, integration of leprosy control activities into the general health services will be of vital importance, as are efforts aimed at reducing the stigma of this disease and thus encouraging patients with telltale signs to seek timely treatment.

Efforts along these lines are now under way in India, a country considered by many to be both the birthplace of leprosy and its last and most important stronghold. Though slow in expanding multidrug therapy in some states, India is now going after its leprosy problem with a vengeance. Massive special campaigns, focused on rigorous case detection and treatment and training of health staff, have been conducted since the late 1990s in the country's most endemic states. In one such state, the campaign involved house-to-house examinations reaching almost 29 million people, with the result that over 62 000 previously hidden cases were identified and registered for treatment.

In January 2000, India launched what may very well be the world's largest ever media campaign targeted at speeding the elimination of the disease and countering dangerous popular myths. To reach the country's vast population, this all-out campaign used TV spots, radio jingles, cinema, banners, rallies, stickers on buses and rickshaws, and messages amplified by microphones to reach crowds in busy city streets and bazaars.

As a result, some communities are now using what may be the world's most cost-effective diagnostic tool. Simple testing of sensory loss—a cardinal diagnostic sign unique to the disease—is making it possible to detect more cases at the early stage when quick and complete cure is possible.

How fitting it will be if simple diagnostic procedures join powerful multidrug therapy as the winning combination that finally defeats leprosy in this last, most populous, ancestral home.



This document draws together the experiences of seven countries that have successfully eliminated leprosy as a public health problem, often under extremely challenging conditions. Though each country faced a different set of obstacles, all have relied on the WHO-recommended strategy for control, which advocates use of multidrug therapy supported by case-finding activities.

Taken together, these country experiences illustrate the decisive power of commitment and determination to bring victory under radically different—and difficult—circumstances. They also offer practical lessons for overcoming obstacles in the last handful of countries where leprosy needs to be defeated. As the document clearly demonstrates, complete success is close at hand.

Leprosy Elimination Group  
World Health Organization  
CH-1211 Geneva 27  
Switzerland

Internet: [www.who.int/lep](http://www.who.int/lep)  
Fax: +(41) 22 791 48 50