

Global Programme to Eliminate Lymphatic Filariasis



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Global
Programme
to Eliminate
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Filariasis

Annual Report on Lymphatic Filariasis 2003



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PROGRAMME HIGHLIGHTS

IN THE COUNTRIES

- In 2003, more than 70 million people in 36 countries were given the recommended two-drug, once-yearly treatment of mass drug administration under the Global Programme to Eliminate Lymphatic Filariasis; this is almost a 14% increase in the number of people covered since 2002. Furthermore, 52 million people in India were covered with diethylcarbamazine citrate (DEC) alone.
- An at-risk population of 11.2 million people was covered by a first round of MDA in 2003.
- The planned national elimination programmes and requests for donated drugs from three additional countries were examined and approved; they will be implemented in 2004.
- GlaxoSmithKline donated 94 million albendazole tablets to WHO, which were supplied to 34 countries for either the first or a subsequent round of MDA.
- Merck & Co., Inc. donated 65.8 million ivermectin (Mectizan®) tablets, which were supplied to eight countries covered by the African Programme Review Group and the Eastern Mediterranean Programme Review Group. Of these, 60.2 million were donated for areas endemic for lymphatic filariasis only and 5.6 million for areas where lymphatic filariasis and onchocerciasis are co-endemic.
- WHO procured 121 million DEC tablets from prequalified manufacturers and supplied them to 22 countries.

- Surveys continued in all countries to complete the initial assessment and mapping of lymphatic filariasis transmission in implementation units.

IN THE REGIONS

- All the six regional Programme Review Groups met in 2003 and reviewed progress being made by country programmes and approved requests for cost-free supply of drugs.
- Meetings of lymphatic filariasis elimination programme managers were held to enable the managers to share experience and exchange information.
- A one-day fundraising workshop was organized following the meeting of the Mekong-Plus Regional Programme Review Group and was attended by all the national programme managers of that region.
- A workshop on prevention of disability associated with lymphatic filariasis was organized jointly by the United Nations Children's Fund/United Nations Development Programme/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) and the WHO Programme for the Elimination of Lymphatic Filariasis, in Colombo, Sri Lanka, in November 2003. The workshop was attended by participants from Bangladesh, India, Indonesia, Nepal, the Philippines, Sri Lanka, Thailand and Viet Nam.
- Training was carried out in all Programme Review Group regions on the interruption of transmission and on disability prevention, as shown in the table below.

Training courses carried out in Programme Review Group regions, 2003

Regional Programme Review Group	Interruption of transmission		Disability prevention	
	No. of courses	No. of people trained	No. of courses	No. of people trained
African	1 153	31 172	74	1 469
American	39	4 046	17	189
Eastern Mediterranean	181	4 292	23	507
Mekong-Plus	175	9 433	144	6 360
PacCARE	67	4 572	54	9 727
South Asia	397	19 397	105	6 026
Total	2 012	72 912	417	24 278

AT THE GLOBAL LEVEL

- The Technical Advisory Group on the Global Elimination of Lymphatic Filariasis (TAG-LF) subgroup on monitoring and evaluation met in Atlanta, USA, in February 2003 and finalized guidelines on monitoring and evaluation.
- During the Meeting of the American Society of Tropical Medicine and Hygiene which took place in Philadelphia, USA, in December 2003 a special session was organized to present a review of the first three years of the Global Programme to Eliminate Lymphatic Filariasis (GPELF).
- TAG-LF held its fourth meeting at Veyrier-du-Lac, France, in March 2003 and discussed issues related to monitoring and evaluation, research, chemotherapy, strategies for implementing prevention of disability caused by lymphatic filariasis, synergy in MDA for lymphatic filariasis and soil-transmitted helminth control programmes, and social mobilization.
- The overall progress made by GPELF in the areas of drug co-administration, training, monitoring and evaluation and social mobilization was highlighted by TAG-LF, which concluded that disability alleviation and prevention and resource mobilization remain major challenges.
- Following the fourth meeting of TAG-LF, a meeting of the regional focal points for lymphatic filariasis was organized in Veyrier-du-Lac, France, to discuss technical issues and create a more efficient working relationship between the various parties involved in GPELF.
- In December 2003 a workshop was held in Berlin, Germany, on intensified control of neglected diseases hosted by WHO, German Technical Cooperation, the German Ministry for Development and Technical Cooperation, the German Ministry for Health and Social Security, and TDR. Lymphatic filariasis was one of the neglected diseases included in the discussion.
- The *Strategic plan 2003–2005 – Challenges of scaling up* was developed to provide strategic guidelines as a basis for regional Programme Review Groups and country programme managers to finalize specific implementation plans appropriate to their regions and countries.

INTRODUCTION

This Annual Report highlights the progress made during 2003 in activities aimed at the worldwide elimination of lymphatic filariasis (LF) through the efforts of the Global Programme to Eliminate Lymphatic Filariasis (GPELF), which was launched in 1999.

GPELF has expanded its mass drug administration (MDA) coverage with the recommended two-drug co-administration from a modest 3 million people in 12 countries in 2000 to more than 70 million in 36 countries during 2003. In addition, as part of an ongoing programme, India has covered an additional number of people with diethylcarbamazine citrate (DEC) alone. In 2002, the population in the implementation units (IUs) covered exceeded the anticipated targets that were laid down in GPELF's strategic plan developed in 1999.¹ Encouraged by this rapid expansion, the partners of the Global Alliance to Eliminate Lymphatic Filariasis (GAELF) set the target for MDA coverage at 350 million people in 2005.

Subsequently, a strategic plan for scaling up to achieve the target was developed in 2003 in consultation with partners, including the endemic countries. This strategic plan covering the period 2003–2005 was approved by TAG-LF. To ensure that this target is realistic, however, and to assess the resource requirements, each endemic country with an active programme was requested to provide a forecast of scaling up of MDA for the period 2004–2008. The forecast was to include funding requirements, with an indication of resources that would be provided by the ministry of health.

Feedback has been received from the countries and is in the process of being analysed. The results will be made available in due course.

¹ Building partnerships for lymphatic filariasis: strategic plan, September 1999. Geneva, World Health Organization, 1999 (WHO/FIL/99.198).

CHAPTER 1

PROGRESS OF THE GLOBAL PROGRAMME TO ELIMINATE LYMPHATIC FILARIASIS

MAPPING THE DISTRIBUTION OF LYMPHATIC FILARIASIS

Before the establishment of GPELF in 1999, very few countries had undertaken mapping of LF on a national scale. Endemicity was therefore either underestimated or overestimated and its true level was unknown.

In some countries, endemicity was estimated using historical data obtained from microfilaraemia prevalence surveys carried out during treatment of infected people. This type of blood survey, however, has low sensitivity and the data obtained may therefore be inaccurate.

The introduction of the immuno-chromatographic test (ICT) as a rapid and practical diagnostic tool for *Wuchereria bancrofti* infection has greatly improved diagnosis at field level. The ICT is carried out on blood obtained from a finger-prick taken at any time of the day and gives results within a few minutes, unlike the microfilaraemia parasitological test which has to be performed at night, between 22:00 and 02:00. The ICT is easy to do and its greater sensitivity results in more reliable data on the distribution of LF endemicity.

GPELF has also supported training of programme managers in all the Programme Review Group (PRG) regions in the use of a software package developed by the World Health Organization called HealthMapper. This is an integrated database management and mapping tool that enables national LF programme managers to analyse geographical distribution of LF. It can also aid the process of analysing LF distribution with that of other diseases. The analysis of endemic areas bordering on other endemic

countries is beneficial to operations in cross-border situations where migration is high. In addition, the African and PacCARE PRGs have developed database software to handle their data.

From as early as 1998, many countries in the Pacific region began mapping using the methodology recommended by GPELF. In most cases, this mapping exercise confirmed the validity of data on LF endemicity in countries previously gathered by microfilaraemia.

Since 2000, with GPELF support, other regional PRGs either completed or began LF mapping. In 2002, some operational problems were encountered with the use of ICT cards because of a change in the manufacturing process. The new ICT card that was subsequently developed to overcome those problems must be read at 10 minutes exactly, in accordance with the manufacturer's guidelines, and not after a longer period as was the case previously. This presented a constraint for field operations and the purchase of ICT cards was delayed, which led, in turn, to delays in gathering data for mapping and the mapping itself.

By the end of 2003, 45 countries (54% of the LF-endemic countries) successfully completed mapping exercises and 17 countries (20%) made progress in LF mapping (Figure 1.1). At least nine countries have planned to map LF at national level in 2004 and 2005, nine of them from the African region (Cape Verde, Central African Republic, Equatorial Guinea, Guinea-Bissau, Liberia, Réunion (France), Seychelles and Sierra Leone) and one from the Eastern Mediterranean (Sudan) (see Table 1.1).

Figure 1.1 Implementation of mapping in the Global Programme to Eliminate Lymphatic Filariasis*



*NB 12 countries are outstanding, see Table 1.2.

Table 1.1 Status of mapping by country and territories, by regional Programme Review Group

Completed	In progress	Planned
African Benin Burkina Faso Cameroon Comoros Gambia Ghana Madagascar Malawi Mali Niger Senegal Togo Uganda Zanzibar, United Republic of Tanzania ^a	Côte d'Ivoire Kenya Mozambique Nigeria United Republic of Tanzania Zambia Zimbabwe	Cape Verde Central African Republic Equatorial Guinea Guinea-Bissau Liberia Réunion (France) Seychelles Sierra Leone
American Costa Rica Guyana Haiti Suriname Trinidad and Tobago	Dominican Republic Brazil	
Eastern Mediterranean Egypt Yemen		Sudan
Mekong-Plus Brunei Darussalam Cambodia China Malaysia Thailand Timor-Leste Republic of Korea Viet Nam	Indonesia Lao People's Democratic Republic Myanmar Philippines	
PacCARE American Samoa Cook Islands French Polynesia Fiji Kiribati Marshall Islands Micronesia, Federated States of New Caledonia Niue Palau Samoa Solomon Islands Tonga Tuvalu Vanuatu Wallis and Futuna	Papua New Guinea	
South Asia Nepal Sri Lanka	Bangladesh India Maldives	

^a Zanzibar, being a part of the United Republic of Tanzania, is not counted as a country.

After a parasitological survey was carried out, three more countries, namely Marshall Islands, Palau and Timor-Leste, were reported to be LF-endemic, bringing the total number of endemic countries to 83.

Surveys carried out between 2002 and 2003 in a sample of 3000 primary-school children, using ICT cards, revealed that there were no positive cases in Costa Rica, Suriname and Trinidad and Tobago under the American PRG and Solomon Islands under the Pacific Initiative for the Elimination of Lymphatic Filariasis (PacELF) and its

Coordinating and Review Group (PacCARE).

Mapping of LF distribution continues to be a priority (see Table 1.2). Countries with a large estimated at-risk population are progressing with mapping and extending their survey areas to the whole country in order to be able to scale up MDA.

One of the GPELF targets is to complete LF endemicity mapping in all of the 83 LF-endemic countries by the year 2005.

Table 1.2 Progress in mapping of LF distribution, by regional Programme Review Group, 2003

Regional Programme Review Group	Mapping (no. of countries)				
	Completed	In progress	Planned	Outstanding	Total
African	13 ^a	7	8	11	39
American	5	2	0	0	7
Eastern Mediterranean	2	0	1	0	3
Mekong-Plus	7	4	0	1	12
PacCARE	16	1	0	0	17
South Asia	2	3	0	0	5
Total	45	17	9	12	83

^a This figure does not include Zanzibar, which is part of the United Republic of Tanzania.

SURVEILLANCE OF THE SAFE USE OF CO-ADMINISTERED DRUGS

The high level of safety of all three recommended drugs used in the national programmes to eliminate LF – albendazole, DEC and ivermectin – when administered individually in a single dose is well documented. Practical field experience using each drug extends to hundreds of millions of people treated – in the case of albendazole over the past 20 years and in the case of DEC over the past 50 years. However, before GPELF's first MDA took place using the recommended co-administration of DEC plus albendazole or ivermectin plus albendazole, it was necessary to document the safe use of their co-administration. An extensive review of data on adverse drug reactions recorded in controlled studies that compared co-administration with single administration was completed and reviewed by a committee of experts in pharmacovigilance.

Adverse drug reactions do sometimes occur following treatment, especially with DEC, primarily as a result of the immune inflammatory response of the individual to the dying parasites; the greater the microfilarial load

in the patient, the greater the frequency and severity of such reactions. These can include systemic responses such as headache, myalgia, light-headedness, anorexia, malaise, nausea, vomiting and wheezing, or, less commonly, localized reactions such as lymphadenitis, funiculitis, epididymitis, lymphangitis and even abscess formation. Only rarely, in heavily infected individuals, these post-treatment reactions are severe or require more than symptomatic treatment. In December 1999, the safety review committee verified that there was no evidence that the co-administration of albendazole with DEC or with ivermectin resulted in any greater frequency or severity of side reactions compared to single-drug administration with DEC or ivermectin alone.

Following this documentation on the safety of the co-administered drugs, WHO gave its approval to the use of MDA in national programmes to eliminate LF, with the two-drug combinations at the recommended once-yearly dosages, i.e. albendazole: 400 mg; plus either DEC: 6 mg/kg or ivermectin: 150–250 µg/kg. However, all country programmes starting MDA with the recommended co-administration of drugs were advised to undertake active surveillance for the recording of adverse drug

reactions in a sub-population of 1000–2000 individuals who are generally representative of the population to be covered. Such monitoring consisted of interviews on day 5, day 6 or day 7 after treatment to elicit whether or not side-effects were experienced after the drugs were taken. A standard questionnaire was designed to record adverse reactions in individuals who had ingested the co-administered drugs during MDA. The type of adverse reaction and its severity was recorded. Data from 13 programmes in 12 countries were analysed. Out of the 27 912 respondents, 18 081 took DEC plus albendazole and 9831 took ivermectin plus albendazole in the first round of MDA. Of the respondents, 25.6% reported an adverse reaction after taking the drugs (26.5% who had taken DEC plus albendazole and 24% who had taken ivermectin plus albendazole). However, in only 3.5% (5.4% in the DEC plus albendazole group and 1.4% in the ivermectin plus albendazole group) was the adverse reaction of such severity that they were unable to function normally in their daily activities of going to work or school. The most common adverse reactions in the DEC plus albendazole group were dizziness, headache, nausea and fatigue; in the ivermectin plus albendazole group they were headache, joint or muscular pains, nausea and abdominal pain.

In February 2003, the WHO Safety Review Committee, consisting of programme staff and external and internal experts on drug safety, reviewed the use of the combined drugs. Based on the data collected, the committee came to the following conclusions and recommendations, which were endorsed by TAG-LF at its fourth meeting in March 2003.

- After reviewing the findings of the active surveillance following single exposure to co-administered drugs in 27 912 individuals (18 081 received DEC and albendazole, while 9831 received ivermectin and albendazole co-administrations), the committee concluded that the frequency and intensity of the reported reactions were in line with previously documented reactions.
- Based on this finding, the committee decided that there was no need to continue with the active surveillance for side-effects. Furthermore, because of the nature of the reactions observed, the committee did not expect significant changes in the pattern and fre-

quency of these particular adverse reactions in subsequent exposure to the drugs.

- The committee recommended that in future the focus should be on the identification and management of idiosyncratic reactions to the drugs, and in particular to the serious adverse experiences (SAEs) following drug administration. Programme managers should be instructed to report any such reactions.
- An SAE is defined as an adverse experience following treatment with a drug that results in any of the following:
 - death;
 - life-threatening condition;
 - in-patient hospitalization or prolongation of an existing hospitalization;
 - persistent or significant disability or incapacity;
 - congenital anomaly or birth defect;
 - cancer;
 - overdose (accidental or intentional).

Important medical events not resulting in death or a life-threatening condition or requiring hospitalization may be considered SAEs when, based upon appropriate medical judgement, they jeopardize the patient or subject and may require medical or surgical intervention to prevent one of the outcomes listed in the above definition; such events should also be reported.

The report of an SAE should be handled with utmost urgency and should initially be taken care of according to local regulations before immediate forwarding to WHO by the national programme manager.

- The committee reinforced TAG-LF's recommendations to:
 - encourage programme managers to be vigilant and report pregnant women who are excluded from drug exposure during MDA;
 - use the last menstrual period as an appropriate measure to prevent drug administration to pregnant women during MDA campaigns.

Based on the review of the status of the national programmes and the materials presented, there was no obvious cause for concern about the continuation and

further scaling up of MDA provided the above-mentioned pharmacovigilance activities continued. However, the committee pointed out the increased possibility of idiosyncratic adverse drug reactions with successive annual drug administrations to the same patients. This also means that the occurrence of SAEs may increase and subsequently lead to reassessment of the safety of the drugs.

In all communities receiving co-administered albendazole plus DEC as part of a programme to eliminate LF, any SAE must be identified and handled in the most medically responsible way possible. The SAE must then be reported immediately on the standard reporting form, as prescribed by the national regulatory bodies, as well as to WHO and the drug manufacturers concerned.

This reporting requirement means that there must be a defined route of communication and access from the patient to the health-care system that is well understood and available during at least the first week (but preferably two weeks) following drug administration.

For other adverse drug reactions that might develop, medical care must also be available, but no specific monitoring or reporting of side-effects is required.

SUPPLYING QUALITY MEDICINES FOR FILARIASIS ELIMINATION

The drugs required to interrupt LF transmission are albendazole, DEC and ivermectin. Mass treatment using these drugs calls for the distribution of huge numbers of tablets, which requires innovative logistics (see Table 1.3).

In December 1997, GlaxoSmithKline (GSK) (then known as SmithKline Beecham) – announced it would donate albendazole to WHO for use by national elimination programmes of LF-endemic countries and collaborating partners of GPELF. In 1998, Merck and Co., Inc. extended its donation of ivermectin (Mectizan®) to include Yemen and the African countries where onchocerciasis and LF are co-endemic (39 countries in Africa are known to be LF-endemic, 28 of which are co-endemic with onchocerciasis).

GlaxoSmithKline

GSK is an active partner in the global effort to eliminate LF. At the second meeting of the Global Alliance

to Eliminate Lymphatic Filariasis, held in New Delhi, India, in May 2002, Dr J.-P. Garnier, Chief Executive Officer, GSK, announced the donation of the first 100 million albendazole tablets since the inception of the LF elimination effort four years earlier. Dr Garnier also reconfirmed GSK's fervent dedication to working with WHO, ministries of health of LF-endemic countries, Merck & Co., Inc. and other partners of the Global Alliance to help achieve the goal of global elimination of the disease.

In 2003, GSK supplied 94 million albendazole tablets to 34 countries for MDA programmes (Uganda had no MDA in 2003 and Guyana uses DEC-fortified salt).

Merck & Co., Inc. – Mectizan® Donation Program

The role of the Mectizan® Expert Committee/Albendazole Coordination (MEC/AC) and its secretariat, the Mectizan® Donation Program (MDP), is to ensure the safe and appropriate co-administration of ivermectin (Mectizan®) plus albendazole for the elimination of LF.

Since 2000, national elimination programmes in areas where LF and onchocerciasis are co-endemic have applied to MEC/AC and to WHO for donations of the two drugs, ivermectin plus albendazole, to provide the LF-endemic populations with the combined drug treatment.

In 2003 the MDP supplied more than 65 million ivermectin tablets to eight countries for MDA programmes.

Diethylcarbamazine citrate

To fulfil the mandate of eliminating LF as a public health problem by the year 2020, it was estimated that supplies of DEC would be needed for 15 years, representing approximately 15 billion quality-assessed tablets, manufactured according to good manufacturing practices (GMP) by reliable companies able to deliver on time. These practices ensure that products are consistently produced to the standards appropriate for their intended use and in accordance with the product specifications. In order to identify sources of DEC, information was sought from:

- regulatory authorities willing to supply information on manufacturers that had registered DEC for sale in countries where LF is a public health problem;
- LF programmes that had purchased DEC;

- LF experts from around the world having information on manufacturers of DEC;
- organizations such as the International Generic Pharmaceutical Alliance, British Generic Association, and the online network E-Drug.

In addition, a search was launched through the Internet and through advertisements placed in international journals and pharmaceutical guides and compendia.

In November 1999, an inventory of DEC manufacturers was prepared. The inventory included only manufacturers that supplied information on quality assurance in their manufacturing sites. Because of the geographical distribution of the disease, many commercial manufacturers of DEC tablets were identified in the developing world, of which approximately half were in India.

In 2003, WHO procured 121 million DEC tablets which were supplied to 22 endemic countries.

Developing a modern assay for DEC

In March 2000, GPELF organized an informal consultation to secure a consensus on appropriate standards and guidelines proposed for the DEC active pharmaceutical ingredient (API) and tablets and to discuss currently available assay methods. Participants recommended that WHO develop a modern stability-indicating assay for DEC that meets current standards, including dissolution. A high-pressure liquid chromatography (HPLC) analytical method was developed in Switzerland and validated by independent laboratories in Germany, India and Sri Lanka. The United States Pharmacopoeia and the Indian Pharmacopoeia have adopted this new modern stability-indicating method for DEC.

DEC prequalification process

Only manufacturers are eligible for prequalification within the DEC project. Before an on-site inspection can take place, the project team requires that an independent analytical laboratory evaluate DEC, and the manufacturer is requested to complete the WHO Information Questionnaire for Prospective Suppliers of Pharmaceutical Products and supply additional technical information. The inspection team includes WHO staff and former senior members of a European regulatory agency (signatory of the Pharmaceutical Inspection

Cooperation Scheme), a multinational pharmaceutical company, and a pharmaceutical manufacturing facility in Australia.

The manufacturer is requested to provide a copy of the most recent batch record for manufacturing and packaging, and information on stability studies, sources of reference substances, active pharmaceutical ingredients and all other materials used in manufacture. Additionally, the company must conduct the stability tests of DEC according to the WHO Stability Guidelines for Zone IV (hot and humid conditions) and International Conference of Harmonization Guidelines for evaluation of stability of pharmaceuticals in Zone IV (Quality Topic Q1F). The team requests national or state regulatory authorities to nominate inspectors to accompany the inspection team. It discusses the DEC project with the regulatory authorities, inspectors, and the minister of health for the state or country. The inspection team uses WHO guidelines during the inspection as a general guide to GMP.

Prequalification of two DEC manufacturers

A manufacturer that has an acceptable compliance profile is confirmed as a prequalified DEC provider. Prequalification is valid for two years. After this time manufacturers should be re-inspected and re-qualified, preferably by or with the assistance of the national drug regulatory authority, through an evaluation of recent documentation and on-site inspection.

Although a number of manufacturers have been identified by the DEC project, not all were compliant on various criteria and tests. From November 2002, the two prequalified DEC tablet manufacturers are Panacea Biotech, New Delhi, India, and Unichem Laboratories, Goa, India. There is only one prequalified DEC API manufacturer: Syntholab Chemicals and Research, Mumbai, India.

WHO purchases DEC tablets from prequalified manufacturers only. Country programmes are also strongly encouraged to use prequalified DEC manufacturers for their purchases.

Developing a quality surveillance system

GPELF is currently developing an ongoing system to monitor the quality of purchased DEC. Randomized collection of samples from each of the manufacturers is

handled by an independent company before laboratory testing is carried out to determine whether DEC meets internationally recognized standards. WHO encourages adoption of this ongoing quality surveillance system in national programmes.

Savings linked to bulk purchase

Procurement officials know that increasing the number of tablets purchased normally reduces the price per unit. Experience in WHO has also shown that consolidating orders for many countries based on the projections of an annual global forecast reduces the price even further. Within the project, orders were consolidated for several countries and, using funds provided to WHO by donors, the price obtained per 1000 DEC tablets was 30–45% lower than that paid in 1999. This process demonstrates that a centralized process for purchasing a large number of tablets for several countries lowers the cost. The money saved enables additional amounts of DEC tablets to be purchased while ensuring the highest standards of quality.

Capacity-building

GPELF has built capacity in LF-endemic countries through the provision of training and expertise while improving compliance with GMP and good laboratory practices (GLP). Through on-site inspections, both the manufacturer and national regulatory personnel have the opportunity to learn, gain experience, and improve production procedures and quality assurance systems. During an inspection, the team explains why a procedure is not acceptable or acknowledges compliance and encourages participants to use the exercise as a learning experience, thereby contributing to expanding understanding and improving application of internationally recognized standards.

The DEC project collaborates with manufacturers to ensure that they implement corrective action and main-

tain GMP and GLP during the entire period of validity of the prequalification status for DEC. All improvements that manufacturers make are to the benefit of the LF elimination initiative. The manufacturer is provided with a report listing the observations made during the inspection and a summary of any deficiencies in GMP or GLP.

Since initiation of the project in August 1997, WHO has invested technical and human resources in order to:

- develop and validate new analytical methods for DEC;
- perform dissolution tests of DEC tablets;
- test DEC API and DEC tablets in an independent laboratory;
- conduct various on-site inspections;
- provide necessary technical assistance;
- follow up the above activities.

The benefits gained are substantial. The initial investment is designed to give long-term benefit by ensuring that national programmes to eliminate LF administer quality DEC tablets in 60 of the 83 endemic countries during the 15 years of MDA.

Successful results

The prequalification process has ensured that DEC tablets and APIs have been manufactured in compliance with international standards. In this way, supplies of DEC have been made available for LF elimination activities at a low cost.

The prequalification process has functioned very successfully. The project must now ensure that manufacturing is sustained and sufficient quantities of quality DEC are provided to meet the long-term requirements of the programme. In order to meet the global forecast, bulk purchasing through an international competitive bid mechanism must continue to be strengthened to enable cost reduction and effect significant savings.

Table 1.3 Total population of all IUs for MDA with drug co-administration in 2003

PRG region	Country	Total population of all IUs covered by MDA in 2003	Population reported to have ingested drugs during MDA in 2003	Drug coverage % ^a		
				As reported by IUs	Geographical coverage by IUs	Geographical coverage pop.
African	Benin	839 321	678 638	80.9	31	24.5
	Burkina Faso	7 074 048	5 504 199	77.8	59	55.2
	Comoros	545 537	374 556	68.7	100	100.0
	Ghana	3 777 488	2 681 404	71.0	98	62.4
	Kenya	1 450 991	1 153 468	79.5	ND	5.0 ^e
	Nigeria	4 323 401	3 112 889	72.0	ND	4.1 ^e
	Togo	1 060 569	855 132	80.6	100	100.0
	Uganda ^d	No MDA	No MDA	0.0	0	0.0
	UR Tanzania	2 813 866	1 462 830	52.0	ND	8.8 ^e
	Zanzibar, UR Tanzania	1 049 399	872 731	83.2	100	100.0
American	Dominican Rep.	332 778	250 049	75.1	ND	22.0 ^e
	Guyana	709 506	426000 ^f	ND	ND	ND
	Haiti	757 976	583 541	77.0	18	9.4
Eastern Mediterranean	Egypt	2 731 644	2 547 143	93.2	100	100.0
	Yemen	104 821	82 089	78.3	100	100.0
Mekong-Plus	Indonesia	746 064	635 017	85.1	ND	0.5
	Malaysia ^b	2 912 375	2912375 ^f	ND	100	100.0
	Myanmar	8 339 234	7 667 061	91.9	ND	17.6 ^e
	Philippines	11 559 383	9 093 216	78.7	ND	49.2 ^e
	Thailand	138 988	123 722	89.0	100	100.0
	Viet Nam	117 205	105 079	89.7	ND	7.4 ^e
	Bangladesh	6 692 672	6 168 267	92.2	ND	13.4 ^e
South Asia	India ^c	15 460 508	12 755 037	82.5	3	3.4
	Nepal	508 534	412 923	81.2	ND	2.3 ^e
	Sri Lanka	9 847 588	8 584 037	87.2	100	100.0
PacCARE	American Samoa	57 291	40 211	70.2	100	100.0
	Cook Islands	18 700	13 048	69.8	100	100.0
	Fiji	776 173	483 983	62.4	100	100.0
	French Polynesia	245 516	221 300	90.1	100	100.0
	Kiribati ^b	90 700	36 742	40.5	100	100.0
	Marshall Islands	51 800	933 ^f	1.8	100	1.8
	Micronesia	1 520	756	49.7	100	49.7
	Niue	1 788	1 386	77.5	100	100.0
	Samoa	176 848	140 855	79.6	100	100.0
	Tonga	97 784	88 752	90.8	100	100.0
	Tuvalu	9 561	7 896	82.5	100	100.0
	Vanuatu	186 678	163 271	87.0	100	100.0
	Wallis and Futuna	14 600	9252 ^f	63.4	100	100.0
36 countries under MDA		85 622 855	70 249 788	82.05		

ND: no data provided in annual report.

^a Drug coverage calculated as percentage of persons administered the drugs over a total population in IUs.^b Incomplete data.^c India: in addition 52 million covered with DEC alone.^d Uganda stopped MDA in 2003 during the civil war.^e Denominator: estimated at-risk population.^f Provisional figure pending receipt of final figure.

Table 1.4 LF-endemic countries covered by MDA in 2003 by regional Programme Review Groups

PRG region	Number of endemic countries ^a	At-risk population in endemic countries (million) ^a	At-risk global population (%)	Number of countries started MDA	At-risk population covered in 2003 (million)	%of at-risk population covered in 2003
African ^b	39	477	38.6	8	16.7	3.50
American	7	9	0.7	3	1.3	14.44
Eastern Mediterranean	3	15	1.2	2	2.6	17.33
Mekong-Plus	12	214	17.3	6	20.5	9.58
PacCARE	17	4	0.3	13	1.2	30.00
South-Asia	5	514	41.6	4	27.9	5.43
Total	83	1233	100	36	70.2	5.69

Table 1.5 Evolution of LF-MDA in countries by Programme Review Group

PRG region	Number of endemic countries	Number of countries			Implemented MDA in 2003
		Implemented MDA in 2000	Implemented MDA in 2001	Implemented MDA in 2002	
African	39	4	6	9	8
American	7	0	1	2	3
Eastern Mediterranean	3	1	1	2	2
Mekong Plus	12	1	2	5	6
PacELF	17	6	9	11	13
South-Asia	5	0	3	3	4
Total	83	12	22	32	36

^a At-risk population adjusted according to mapping.^b African PRG, only 8 countries had MDA in 2003. Uganda had no MDA because of internal unrest.

MID-TERM ASSESSMENT OF MICROFILARAEMIA REDUCTION²

GPELF recommends that before the first MDA round, baseline parasitological indicators — microfilaria (mf) prevalence and mf density levels — should be collected in sentinel sites chosen from within the MDA IUs and that before the third and fifth rounds the same sentinel sites should carry out a parasitological survey to compare the data obtained with that of the baseline survey, thus enabling an assessment to be made of the impact of MDA.

In 2003, reports on mid-term assessments were received from sentinel sites in 13 countries. The results provided by each of these countries at the end of 2003 revealed a significant reduction in mf prevalence in most of the sentinel sites.

African PRG (Table 1.6)

Burkina Faso. According to a mapping survey carried out in 2000, all 53 IUs in Burkina Faso, with an estimated population of 12 million, are at risk of LF. MDA started in 2001 in four IUs in Gaoua in the southern part of the country using co-administration of albendazole plus ivermectin, covering 431 399 people. All four IUs have now completed three MDA rounds. Two sentinel sites in Dano and Gaoua (Gora and Perigban) were chosen to monitor the 4 IUs, where mf prevalence was 14.2% and 11.4% respectively and mf density 752 mf/ml and 462 mf/ml respectively. The survey carried out before the third round revealed an mf prevalence of 8.2% and 9.9% respectively and mf density of 638.0 mf/ml and 851 mf/ml respectively, which, compared to the baseline data of the sentinel sites, indicated a reduction of 42.3% and 13.2% respectively in mf prevalence.

² Taken from Weekly epidemiological record, No 40,2004,79,358-365.

Comoros. The entire population of Comoros, estimated at 600 000, is considered to be at risk of LF and is distributed among three islands (Anjouan, Grand Comoros and Moheli), which form three IUs. MDA began in 2001 in two of the three IUs (Grand Comoros and Moheli) covering a total population of 53 308 using DEC plus albendazole. For logistic reasons, only the IU of Grand Comoros, with a total population of 0.29 million, has implemented three MDA rounds. Initially, two sentinel sites were chosen in order to monitor the entire area, but only one site (Ntaweni) reported mf incidence, with an mf prevalence of 10.7% and an mf density of 444 mf/ml. The evaluation survey carried out before the third MDA round in Ntaweni in 2003 revealed an mf prevalence of 4% and an mf density of 92 mf/ml, which, compared with the baseline data, indicated a reduction of 62.6% in mf prevalence.

Ghana. Of Ghana's 110 districts (IUs), 41 are considered to be LF-endemic, with an at-risk population of 6.02 million. MDA began in 2000 in one IU and in an additional two IUs in 2001. Six sentinel sites were chosen for the IUs of Sissala, Ahanta West and Kassena Nankana: Banu, Dasima, Butre, Busua, Biu and Korania, where the baseline data on mf prevalence ranged from 10.1% to 27.0%. No baseline data were reported for mf density. All three IUs have completed at least three MDA rounds covering a total population of 508 624. An evaluation survey was carried out before the fourth round of MDA in Banu and Dasima, and for the other sentinel sites before the third MDA round. The result of this evaluation revealed mf prevalence ranging from 1.0% to 12.0% and mf density ranging from 50 mf/ml to 536.2 mf/ml. Compared with the baseline data, the reductions in mf prevalence ranged from 41.2% to 94.7%.

Conversely, however, the sentinel site of Biu in the IU of Kassena Nankana showed an 18.8% increase in mf prevalence. Since the data on drug coverage relate to the entire IU and not just to the sentinel sites, further investigation is needed to identify the possible cause.

Togo. Mapping completed in Togo in 2000 revealed that seven of its 30 IUs were LF-endemic, with an at-risk population of approximately 1.1 million. MDA using ivermectin plus albendazole began in 2000 in one IU and in an additional two in 2001, covering a total population of 342 398 in the IUs of Binah, Tone and Kpendjal, where three sentinel sites were chosen: Pessarepouh,

Mampoate and Bagre. The baseline survey in the sentinel sites before the MDA began were 10.0%, 1.2% and 0.6% respectively. No data were reported on mf density. In 2003, the evaluation survey carried out before the third and fourth MDA rounds in Pessarepouh revealed an mf prevalence of 0.6%. The mf prevalence was 0% in the other two sites. Compared with the baseline data, mf prevalence had been reduced by 94% in Pessarepouh and by 100% in the other two sentinel sites.

Zanzibar (United Republic of Tanzania). Mapping of LF was completed in Zanzibar in 1989, revealing a total at-risk population of nearly 1 million. Zanzibar comprises two islands (Pemba and Unguja) considered as one IU. Before MDA began in 2001, covering 638 909 people in both islands using ivermectin plus albendazole, the baseline survey data in the two sentinel sites of Kwahani and Kizimkazi showed an mf prevalence of 7.2% and 17.8% respectively and mf density of 108 mf/ml and 136 mf/ml respectively. In 2002, coverage extended to 818 155 people. The evaluation survey carried out before the third MDA round in 2003 showed an mf prevalence of 0.4% in Kwahani and 1.6% in Kizimkazi and mf density of 75 mf/ml and 94 mf/ml respectively. Compared with the baseline data, mf prevalence had been reduced by 94.4% in Kwahani and 91.0% in Kizimkazi.

American PRG (Table 1.7)

Haiti. Mapping of LF in Haiti completed in 2002 revealed that 73 of its 133 IUs were LF-endemic, with an at-risk population of 6 million. The first MDA round using DEC plus albendazole began in 2001 in the IU of Leogane, covering 105 750 people. Four sentinel sites were chosen in Leogane to monitor the entire area: Barrier Jeudi, Leogane, Mapou and Masson Mathieu. The second MDA round in 2002 went on to cover an at-risk population of 434 896 in nine IUs. The evaluation survey carried out before the third MDA round in 2003 showed mf prevalence of up to 4.3%, which, compared with the baseline data of the sentinel sites, indicated reductions in mf prevalence ranging from 84.1% to 100%. No data were reported on mf density in the evaluation survey.

Eastern Mediterranean PRG (Table 1.8)

Egypt. With an estimated at-risk population of 2.4 million, Egypt began MDA using DEC plus albendazole in 2000 in 161 IUs. A total of 47 sentinel sites provided base-

line data showing mf prevalence of up to 10.8%. In the second round in 2001, 178 IUs were targeted. The third round in 2002 targeted 179 IUs, achieving a coverage of 2 448 394 people. Of the 179 endemic IUs currently being covered by MDA, 161 have completed their fourth round; the remaining 18 have completed a third round. The results of the evaluation survey carried out in the 47 sentinel sites before the third and fourth MDA round in 2003 indicated reductions in mf prevalence ranging from 21.4% to 100%, compared with the baseline data. No data were reported on mf density.

Mekong-Plus PRG (Table 1.9)

Myanmar. Mapping in Myanmar has yet to be completed but so far identified an at-risk population of more than 28 million. MDA began in 2001 using DEC plus albendazole in four IUs. Four sentinel sites were chosen in two of the IUs: Chauk Ward, Myolulin, Peyidawaye Ward and Kyauktan in Magway and Thayed. Before MDA began in 2001, the baseline survey data in these sites revealed mf prevalence ranging from 1.1% to 7.1 % and mf density ranging from 115 mf/ml to 675 mf/ml. Each IU has completed three MDA rounds covering a total population of 2.06 million. The evaluation survey carried out before the third round in 2003 indicated reductions in mf prevalence ranging from 9.1% to 82.7%, compared with the baseline data of the sentinel sites.

Philippines. Almost 35% of the Philippines' 68 million population is estimated to be at risk and mapping is still in progress. The first MDA round began in 2000 in 26 IUs, progressing to an additional 75 in 2001. Each of these IUs completed a third and fourth MDA round, covering a total population of 3.05 million. Nine sentinel sites provided data on mf prevalence before the first MDA, ranging from 1.1% to 29.0%. No data were reported on mf density. The evaluation survey carried out before the third and fourth MDA rounds in 2003 showed mf prevalence of up to 10.8% which, compared with the baseline data, indicated reductions in mf prevalence ranging from 24% to 100%.

The sentinel site of Bulalacao in Mindoro Oriental (Region 4) reported a sharp increase in the mf prevalence. Examination of the sentinel site data indicated that the baseline survey in 2000 covered a population of 113, while that in 2003 covered 250. Investigation is

required to ascertain whether this is attributable to a sampling error or to other causes.

PacCARE PRG (Table 1.10)

French Polynesia. French Polynesia began MDA in 2000 in the entire country, considered as one LF-endemic IU, using DEC plus albendazole. Tahuata was chosen as the sentinel site where, before MDA began in 2001, the baseline survey on mf prevalence was 11.0%. No data on mf density were reported. In 2003, the country completed its fourth MDA round, covering a total population of 0.23 million. The evaluation survey carried out before the fourth round showed an mf prevalence of 5.8%, which, compared with the baseline data of this sentinel site, indicated a reduction of 47.3%.

Samoa. Samoa began MDA using DEC plus albendazole in 1999 in the entire country, considered as one IU. Six sentinel sites were chosen: Latosa, Leloto, Falevao, Salimu, Manase and Sagona. The country has now completed its fifth MDA round, covering a total population of 0.17 million. The evaluation survey carried out before the fourth MDA round in 2003 on mf prevalence, compared with the baseline data in the sentinel sites before MDA began, indicated reductions in mf prevalence ranging from 33.3% to 100%. No data on mf density were reported.

Vanuatu. The archipelago of Vanuatu is totally LF endemic, with a population of 186 678. MDA began in 2000 using DEC plus albendazole in the entire country, considered as one IU. Eight sentinel sites were chosen. The country has completed four MDA rounds, covering a total population of 0.20 million. The baseline data on mf prevalence obtained before MDA began in 2000 ranged from 2.0% to 28.0 %. No data on mf density were reported. The evaluation data obtained before the fourth MDA round began in 2003 indicated reductions in mf prevalence ranging from 87.9% to 100%, compared with the baseline data.

South Asia³ PRG (Table 1.11)

Sri Lanka. Sri Lanka, with a population of over 18 million of which more than 55% are estimated to be at risk in eight of 25 IUs, began MDA under GPELF in 2001 in Colombo district, using DEC plus albendazole. Until then, the eight endemic IUs had administered DEC alone; a further seven IUs were treated using DEC alone in 2001.

³ Formerly the Indian subcontinent PRG.

Nine sentinel sites were chosen: Dehiwala, Homagama, Kolonnawa, Kotte, Moratuwa, Piliyandala, Kaduwela, Maharagama and Colombo. Baseline data reported by the nine sentinel sites revealed mf prevalence of up to 0.88%. No data on mf density were reported. In 2002, the second MDA round targeted all eight endemic IUs. The evaluation survey carried out before the third MDA round in 2003 showed mf prevalence ranging from 0.02% to 1.32%, indicating a reduction of up to 76.2% when compared with the baseline data.

Table 1.6 Report of mid-term assessment by the African Programme Review Group

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage				Blood survey before 3rd or 4th round		Reduction in mf prevalence (%)
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	4° MDA	mf prevalence (%)	mf density (mf/ml)	
Burkina Faso	Dano	Gora	2001	14.2	752	3	80.6	85.2	78.4	—	8.2	638.0	42.3
Comoros	Gaoua	Perigban	2001	11.4	462	3	75.8	73.0	75.5	—	9.9	851.0	13.2
Comoros	Grande Comoros	Ntsaweni	2001	10.7	444	3	97.0	45.3	63.0	—	4.0	92.0	62.6
Ghana	Sissala	Banu	2000	19.0	ND	4	ND	72.0	71.1	70.5	1.0	50.0	94.7
		Dasima ^a	2000	17.0	ND	4	ND	72.0	71.1	70.5	10.0	101.2	41.2
	Ahanta West	Butre	2001	27.0	ND	3	75.0	70.8	72.1	—	3.8	536.2	85.9
		Busua	2001	19.0	ND	3	75.0	70.8	72.1	—	5.0	168.3	73.7
	Kassena Nankana	Biu	2001	10.1	ND	3	63.0	70.1	61.8	—	12.0	154.5	-18.8
Togo	Binah	Korania	2001	20.0	ND	3	63.0	70.1	61.8	—	4.0	173.8	80.0
	Tone	Pessarepouh ^a	2000	10.0	ND	4	80.6	80.6	77.6	87.7	0.6	3.6	94.0
	Kpendjal	Mampoate	2001	1.2	ND	3	77.1	74.5	80.7	—	0.0	0.0	100.0
UR	Zanzibar	Bagre	2001	0.6	ND	3	65.0	89.5	81.0	—	0.0	0.0	100.0
Tanzania (Zanzibar)		Kwakani	2001	7.2	108	3	67.9	83.1	83.2	—	0.4	75	94.4
		Kizimbazi	2001	17.8	136	3	67.9	83.1	83.2	—	1.6	94	91.0

ND: not determined.

^a Blood survey before 4th MDA round.

Two of the sentinel sites of Colombo district (Colombo MC and Homagama) reported increases in mf prevalence of 61% and 100% respectively (ranging from 0.82% to 1.32% and 0.01% to 0.02% respectively). These differences could be explained by a sampling error attributable to very low mf prevalence.

Table 1.7 Report of mid-term assessment by the American Programme Review Group

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage				Blood survey before 3rd or 4th round		Reduction in mf prevalence (%)
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	4° MDA	mf prevalence (%)	mf density (mf/ml)	
Haiti	Leogane	Barrier Jeudi	2001	16.0	9.0	3	70.5	77.7	83.6	—	1.5	ND	90.6
		Leogane	2001	27.0	10.1	3	70.5	77.7	83.6	—	4.3	ND	84.1
		Mapou	2001	1.0	1.0	3	70.5	77.7	83.6	—	0.0	ND	100.0
		Masson Mathieu	2001	20.0	6.0	3	70.5	77.7	83.6	—	0.6	ND	97.0

Table 1.8 Report of mid-term assessment by the Eastern Mediterranean Programme Review Group

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage				Blood survey before 3rd or 4th round		Reduction in mf prevalence (%)		
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	4° MDA	mf prevalence (%)	mf density (mf/ml)			
Egypt	Arab Aaida	Arab Aaida ^a	2000	0.2	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Kafr Hanza	Kafr Hanza ^a	2000	1.9	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	SaNDanhour	SaNDanhour ^a	2000	1.8	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	K Attala	K Attala ^a	2000	10.8	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Mit Kenana	Mit Kenana ^a	2000	0.2	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Sanhra	Sanhra ^a	2000	5.3	ND	4	94.6	95.2	95.4	ND	0.2	ND	96.2		
	Al Shoubak	Al Shoubak ^a	2000	0.6	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Ahraz	Ahraz ^a	2000	7.8	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Kronfil	Kronfil ^a	2000	1.6	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
	Aghour	Aghour	2000	1.0	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0		
Sughra	Sughra ^a	Sughra ^a	El-Sed	El-Sed ^a	2000	1.2	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0
	Zawbeit	Zawbeit	Naggar	Naggar ^a	2000	5.5	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0
	Mensha	Mensha	Soghra	Soghra ^a	2000	2.0	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0
	Barkata	Barkata ^a	Barkata	Barkata ^a	2000	1.1	ND	4	94.6	95.2	95.4	ND	0.0	ND	100.0
	Dalhamo	Dalhamo ^a	Dalhamo	Dalhamo ^a	2000	1.8	ND	4	99.4	99.3	94.6	ND	0.2	ND	88.9
	Shanway	Shanway ^a	Abu Snita	Abu Snita ^a	2000	5.0	ND	4	99.4	99.3	94.6	ND	0.0	ND	100.0
	Mit Wasta	Mit Wasta ^a	Mit Wasta	Mit Wasta ^a	2000	4.2	ND	4	99.4	99.3	94.6	ND	0.0	ND	100.0
	Baqssa	Baqssa ^a	Baqssa	Baqssa ^a	2000	3.7	ND	4	99.4	99.3	94.6	ND	0.0	ND	100.0
	Menshaat	Menshaat	Menshaat	Menshaat	2000	0.8	ND	4	99.4	99.3	94.6	ND	0.0	ND	100.0
	Damalo	Damalo ^a	Damalo	Damalo ^a	2000	5.4	ND	4	99.4	99.3	94.6	ND	0.0	ND	100.0
Khalil Abaza	Kafr Abaza	Kafr Abaza ^a	Khalil Abaza	Khalil Abaza ^a	2000	0.8	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Mahmoudia	Mahmoudia ^a	Mahmoudia	Mahmoudia ^a	2000	2.3	ND	4	95.8	97.6	96.3	ND	0.2	ND	91.3
	Zarzamoun	Zarzamoun ^a	Zarzamoun	Zarzamoun ^a	2000	0.2	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Al-Rouda	Al-Rouda ^a	Al-Rouda	Al-Rouda ^a	2000	2.4	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Beni Elim	Beni Elim ^a	Beni Elim	Beni Elim ^a	2000	0.2	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Abrash	Abrash ^a	Abrash	Abrash ^a	2000	3.8	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Nebtit	Nebtit ^a	Nebtit	Nebtit ^a	2000	1.4	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Korein	Korein ^a	Korein	Korein ^a	2000	1.2	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Sawa	Sawa ^a	Sawa	Sawa ^a	2000	2.2	ND	4	95.8	97.6	96.3	ND	0.4	ND	81.8
	Khors	Khors ^a	Khors	Khors ^a	2000	1.3	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	Menia Kamh	Menia Kamh ^a	Menia Kamh	Menia Kamh ^a	2000	2.0	ND	4	95.8	97.6	96.3	ND	0.0	ND	100.0
	GezeraKhadra	GezeraKhadra ^a	GezeraKhadra	GezeraKhadra ^a	2000	1.8	ND	4	95.8	97.6	96.3	ND	0.8	ND	55.6
	Borg Meghez	Borg Meghez	Borg Meghez	Borg Meghez	2001	5.4	ND	3	93.3	97.2	95.2	ND	1.0	ND	81.5
	Kafr-Mamodia	Kafr-Mamodia ^a	Kafr-Mamodia	Kafr-Mamodia ^a	2000	0.8	ND	4	99.4	99.5	93.2	ND	0.0	ND	100.0
	Gesfa	Gesfa ^a	Gesfa	Gesfa ^a	2000	9.8	ND	4	99.4	99.5	93.2	ND	0.0	ND	100.0
	Mehalet-Marhoun	Mehalet-Marhoun ^a	Mehalet-Marhoun	Mehalet-Marhoun ^a	2000	2.2	ND	4	92.3	98.9	93.9	ND	0.0	ND	100.0
	SimboKubra	SimboKubra ^a	SimboKubra	SimboKubra ^a	2000	2.6	ND	4	92.3	98.9	93.9	ND	0.0	ND	100.0
	Meet Ratha	Meet Ratha ^a	Meet Ratha	Meet Ratha ^a	2000	1.4	ND	4	92.3	98.9	93.9	ND	1.1	ND	21.4
	Azizia	Azizia ^a	Azizia	Azizia ^a	2000	1.0	ND	4	98.6	93.7	96.2	ND	0.2	ND	80.0
	Mit Rahina	Mit Rahina ^a	Mit Rahina	Mit Rahina ^a	2000	6.6	ND	4	98.6	93.7	96.2	ND	0.0	ND	100.0
	Sheik Etman	Sheik Etman	Sheik Etman	Sheik Etman	2001	0.2	ND	3	98.6	93.7	96.2	ND	0.0	ND	100.0
	OmKhenan	OmKhenan	OmKhenan	OmKhenan	2001	4.0	ND	3	98.6	93.7	96.2	ND	0.0	ND	100.0
	Menwat	Menwat	Menwat	Menwat	2001	0.2	ND	3	98.6	93.7	96.2	ND	0.0	ND	100.0
	Zawet Abu-Mosalm	Zawet Abu-Mosalm ^a	Tanash	Tanash ^a	2000	0.0	ND	4	98.6	93.7	96.2	ND	0.0	ND	0.0
	Moteia	Moteia	Moteia	Moteia	2001	1.2	ND	3	97.8	97.7	ND	0.0	ND	100.0	

ND: not determined.

^a Blood survey before 4th MDA round.

Table 1.9 Report of mid-term assessment by the Mekong-Plus Programme Review Group

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage				Blood survey before 3rd or 4th round		Reduction in mf prevalence (%)
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	4° MDA	mf prevalence (%)	mf density (mf/ml)	
Myanmar	Magway	Ward Chauk Myolin	2001	7.1	675	3	91.3	92.5	90.9	—	3.6	290	49.3
			2001	1.1	115	3	91.3	92.5	90.9	—	0.2	350	82.7
Philippines	Thayet	Pyidawate ward Kyauktan	2001	6.3	550	3	64.7	98.4	93.8	—	2.4	283	62.5
			2001	4.4	445	3	64.7	98.4	93.8	—	4.0	257	9.1
Philippines	Nauhan	Naujan ^a	2000	12.6	ND	4	92.8	95.0	98.0	97.0	0	ND	100.0
	Baco	Baco ^a	2000	7.9	ND	4	95.0	95.0	94.0	96.0	0	ND	100.0
	Roxas	Roxas ^a	2000	4.0	ND	4	75.0	75.0	83.0	89.0	1	ND	75.0
	Puerto galera	Puerto galera ^a	2000	9.6	ND	4	69.0	95.0	96.0	100.0	7.3	ND	24.0
	Bulalacao	Bulalacao ^a	2000	2.4	ND	4	60.0	89.0	97.0	98.0	10.8	ND	-348.1
	Bongabong	Bongabon	2001	11.9	ND	3	90.0	91.0	88.0	—	0.0	ND	100.0
	Maasin	Maasin ^a	2000	1.1	ND	4	90.5	84.0	92.0	92.0	0.2	ND	83.6
	Tomas Oppus	Tomas	2001	13.5	ND	3	99.0	78.0	68.5	—	0.0	ND	100.0
	Tupi	Tupi ^a	2000	29.0	ND	4	94.0	94.0	86.0	72.0	5.6	ND	80.7

ND: not determined.

^a Blood survey before 4th MDA round.**Table 1.10 Report of mid-term assessment by the PacCARE Programme Review Group**

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage				Blood survey before 3rd or 4th round		Blood survey before 5th round		Reduction in mf prevalence (%)
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	4° MDA	mf prevalence (%)	mf density (mf/ml)	mf prevalence (%)	mf density (mf/ml)	
French Polynesia	Country	Tahuata ^a	2000	11	ND	4	93.2	95.1	93.3	90.1	5.8	ND	—	—	47.3
	Country	Latosa ^a	2000	1.9	ND	4	90.5	56.8	68.4	60.4	0.2	ND	—	—	89.5
Samoa	Leloto ^a	Leloto ^a	2000	3.7	ND	4	90.5	56.8	68.4	60.4	0.0	ND	—	—	100.0
		Falevao ^a	2000	1.2	ND	4	90.5	56.8	68.4	60.4	0.5	ND	0.0	ND	100.0
		Salimu ^a	2000	1.2	ND	4	90.5	56.8	68.4	60.4	0.5	ND	0.8	ND	33.3
		Manase ^a	2000	0.7	ND	4	90.5	56.8	68.4	60.4	0.0	ND	0.0	ND	100.0
		Sagone ^a	2000	1.3	ND	4	90.5	56.8	68.4	60.4	0.0	ND	—	—	100.0
	Vanuatu	Sola	2000	3.2	ND	4	82.9	83.8	83.8	87.0	0.0	ND	—	—	100.0
		Mosina	2000	7.1	ND	4	82.9	83.8	83.8	87.0	0.0	ND	—	—	100.0
		Port Resolution	2000	2.4	ND	4	82.9	83.8	83.8	87.0	0.0	ND	—	—	100.0
		South River	2000	6.1	ND	4	82.9	83.8	83.8	87.0	0.0	ND	—	—	100.0
		Sakau	2000	27.0	ND	4	82.9	83.8	83.8	87.0	1.1	ND	—	—	95.9
Orap	Wanur	Wanur	2000	23.0	ND	4	82.9	83.8	83.8	87.0	1.7	ND	—	—	92.6
		Orap	2000	2.0	ND	4	82.9	83.8	83.8	87.0	0.0	ND	—	—	100.0
		Unmet	2000	28.0	ND	4	82.9	83.8	83.8	87.0	3.4	ND	—	—	87.9

ND: not determined.

^a Blood survey before 4th MDA round.

Table 1.11 Report of mid-term assessment by the South Asia Programme Review Group

Country	IU	Sentinel site	Year MDA began	Baseline blood survey		No of MDA rounds	IU reported coverage			Blood survey before 3rd or 4th round		Reduction in mf prevalence (%)
				mf prevalence (%)	mf density (mf/ml)		1° MDA	2° MDA	3° MDA	mf prevalence (%)	mf density (mf/ml)	
Sri Lanka	Colombo District	Dehiwala	2001	0.21	ND	4	76.7	80.0	85.3	0.12	ND	42.9
		Homagama	2001	0.01	ND	4	76.7	80.0	85.3	0.02	ND	-100.0
		Kolonnawa	2001	0.36	ND	4	76.7	80.0	85.3	0.12	ND	66.7
		Kotte	2001	0.88	ND	4	76.7	80.0	85.3	0.29	ND	67.1
		Moratuwa	2001	0.21	ND	4	76.7	80.0	85.3	0.05	ND	76.2
		Piliyandala	2001	0.23	ND	4	76.7	80.0	85.3	0.2	ND	13.0
		Kaduwela	2001	0.07	ND	4	76.7	80.0	85.3	0.05	ND	28.6
		Maharagama	2001	0.04	ND	4	76.7	80.0	85.3	0.04	ND	0.0
		Colombo	2001	0.82	ND	4	76.7	80.0	85.3	1.32	ND	-61.0

ND: not determined.

SOCIAL MOBILIZATION

The importance of social mobilization in achieving targeted high coverage rates has been recognized by all those participating in GPELF from its inception. Because the programme was new, however, and lacked experience in social mobilization, it could only base itself on the experience of other global public health programmes that had a large-scale social mobilization component. The experience of the Polio Eradication Initiative, a classic example, has revealed the importance of communications and social mobilization efforts for effective implementation of eradication strategies. In the words of the Polio Eradication Initiative, social mobilization is “the variable with most positive effects in all countries”.

Social mobilization has an equally important role to play in terms of political advocacy, generating national resources and stimulating local public-private sector partnerships. Key lessons to be learned from public health programmes that are successfully implementing social mobilization are:

- planning for social mobilization should be done in parallel to the main programme planning;
- making early provision for capacity-building in communications and social mobilization is a prerequisite for reaching and maintaining high coverage levels;

- social mobilization cannot compensate for poor microplanning, management and supervision.

During the period 2000–2002, several country missions and joint efforts with national programme managers and communications officers were undertaken to understand the complex process of social mobilization where the national programme to eliminate LF (PELF), health services and the private sector could interact to influence and change people's behaviour. The countries involved – India (Tamil Nadu and Orissa States), Kenya, Sri Lanka and Zanzibar, the United Republic of Tanzania – provided the first examples of field experience for GPELF to implement. The various components of social mobilization such as capacity-building, integrating social mobilization planning with planning of LF elimination activities, resource mobilization, documentation, research and tool development and evaluation were taken into account. Because LF is not fatal it is not perceived as a priority disease by the majority of endemic countries, making social mobilization an even more important and necessary element of LF elimination programmes. The country missions revealed that it was essential first to identify the required behavioural changes and then to develop a social mobilization plan accordingly.

In order to lay the foundations of a global strategy for social mobilization that would be efficient and cost-effective, it was necessary first to understand clearly how national programme managers perceived social mobilization. Consequently, in 2003, a questionnaire was distributed to all national programme managers in countries with active LF elimination programmes and the findings were collated and analysed. The following observations emerged:

- social mobilization is not a priority area for programme managers;
- training for programme managers is weak in the social mobilization component;
- the amount of funding allocated to social mobilization is small, with 70% of programme managers reportedly having to make decisions on the basis of availability of funds rather than being able to budget on the basis of activities planned;
- technical support needs to be provided to programme managers to enable them to make informed decisions on the choice and strength of social mobilization operations.

These observations led to the following conclusions:

- Strong planning and implementation components should exist between national and district social mobilization activities. A key feature of programmes with low coverage rates was the poor planning and coordination of social mobilization at national level to support district level activities.
- Message design and positioning is an important component of information, education and communication (IEC) and could be improved.

In the same year, a study was organized in Sri Lanka to assess the dynamics of organizational operations, social mobilization and communication and their impact on MDA at national, provincial, district and community levels. It revealed the unanimous opinion of all involved that a strong social mobilization component was needed. The findings of this study reinforced the conclusions reached through experience gained in different parts of the world:

- Community volunteers and public health workers involved at the most peripheral level are the backbone

of the social mobilization component of the programme.

- Strategies for social mobilization vary between rural and urban areas.
- The mode of drug delivery appears to have an effect on coverage: house-to-house distribution appears to ensure better coverage than arranging for people to collect drugs from a distribution point.
- A process of evaluation needs to be formally built into national programmes to help assess inputs objectively and to make adjustments where necessary. The study also highlighted that the process, content and adequacy of training need to be reviewed periodically and could also be part of the process for evaluating social mobilization.

At its fourth meeting in 2003, TAG-LF acknowledged the progress that had been made in incorporating a behaviourally focused and multifaceted planning framework for social mobilization into the country programmes in order to improve compliance. The group recommended that more assistance should be given in the development of strategic national plans and in the preparation of guidelines and modules on social mobilization and communication to support district level activities. In addition, capacity-building in social mobilization and communication for programme managers and other staff should be given priority. TAG-LF also urged that private sector partnerships in advertising and marketing should be explored in key areas of GPELF.

ADVOCACY

LF can be eliminated as a public health problem through inexpensive interventions that can be integrated easily into the national health systems of most endemic countries; the effort required for an elimination campaign is time-limited, which is a positive factor. Despite this, however, only a few countries have national programmes that cover the entire at-risk population. GPELF is finding it increasingly difficult to raise the funds necessary to ensure scaling up of activities to cover the total at-risk population in those countries that have embarked on LF elimination activities and to enlist new countries. One of the main reasons for this is that, in many countries, LF comes low on the list of health priorities. Without basic funding and policy changes it will be impossible to

eliminate LF as a public health problem worldwide. The support of governments and decision-makers in endemic countries, together with donors, is therefore essential to sustain scaling up of the programme.

Advocacy plays an essential part in winning the attention and support of key partners who can influence the policies and spending in countries and the creation of a climate in the international public health arena that is conducive to resource mobilization. GPELF has been aware of the importance of advocacy since its inception and has always put great emphasis on it.

The *Lymphatic filariasis annual report* continues to be one of the main publications of GPELF that keeps the world informed about the programme's progress, the challenges it faces and its achievements. It is the sole global reference source of all the activities that have been carried out in the endemic countries.

In 2001 it was decided that a series of publications depicting the successes of some national LF elimination programmes would provide an effective advocacy tool. Since then, two "success stories" have been published in English and French: one on Zanzibar, United Republic of Tanzania,⁴ and one on Egypt;⁵ it is planned to publish a third in 2004 on Sri Lanka. These will serve as positive examples and models for other countries and can influence decision-makers and donors.

In March 2004, the third meeting of GAELF will take place in Cairo, Egypt. As all the major partners of the Global Alliance and some potential donors will be present, the meeting will provide a valuable opportunity to show the successes of GPELF and to raise funds and gain further commitment. All advocacy materials produced so far will be provided at this important event. In addition, the programme will invite the participation of the Director-General of WHO, either in person or through a filmed speech.

People's awareness of matters related to LF can be raised by providing educational materials to schoolchildren who, in turn, with the help of their teachers, can advocate the LF cause to their families and friends. To this end, following the positive field experience gained in Egypt, a comic book will be published next year in sev-

eral hundred thousand copies targeting schoolchildren in English-speaking LF-endemic countries of Africa. A French edition will also be published.

Throughout the year, the general media (newspaper and radio) showed interest in GPELF and its challenges, and several interviews were given with the support of media officers in the Communicable Diseases Cluster at WHO headquarters.

The publication of the *Strategic plan 2003–2005 – Challenges of scaling up* is foreseen in 2004 which, though not an advocacy tool as such, will provide a wealth of information, strategic objectives and programmatic planning issues that can be referred to when preparing advocacy materials.

PREVENTION OF DISABILITY

It has been estimated that more than a billion⁶ people living in LF-endemic areas are at risk of infection. Of these, 120 million either have the disease or are mf carriers; it is believed that about 80 million are mf carriers, 15 million have lymphoedema and 25 million have hydrocele. However, these figures could be underestimates because the proportion of endemic populations who are a-microfilaraemic but show signs of infection from positive antigen tests – as much as an additional 18% of the endemic population – is not included, so that the actual number of affected people could be much higher.

The physical suffering, gross disfigurement and consequential negative socioeconomic impact caused by lymphoedema (particularly of the limbs), as a result of repeated attacks of acute adenolymphangitis (ADL), can be greatly alleviated or even prevented through the practice of simple hygiene. Efforts are being made, therefore, to develop a strategy aimed at LF sufferers and their families to teach them skin care and basic hygiene. The importance of developing a strategy promoting increased access to surgery for those sufferers with one or more urogenital manifestations, the burden of which is greater than that produced by lymphoedema of the limbs, has been recognized.

It is only since 2002 that a more global approach to LF-related disability has evolved, taking into account not

⁴ *Lymphatic filariasis elimination – the story of Zanzibar*. Geneva, World Health Organization, 2002 (WHO/CDS/CPE/SMT/2002.15).

⁵ *Lymphatic filariasis elimination – the story of Egypt*. Geneva, World Health Organization, 2003 (WHO/CDS/CPE/CEE/2003.1).

⁶ A billion is defined as 1000 million.

only medical but also social, environmental, economic and psychological factors. It has been realized that, in order to understand fully the issues related to disability, it is necessary to define and analyse certain basic concepts regarding the development of the disability and its implications. Previously, the use of terms such as "disability", "impairment" and "handicap" to describe the different states associated with various diseases had negative connotations.

The WHO International Classification of Functioning, Disability and Health (ICF) provides a better, more coherent view of different aspects of health from a biological, individual and social perspective. It provides a balance between the medical and social models of disability: the medical model views disability as a problem directly caused by disease, trauma or other health conditions, which requires medical care in the form of individual treatment by professionals. In contrast, the social model sees disability as a matter of full integration of the individual into society and prescribes social action to make the environmental modifications necessary for the full participation of disabled people in all areas of social life.

Several meetings took place between 2002 and 2003, involving a number of partners from different parts of the world, to produce a framework for action and to establish basic principles on disability. The first, an informal consultation held in WHO headquarters, Geneva, in November 2002, considered the draft "Basic principles and a framework for action for the prevention of LF-related disabilities". Pilot projects were then set up in Brazil, Burkina Faso, Dominican Republic, Haiti, India, Sri Lanka and Zanzibar, United Republic of Tanzania, to gather information on the management of lymphoedema and devise strategies for information-sharing and community sensitization. In follow-up to certain country field experiences, a four-part training package on prevention of disability associated with LF was developed, field-tested and finalized (see the next section on Training and capacity-building).

In November 2003, a joint UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR) and WHO Programme to Eliminate Lymphatic Filariasis Workshop on Prevention of Disability Associated with Lymphatic Filariasis was held in

Colombo, Sri Lanka. The workshop enabled LF programme managers to become fully acquainted with WHO's basic principles and the framework for action on the prevention of LF-related disabilities as well as to formulate protocols for pilot projects on community-based self-care for prevention of LF-related disability. The workshop was attended by officers from LF national programmes and research sectors of the WHO South-East Asia Region.

In 2003, a pilot project was launched in Zanzibar, United Republic of Tanzania, to test a new strategy aimed at increasing access to surgery at district hospital level for sufferers of uncomplicated hydrocele, in line with the recommendations of the Informal Consultation on Surgical Approaches to the Urogenital Manifestations of Lymphatic Filariasis. A survey was carried out on hydrocele prevalence, which showed there were 1530 sufferers who could have surgery at district level. Because the southern districts of Pemba and Unguja had the highest prevalence (205 and 225, respectively), it was decided to implement the project in those two districts and operations are expected to start in March 2004.

Another pilot project began in July 2003 in two districts of Madagascar, Manakara and Mananjary, in collaboration with the Italian nongovernmental development organization Reggio Terzo Mondo. The aims of the project are to assess the training package that has been developed on community home-based prevention of disability associated with LF, indicators for monitoring the relevance of the disability sub-management, and the feasibility of expanding this care management model to other chronic diseases present in the districts. Preliminary results should be available at the end of 2004.

Following a series of meetings at WHO headquarters during 2002 and 2003 among officers of the Classification, Assessment, Survey and Terminology unit, the Department of Measurement and Health Information Systems (HFS/CAS) and the Programme to Eliminate LF (CPE/CEE), it was decided to develop an assessment tool for country use comprising the WHO Disability Assessment Schedule (WHODAS) and a simplified version of the ICF Checklist. The tool will be tested initially in Burkina Faso, Madagascar, Sri Lanka and Zanzibar, United Republic of Tanzania, in 2004. It is anticipated that some of the partners of GPELF will collaborate in these efforts.

TRAINING AND CAPACITY-BUILDING

Since its inception, the aim of GPELF has been to strengthen the capacity of health services by training different levels of health personnel ranging from national and district programme managers to drug distributors, community health workers and informal carers. The philosophy of GPELF has always been to pursue LF elimination as the focus of a broadly beneficial, public health intervention organized through existing or strengthened national health infrastructures. The health systems of most of the endemic countries are undergoing a decentralization process or are already decentralized. In order to serve the community in the most efficient and cost-effective manner, GPELF recognizes the particular importance of developing human resources at district and community levels for delivering basic health services packages such as mapping, logistics, training of trainers and social mobilization. The programme therefore encourages district medical officers (DMOs) to take on responsibility for planning policy development, problem-solving, monitoring and evaluation, and training curricula. Most of the development efforts in recent years have been directed towards the preparation of tools targeting district personnel.

The role of the community in the successful implementation of GPELF's objectives is seen to be a vital one, especially in the area of chronic disease care. As a result, informal carers and members of the community have been trained to carry out disability prevention and control activities within the framework of a community, home-based approach that is relatively new.

A trial edition of a four-part training package on community, home-based prevention of disability resulting from LF was published and field-tested in 2003. Following feedback from various participants of training workshops, as well as district medical officers and national programme managers, the package has been finalized and is now available in English and French as a standard WHO training module for in-country adaptation.

In addition, the training module for drug distributors that has been widely used in a number of countries has also been revised and will be published in English and French at the beginning of 2004. Feedback received on the first version revealed the need for drug distributors

to be provided with a sturdy, easy-to-carry fact sheet that could be used for the entire duration of the mass drug distribution campaign. A fact sheet has therefore been developed and will be published at the beginning of 2004.

Manuals for DMOs in the areas of mass drug distribution, surveillance, disability prevention and control, and social mobilization are being developed for publication. These manuals will provide practical support for the management of the operations carried out by DMOs at the very heart of the national elimination programme.

Technical assistance continued to be provided to a number of countries during the course of 2003, particularly in the areas of disability prevention and control and social mobilization.

In collaboration with the Wellcome Trust and the LF Support Centre, Liverpool School of Tropical Medicine, United Kingdom, and with the support of the Bill and Melinda Gates Foundation, an interactive CD-ROM was produced to provide guidance to national programme managers on the preparation and implementation of a national elimination programme. It also provides essential programme elements for medical personnel and drug distributors and practical advice on how to set up a national campaign for social mobilization. The CD-ROM has been widely distributed.

A further capacity-building initiative that the programme is undertaking is the development of a distance learning tool for monitoring and management, for the use of managers of LF elimination programmes in endemic countries. Distance learning is widely used in professional and vocational education throughout the world; it provides a cost-effective and flexible way to increase the quality, coverage and evaluation of training, as most of the teaching and learning take place outside conventional training institutions. Hosted on a web site, the distance learning facility will improve coordination and communication among programme managers and will provide easy access to materials and a forum for obtaining technical advice.

So far, a pilot version of the distance learning tool (covering only the MDA component of the training programme) will be tested in certain countries of the Mekong-Plus region: it will be used as an advocacy tool to raise funds for completion of the entire training programme.

RESEARCH

Ivermectin and albendazole

A randomized, double-blind, placebo-controlled trial of ivermectin plus albendazole versus ivermectin was carried out in Pemba, United Republic of Tanzania. The study aimed at assessing:

- drug reaction levels by day 7 post-administration;
- the reappearance of mf by 12 months;
- mf clearance at 3 and 6 months;
- reduction in the magnitude and intensity of soil-transmitted helminths on day 21 following MDA.

The study has been completed and the evaluation report is in the process of being prepared. The nationwide MDA undertaken just before completion of the parasitological survey may have affected the survey results.

DEC and albendazole

A randomized, double-blind, placebo-controlled trial of DEC plus albendazole versus DEC (three rounds) was carried out in Wardha, India. The study aimed at assessing:

- the safety and tolerability of the two drugs administered together;
- the efficacy in the clearance of microfilaraemia measured at pre-treatment at 3 months, 6 months, 1 year, 1.25 years, 1.5 years and 2 years.
- the clearance of the filaria dance sign (FDS) at pre-treatment, then at 3 months, 6 months and 1 year after each treatment.

The study was successfully completed and the data are being evaluated.

Development of evidence-based guidelines for elimination strategies using available drug combinations

The following transmission studies are being carried out.

In Culex-prevalent regions

- Pondicherry, India:
 - a multi-arm study with ivermectin alone, DEC alone, ivermectin plus DEC and placebo has been in place since 1993;
 - DEC plus albendazole versus DEC since 2001, after

replacing the placebo arm in the above by DEC plus albendazole.

- Madurai, India:

- comparing DEC plus albendazole versus DEC since 2001.

In Anopheles-prevalent regions

Three studies are in progress in Africa since 2001: one each in Ghana and Mali where ivermectin plus albendazole co-administration is being used, and the third in Kenya where DEC plus albendazole co-administration is in use.

Development of improved drug delivery strategies, especially in urban settings

A multicentre study on MDA is in progress in urban areas of Chennai, Varanasi and Orissa, India. The objectives are to:

- identify determinants of low coverage (compliance) in urban areas;
- determine principal socioeconomic strata, priority health and development needs, and importance of LF;
- determine the potential for involvement of other stakeholders in MDA;
- develop and implement an intervention strategy that meets the challenges for MDA in urban areas;
- evaluate the impact of this intervention strategy and the treatment coverage achieved;
- determine the cost-effectiveness of this intervention strategy and the feasibility of its implementation using existing human resources.

The study is being carried out in two phases: the first phase consists of a situation analysis and baseline survey, which has been completed, and the second comprises intervention development and testing at scale.

Community-based management of lymphoedema and adenolymphangitis

Mali

The study showed that community members are of the opinion that:

- prevention is a collective activity of the community;
- care of the LF sufferer is the province of the family, as follows:

- key role to be played by head of household, i.e. allocation of responsibilities, financial resources, decision on seeking health care, involvement of traditional healers, etc.
- other family members to feed and take care of LF sufferer, collect drugs, provide traditional treatment and handle related chores.

Yola, Nigeria

The main conclusions are that:

- the community care approach is not appropriate because:
 - community members are reluctant to associate with LF sufferers;
 - LF sufferers do not want their problem to be widely known;
 - there are only a few cases per community and therefore little interest;
 - lymphoedema management does not contain the elements for community participation;
- home based care is more effective because there is:
 - family support;
 - perceived effectiveness of care by LF sufferers;
 - social support groups (at least three patients) with elected leader to interact with the health facility;
 - a strategy adopted as a model by the national PELF of Nigeria.

WHO/TDR Workshop on Prevention of Disability Associated with Lymphatic Filariasis

TDR, in collaboration with WHO's GPELF, organized a workshop on 18–21 November 2003 in Colombo, Sri Lanka. The workshop was composed of researchers and national programme managers: 24 participants from the South-East Asia and Western Pacific Regions took part. The workshop enabled each national team to develop a plan to implement disability prevention activities in at least one implementation unit. The group identified priority operational research needs to prevent disabilities associated with LF.

Rapid assessment procedures for mapping loiasis

The application of rapid assessment procedures for mapping loiasis (RAPLOA), using a simple questionnaire, has been completed in Cameroon (Nanga Eboko and North-West). The following activities are ongoing:

- the validation of RAPLOA in other regions of Africa for which some of the studies are under way;
- a study at the University of Lancaster to validate the spatial model based on ecological factors with the recently collected RAPLOA data;
- availability of the software for spatial analysis in Ouagadougou, Burkina Faso, for routine analysis of RAPLOA data. Staff of the African Programme for Onchocerciasis Control (APOC) are trained in use of the software.

REPORT OF THE TECHNICAL ADVISORY GROUP ON THE GLOBAL ELIMINATION OF LYMPHATIC FILARIASIS, 2003

Since its inception in 2000, TAG-LF has met annually to give recommendations to WHO on all aspects of the LF elimination effort in all regions of the world and on research priorities. TAG-LF is composed of 14 members selected for their expertise in LF science and programme management and for their geographical representation. TAG-LF also relates to other technical advisory groups and programme support groups, such as the mapping group and the Programme Review Group that report their findings to TAG-LF.

As a committee, TAG-LF has evolved from learning to understand its role, at its first meeting in 2000, to expertly guiding WHO in how GPELF should provide technical leadership. During the fourth meeting of TAG-LF in March 2003, which was held in Veyrier-du-Lac, France, the group considered issues related to:

- monitoring and evaluation;
- research;
- chemotherapy;
- strategies for implementing prevention of disability caused by LF;
- synergies in MDA between LF and soil-transmitted helminth control programmes;
- social mobilization.

TAG-LF applauded the achievements of GPELF through MDA, which had markedly increased coverage of nearly 3 million people in 2000 to more than 70 million in 2003, despite a shortage of funds.

The 4th meeting of TAG-LF concluded that overall progress made by GPELF was impressive, as demonstrated by the increases in populations treated with the co-administered drugs and by the development of managerial tools related to training, monitoring and evaluation, and social mobilization.

Disability alleviation and prevention and resource mobilization (including for operational research and for the development of better diagnostic tools) remain major challenges.

TAG-LF welcomed the actions taken by the Secretariat in pursuing the recommendations made at its third meeting in March 2002.

Monitoring and evaluation

TAG-LF reviewed the background materials presented by the Monitoring and Evaluation Working Group set up at its third meeting. These materials dealt with the topics of coverage, stopping MDA, verification of interruption of transmission, the role of simulation models in programme decisions, indicators for monitoring disability prevention, and applied research needs related to monitoring and evaluation.

TAG-LF accepted the recommendations provided in the executive summaries, with some suggestions for clarifications. It mandated the working group to continue to develop recommendations related to these areas, noting that field-testing of several of the current proposals was needed before definite recommendations could be made to programme managers. It requested the Secretariat to disseminate those recommendations that are appropriate for immediate implementation to national programme managers in appropriate formats, until such time as the national guidelines for programme managers⁷ could be amended.

Assessment of drug coverage

TAG-LF noted the desirability of using both the total population and the population eligible to receive treatment as denominators for coverage data and suggested that separate columns for these two measures be incorporated in reporting forms at global level. Reporting by age category is also desirable when surveys are performed.

Stopping of mass drug administration

TAG-LF accepted that the current algorithm for determining when to stop MDA might have been oversimplified. It welcomed the Monitoring and Evaluation Working Group's suggestions on taking additional steps to confirm the <1% mf prevalence cut-off point and recommended that further steps be taken to confirm that transmission could not resume. The need to work closely with countries that are in their fourth treatment round to test these proposals was emphasized.

Verification of absence of transmission

The Monitoring and Evaluation Working Group proposed changes to the strategic and technical details for verification of the absence of transmission as outlined in *Guidelines for certifying lymphatic filariasis elimination (including discussion of critical issues and rationale)*. TAG-LF welcomed these changes, especially in view of the potential problems of "imported" LF into covered areas.

Role of simulation models in programmatic decisions

The LYMFASIM⁸ evaluation of the LF control programme in French Polynesia suggests that the model developed on the Pondicherry dataset may not be applicable to other epidemiological settings. TAG-LF recommended further quantification of this model (and other models) by testing with datasets from other epidemiological areas; it also recommended its wider use for programmatic decision-making.

Indicators for monitoring disability prevention

TAG-LF welcomed the indicators proposed for monitoring disability prevention (described in the main body of the report) and suggested that the RPRGs discuss the usefulness of adopting additional indicators for monitoring within their respective areas. It requested the Monitoring and Evaluation Working Group to propose additional indicators for global use and to field-test them to the extent feasible. National programme managers should consider using sentinel sites to demonstrate and monitor disability prevention activities relevant to LF.

Multicentre trials of immuno-chromatographic test cards

Conclusions from the trials confirmed the high sensitivity and specificity of the Binax ICT card provided it was read at 10 minutes.

⁷ Preparing and implementing a national plan to eliminate lymphatic filariasis. Geneva, World Health Organization, 2000 (WHO/CDS/CPE/2000.15 and 16).

⁸ A mathematical model of the transmission and control of LF.

TAG-LF recognized and welcomed the important contributions of the researchers who contributed so generously to these trials and to those who have been helping to develop other tests for *Brugia malayi* infections. The recent findings from the Brugia Rapid test trials attest to the specificity of this diagnostic tool, and TAG-LF recommended that this new kit be used to develop a mapping strategy for defining areas of Brugia endemicity.

Update on modification of ICT cards by Binax

TAG-LF was presented with information regarding the modification of the ICT cards by Binax. It noted that Binax had thus far been unsuccessful in improving upon the currently available test card but was continuing its efforts. TAG-LF recommended that, in the absence of a better tool, national programmes should continue to use the current ICT and ensure that the card is read according to the manufacturer's guidelines at 10 minutes. TAG-LF stressed the urgent need to develop diagnostic kits that are easier to use in the field.

Review of completed, ongoing and future research

The fact that LF is now targeted for elimination has given the false impression that research is no longer relevant. TAG-LF recognized, however, that some technical components of monitoring and evaluating the progress of LF elimination need further research, and research is also necessary to improve the performance of the currently available and alternative diagnostic tools. TAG-LF recommended that TDR establish a Scientific Working Group to define a strategic plan to focus on the key research needs of the programme and to advocate for more funds for research in LF, working with other initiatives towards this goal. This process must be as inclusive as possible.

In addition, advantage should be taken of every opportunity to solicit support for further research in LF at scientific conferences and similar events.

Chemotherapy

Use of albendazole in children aged 1–5 years

TAG-LF welcomed the presentation on the contribution of children 2–4 years old to *W. bancrofti* transmission in mass treatment settings. Excluding these children has programmatic implications and could probably extend duration of mass drug treatment necessary to interrupt

W. bancrofti transmission by about one year, irrespective of overall coverage. Modelling is required for more precise estimates.

Programmes using albendazole and ivermectin do not currently include children under 90 cm in height or 15 kg in weight, corresponding to some 3–5 years of age. It is now recognized that periodic treatment of children over one year of age for intestinal helminth infections results in a significant health benefit, and TAG-LF requested the Secretariat to provide a working paper for its consideration next year on the use of albendazole in children above one year of age, which will be helpful in clarifying its use in MDA incorporating ivermectin or DEC.

Chemotherapy in Loa loa co-endemic areas

TAG-LF took note of the ongoing and planned investigations of *L. loa*-related encephalopathy following ivermectin treatment. In this context, the urgent need to carry out safety studies on co-administration of ivermectin and albendazole for LF in *L. loa*-endemic areas was stressed, as such treatment is presently prohibited. It was therefore recommended that the Secretariat liaise as needed with the interested parties (TDR, Merck & Co., Inc., GSK, Mectizan® Expert Committee/Albendazole Coordination (MEC/AC), etc.) to facilitate the rapid implementation of the necessary studies.

Introduction of DEC-fortified salt in Guyana

TAG-LF welcomed the presentation on preparations for introducing DEC-fortified salt in Guyana. It urged the Secretariat to follow these developments closely with a view to sharing the experience and lessons learned in Guyana with other areas where DEC-fortified salt would be appropriate for LF elimination programmes.

Impact of MDA on reducing microfilaraemia

TAG-LF welcomed the presentation of preliminary data from selected sites, which related MDA coverage to mf prevalence. Although generally encouraging, these data emphasized the challenges being faced at national and global levels in obtaining information of sufficient quality to be useful for monitoring and evaluation. TAG-LF's recommendation relating to monitoring of coverage needs to be incorporated into national programmes as a step towards overcoming the obstacle of inadequate data.

Quality standards for DEC

TAG-LF acknowledged the efforts made by the Secretariat in ensuring that provision of DEC used in the programme is of the highest quality. TAG-LF made the following recommendations.

- All procurements of DEC tablets or DEC API for DEC-fortified salt by the national programmes should meet the current standards of the United States Pharmacopoeia and pass the test for piperazines in the Indian Pharmacopoeia 1996.
- The Secretariat should take steps to procure centrally the quantities of DEC required for most national programmes, subject to the availability of funds.
- Countries procuring DEC on their own should be encouraged to use the list of WHO prequalified manufacturers for their supplies of DEC tablets.

Update on pharmacovigilance

The considerable work that has been carried out to obtain and analyse data from the intensive monitoring of adverse drug reactions confirms that the observed reactions mostly represent symptoms attributable to the antimicrofilarial effects and give little concern for the safety of the programme. Active surveillance for adverse drug reactions is no longer required; passive surveillance for severe adverse effects, however, should remain a high priority. TAG-LF recommended that national programmes should continue and reinforce their efforts to identify, respond to and report severe adverse effects promptly.

TAG-LF recommended the use of the last menstrual period in excluding pregnant women from MDA. Wherever possible, efforts should be made to follow up pregnant women who are inadvertently treated to ascertain the outcome of their pregnancy.

Strategies for implementing prevention of disability

TAG-LF welcomed the development by the Secretariat of the disability prevention strategy and tools for monitoring this component of the programme. TAG-LF expressed the hope that, with the development of this strategy, disability prevention and management would be given the priority they deserved.

Synergies with soil-transmitted helminth control

TAG-LF welcomed the presentation on opportunities for synergies in MDA between LF and soil-transmitted helminth control programmes and supported the initiatives described by the Secretariat to capitalize on these opportunities.

Social mobilization

TAG-LF acknowledged the progress made in incorporating a behaviourally focused and multifaceted planning framework for social mobilization into the country programmes in order to improve uptake of the programme. TAG-LF recommended that more support be made available in the development of strategic national plans and guidelines or modules on social mobilization and communication to support district level activities. In addition, capacity-building for programme managers and other staff on social mobilization and communication should be given priority. TAG-LF encouraged the Secretariat to explore private sector partnerships in advertising and marketing in key areas of the GPELF.

Strategic plan

TAG-LF welcomed the work carried out in preparing a revised strategic plan for GPELF and warmly supported the main strategic directions. It noted the problems that resource constraints were placing on the rapid expansion called for by 2005. Recognizing the immediate usefulness of the strategic plan in the planning of programmes at regional and country levels, TAG-LF noted also its relevance for advocacy purposes and that a separate advocacy-oriented document might be called for. It urged the Secretariat to complete an initial draft plan as soon as possible to share with the GAELF Secretariat, in time for presentation to the GAELF meeting planned for March 2004, before finalization and subsequent dissemination to all national programmes and partners.

CHAPTER 2

GLOBAL ALLIANCE TO ELIMINATE LYMPHATIC FILARIASIS

PARTNERSHIP

GAELF has been forged among many organizations, each with a different mandate but all having a common goal: to tackle the wide-ranging and complex process of science and practice that will result in the elimination of LF as a public health problem from the world.

Early support in the task of eliminating LF came from the ministries of health of the endemic countries and a number of international organizations, including the Arab Fund for Economic and Social Development (AFESD), United States Centers for Disease Control and Prevention (CDC) and Department for International Development of the United Kingdom (DFID).

In 1997, the coalition was given a powerful boost when GSK (at the time SmithKline Beecham) announced its commitment to collaborate with WHO in the form of a unique partnership between the private sector and the public sector to support the global programme to eliminate LF, by donating albendazole (one of the drugs used against LF) free of charge for as long as necessary. They pledged to work together closely to undertake this massive international public health effort. Subsequently, Merck & Co., Inc. pledged to expand its ongoing MDP for onchocerciasis (river blindness) to cover treatment of LF with ivermectin in all African countries where the two diseases occur together. The donations will enable countries which are in need, but which are without the necessary resources, to acquire the drugs and to pursue their national elimination programmes.

WHAT IS THE GLOBAL ALLIANCE?

GAELF, for which WHO serves as the secretariat, is a free, non-restrictive partnership forum for the exchange of ideas and coordination of activities, with membership open to all interested parties. Its functions include sharing of information on progress and challenges, coordination of activities (such as fundraising) and advocacy. To date, GAELF, in addition to the ministries of health of the endemic countries, includes more than 40 organizations from various sectors of society, including the public and private sectors, academia, government bodies, and nongovernmental development organizations.

GAELF was officially formed during a meeting at Santiago de Compostela, Spain, in May 2000. During this first meeting discussions focused on support for effective country action, seeking support (including funding), communication and information needs, the role of nongovernmental development organizations in national programmes to eliminate LF, critical elements for successful programmes and maximizing regional cooperation.

The second meeting of the GAELF (GAELF2) was held in New Delhi, India, in May 2002. The overarching theme of the meeting was empowering countries and their people to manage public health development and pursue poverty alleviation through the elimination of LF. Representatives of the Global Alliance discussed national ownership of elimination programmes, poverty alleviation and sustainable development related to LF elimination, and the commitment to global partnership as well as national-level partnership.

The third meeting of the Global Alliance (GAELF3) will be held in March 2004 in Cairo, Egypt. In addition to communicating the achievements and challenges of the country programmes, the meeting will focus on a new structure and governance for the Alliance that will facilitate its fundraising and advocacy tasks.

UPDATE ON THE GLOBAL ALLIANCE

In 2003, the Chair of the Global Alliance and the two task forces worked mostly on fundraising, advocacy and communication. The transitional structure agreed at the Ad hoc Strategic Planning Workshop, follow-up to the GAELF2, Liverpool, on 11–13 December 2002 will shape the Global Alliance until a new structure is endorsed by GAELF at its third meeting in 2004. Regular teleconferences took place during the year and every opportunity to gather together members of the two task forces were taken to discuss the agenda of the third meeting of the Alliance and related issues. In accordance with its terms of reference, the Task Force on Communications and GAELF3 spent much of its time on logistic and organizational matters in preparation for the meeting in Cairo.

During the year, a GAELF logo (shown below) was selected from among several submissions by graphic artists. The selection made was a consultative process between partners, who made every effort to encourage the use of the logo. Guidelines on how best to use the logo were developed and widely disseminated and posted on the web site www.filariasis.org.

During the Fifty-sixth World Health Assembly in May 2003, a GAELF stand displayed advocacy materials. The GAELF Chair and the Chairs of the two task forces were present during the event.



CHAPTER 3

PROGRAMME IMPLEMENTATION

REGIONAL PROGRAMME REVIEW GROUP PERSPECTIVES AND COUNTRY PROFILES

AFRICAN PROGRAMME REVIEW GROUP

Assessment of disease burden

The current burden of LF is based on estimates, according to which the WHO African Region carries approximately 38% (approximately 477 million cases) of the global burden in 39 out of the 46 Member States in the region. Accurate determination of the disease burden and identification of endemic communities through mapping commenced in 2000; to date, the exercise is complete in 13 countries and ongoing in at least 7 countries. It is planned that all countries will have carried out mapping by 2005, the target date for its completion set at the second meeting of GAEFL in 2002. The identified at-risk population is more than 75 million, based on results in the 13 countries where mapping has been completed (Benin, Burkina Faso, Cameroon, Comoros, Gambia, Ghana, Madagascar, Malawi, Mali, Niger, Senegal, Togo and Uganda). The other 7 countries where mapping is at various stages are Côte d'Ivoire, Kenya, Mozambique, Nigeria, the United Republic of Tanzania, Zambia and Zimbabwe; with the exception of Nigeria and the United Republic of Tanzania, it is envisaged that mapping will be completed in these countries by the end of the first quarter of 2004. This exercise has shown unexpected, widespread occurrence of the disease in areas such as Burkina Faso which was found to be totally endemic, a finding that was confirmed after validation of the mapping results. Similar results have been obtained in Cameroon, Mali and Niger. In contrast – in the Gambia, for example – it has been found that endemicity levels are very low and an explanation for this will be sought. Low endemicity is observed less frequently than high endemicity.

Geographical coverage of MDA

Following the conceptualization of GPELF, four countries – Ghana, Nigeria, Togo and the United Republic of Tanzania – started implementing MDA in 2000 on a small scale. Another five countries started during 2001–2002, bringing the total number of countries imple-

menting MDA to nine in 2002, representing 23% of the endemic countries. Of the ongoing programmes, only those of Comoros, Togo and Zanzibar (United Republic of Tanzania) are currently covering all the at-risk population. The other programmes are covering proportions ranging from 6% to 70% of the at-risk populations and scaling up is being accelerated. Some disability prevention and control activities are also carried out as part of programme activities in the nine countries implementing MDA.

Reported coverage rates

Approximately 10 million people (75%) received MDA out of the 12.8 million targeted in 2002. National average figures of reported coverage range from 56.8% in Comoros to 83.1% in Zanzibar, United Republic of Tanzania. The lowest coverage rate obtained in an IU is 49.7% and the highest is 92.7%, both figures coming from the Ghana programme. There are some discordant observations from Nigeria where the range is 59.8–153.1%. Coverage rates of over 85% give a clear indication of population external to the IU being covered without being tracked or that some national programmes may be using the eligible population as the denominator for the computation of treatment coverage instead of the at-risk population in the IU. Non-availability of accurate population figures used in the computations may also result in distorted coverage rates. This may be true to varying extents in many of the national programmes and it is an important confounder during the process of monitoring and evaluating the impact of MDA.

Impact of MDA on the interruption of transmission

Assessment of the impact of MDA is an integral part of national PELFs. A number of programmes implemented third or fourth rounds of MDA in some communities during the course of 2003. Data from the sentinel sites are now awaited to indicate the impact of the previous treatments. This information will provide valuable guidance as to the future direction of GPELF.

Achievements, constraints, challenges and lessons

One of the greatest achievements of GPELF is stimulating the enthusiasm of endemic countries to join the programme. The demand from them for assistance is far greater than the means available and this has resulted in:

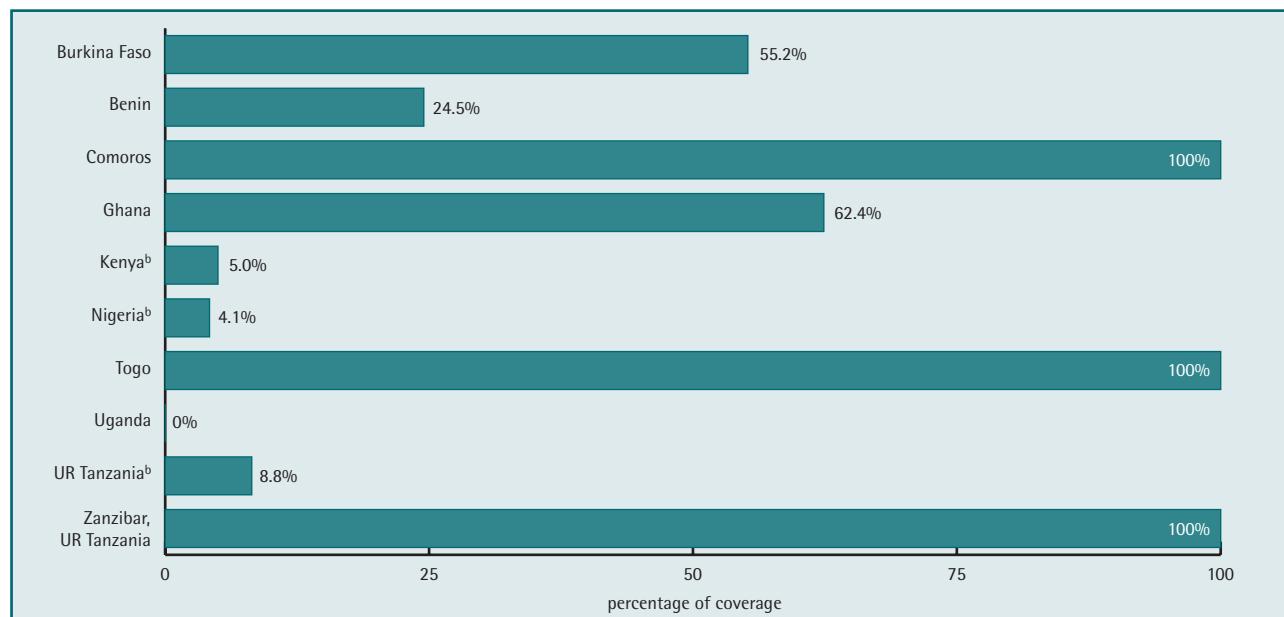
(i) a prolonged period of disease mapping in those countries that are already implementing MDA; (ii) a slow rate of scaling up of national programmes to cover all the at-risk populations; and (iii) stagnation in the number of active programmes. In the active programmes, greater effort needs to be put into achieving and sustaining high therapeutic and geographical coverage rates. Insufficient funding is the major constraint. At this stage, good evaluation data are critical and all efforts need to be made to obtain them. The major lessons learned are that country ownership of the programmes and the building of partnerships at local, regional and global levels need to be encouraged, for sustainability of GPELF, as well as the creation of synergies between disease control programmes.

At present, 20 of the 39 endemic countries have started LF elimination activities. In 2003 nearly 23 million people were covered by MDA. The geographical coverage of the African PRG can be seen in Figure 3.1 below.

Partnerships

Partners making financial and technical contributions to national programmes in the region include: national governments, Emory University, Merck & Co., Inc., GlaxoSmithKline (GSK), Handicap International, the Bill and Melinda Gates Foundation, DFID, Health and Development International, Catholic Medical Missions Board, Liverpool LF Support Centre, The Carter Center/Global 2000, Fondation pour le Développement Communautaire and Hellen Keller International.

Figure 3.1 African Programme Review Group: geographical coverage^a by country in 2003



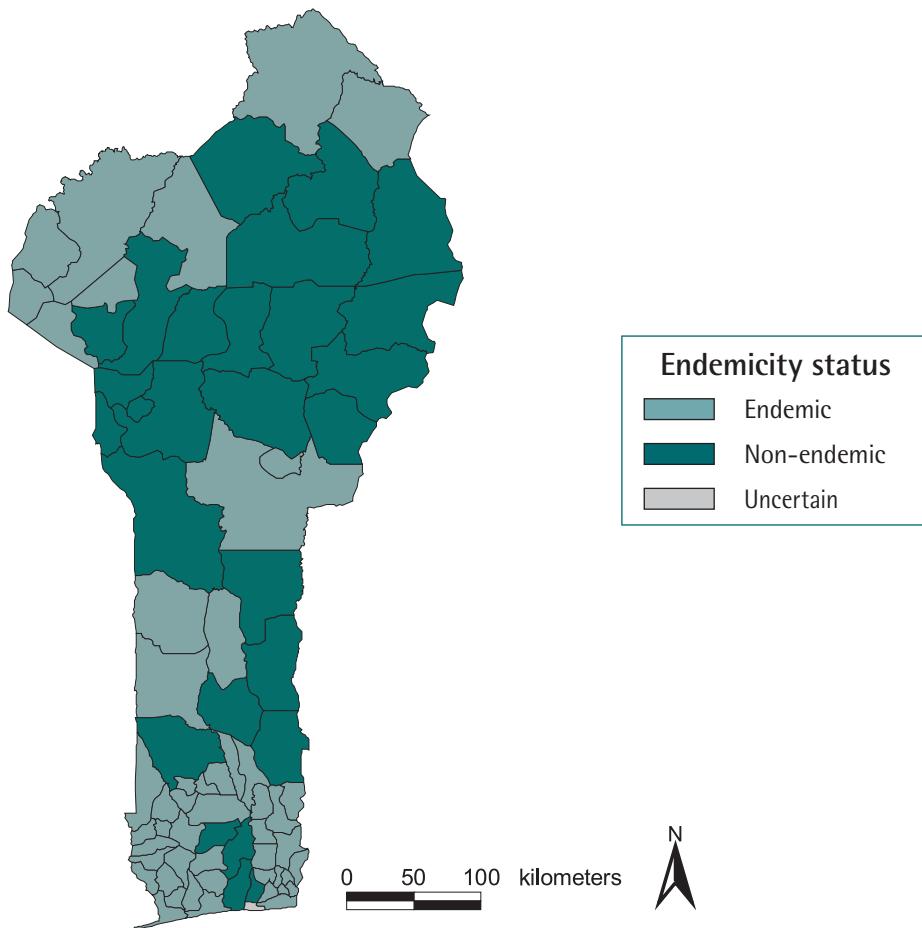
^a Geographical coverage = total population in IUs where MDA is taking place X 100/total population of all endemic IUs.

^b Estimated at-risk population as denominator, LF mapping is in progress.

Table 3.1 Mectizan® tablets shipped for mass drug administration in lymphatic filariasis elimination programmes in Africa and Yemen in 2003

Country	LF only areas (actual)	LF/onchocerciasis areas (estimated)	LF total (estimated)
Benin	2 013 000	694 500	2 707 500
Burkina Faso	19 067 000	450 000	19 517 000
Ghana	12 329 500	1 637 500	13 967 000
Nigeria	6 393 000	2 804 000	9 197 000
Togo	0	0	0
Uganda	10 219 500	0	10 219 500
United Republic of Tanzania	10 074 500	0	10 074 500
Yemen	149 000	30 500	179 500
Total	60 245 500	5 616 500	65 862 000

BENIN



LF is one of the major public health problems for Benin's 6.27 million inhabitants: 55% of the population is considered at risk. The LF clinical manifestations evaluated during the mapping survey show lymphoedema and hydrocele prevalence of 0.3% and 4.4 %, respectively.

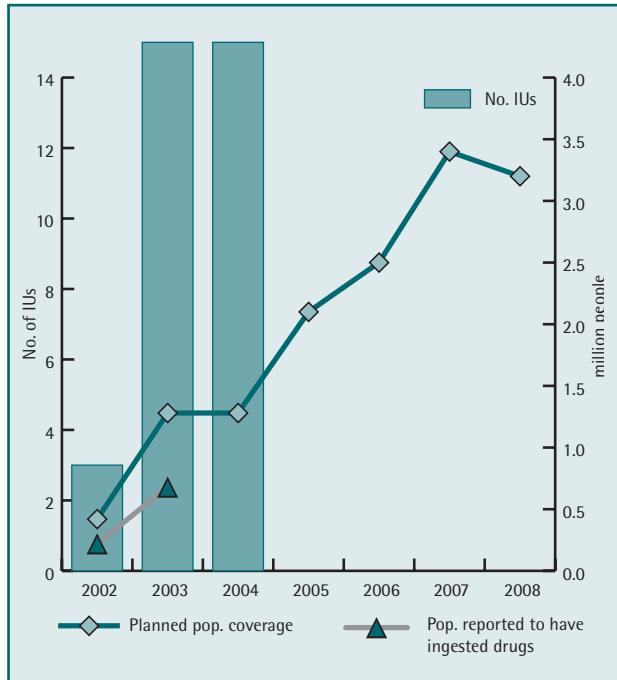
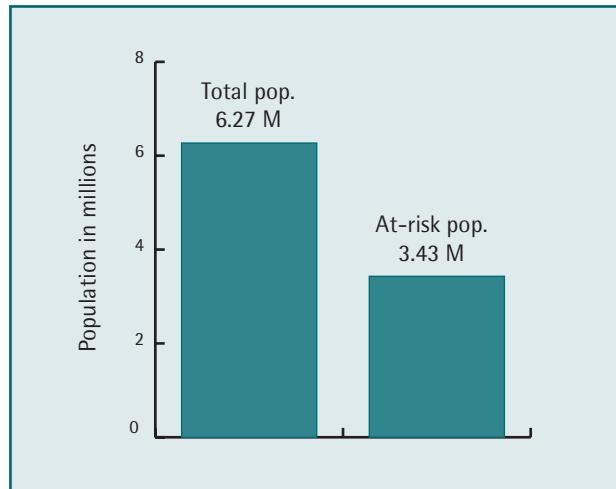
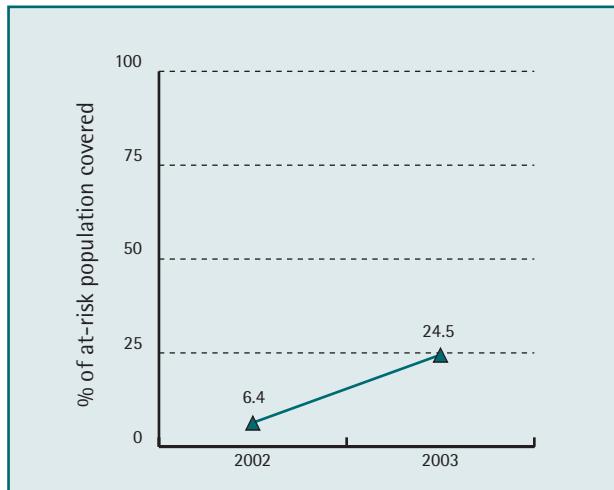
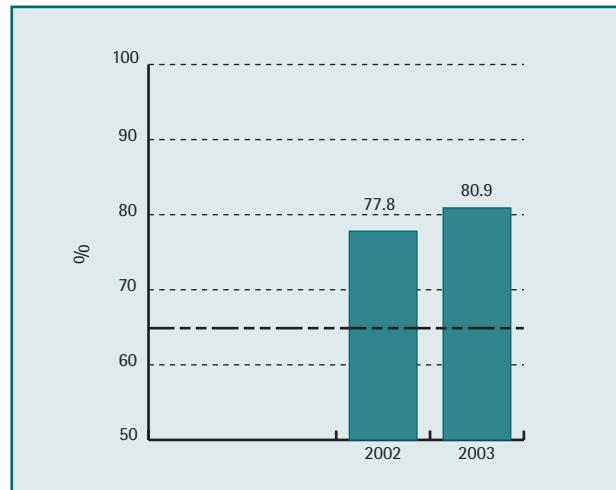
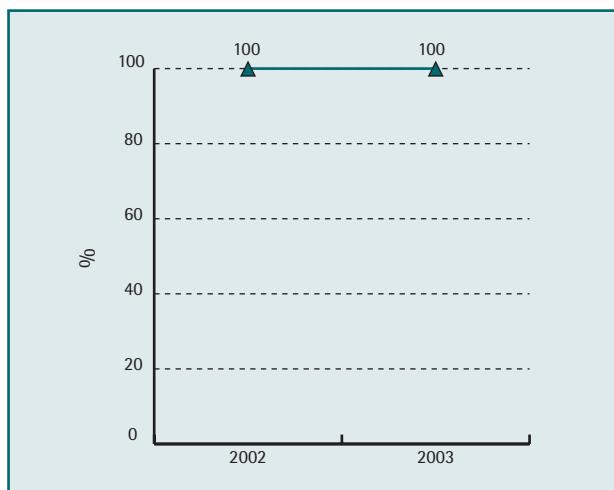
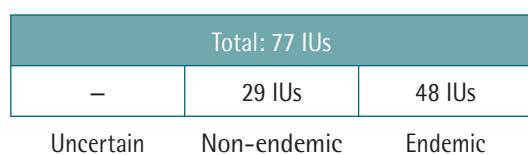
The administrative division designated as an IU is the district. LF mapping was completed in 2000 and showed that 48 of 77 districts are considered LF-endemic, with 3.43 million people at risk. The first round of MDA using albendazole and ivermectin began in 2002 in three districts. In the second round in 2003 it was planned to cover 0.84 million people; the reported coverage was 80.9% (range: 71.5% to 87.2%).

Mapping using ICT cards revealed LF prevalence of 3.6% to 12.5 % for new districts that began MDA in 2003, and the mf prevalence found in the three sentinel sites was as high as 0.7%. Between 2001 and 2003, 2300 drug distributors were trained and 125 people participated in training in the prevention and control of disability.

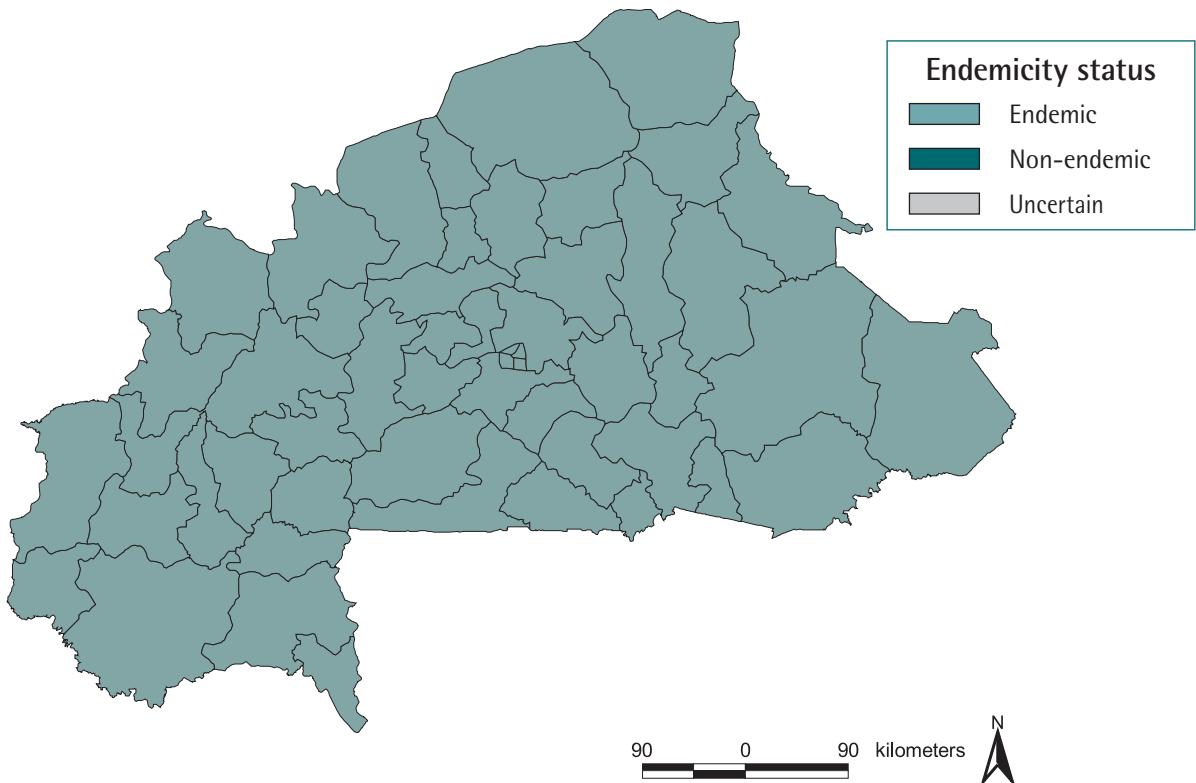
The LF elimination programme is implemented by the ministry of health. WHO has provided financial and technical support, GSK donates albendazole and Merck & Co., Inc. donates ivermectin to treat the population.

Table 3.2 Goal: to eliminate LF from Benin by 2020

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF by 2013 To prevent LF-associated disability 	<ul style="list-style-type: none"> MDA for at-risk population with the annual, one-dose co-administration of ivermectin plus albendazole Skin care of the affected parts by regular washing with soap and water

Figure 3.2 Outcomes and planning 2002–2008**Figure 3.3 LF at-risk population****Figure 3.4 Geographical coverage****Figure 3.5 MDA reported coverage****Figure 3.6 IUs with reported coverage >65%****Figure 3.7 Updated mapping status**

BURKINA FASO



LF is a major health problem for Burkina Faso's population of approximately 13 million, all of whom are considered to be at risk. The LF clinical manifestations evaluated in sentinel sites show hydrocele and lymphoedema prevalence of 2% and 0.6%, respectively.

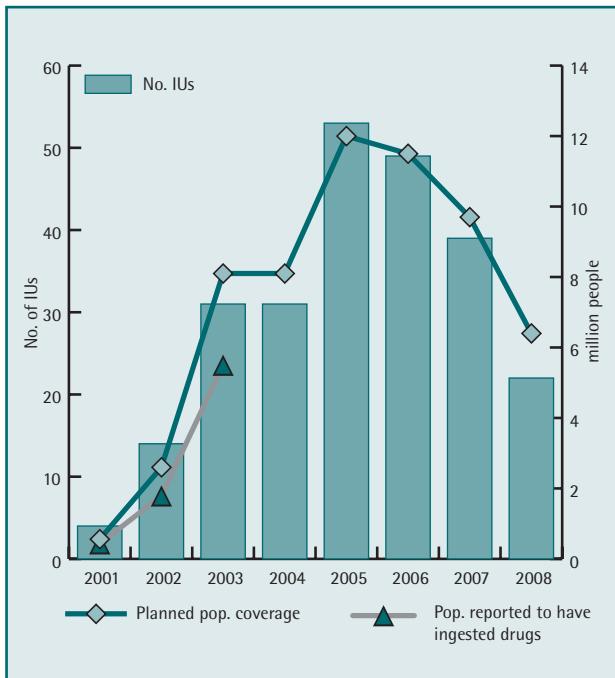
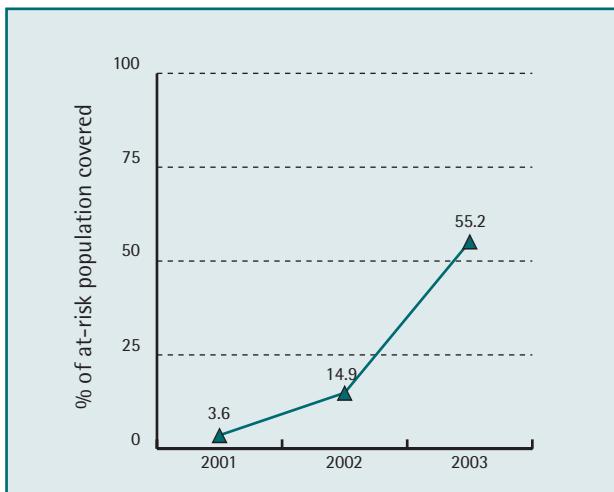
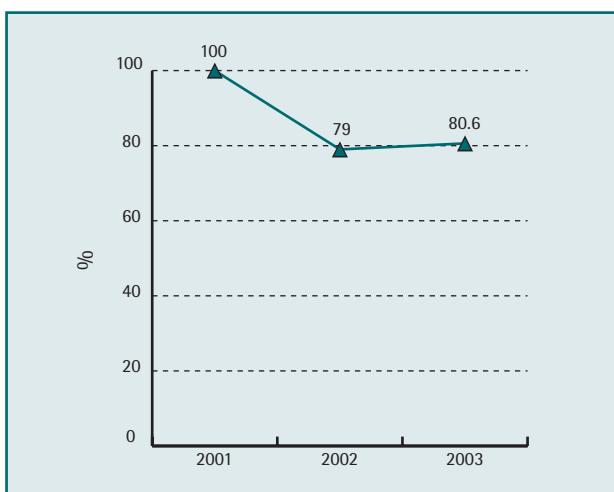
The health district is designated as the IU. Mapping of LF completed in 2000 showed that all 53 health districts are considered LF-endemic. The first round of MDA using albendazole and ivermectin began in 2001 in four IUs in the southern part of the country. In 2002, 14 IUs were

under the co-administration of the two drugs and an at-risk population of 2.6 million was covered. The third round of MDA in 2003 covered 31 IUs and 7 074 048 people, with a reported coverage of 77.8% (range: 54.9% to 82.6%).

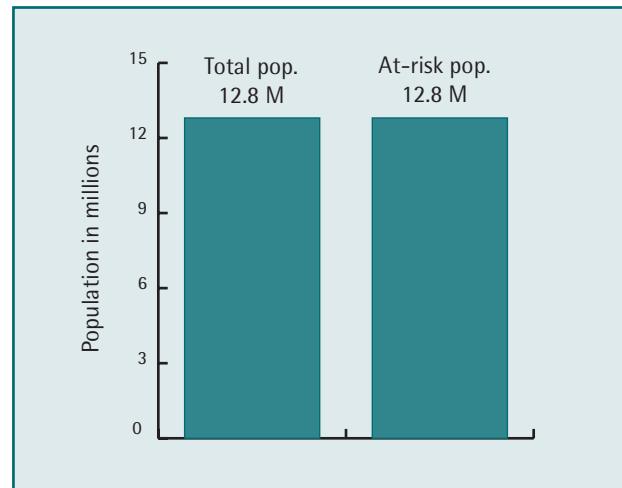
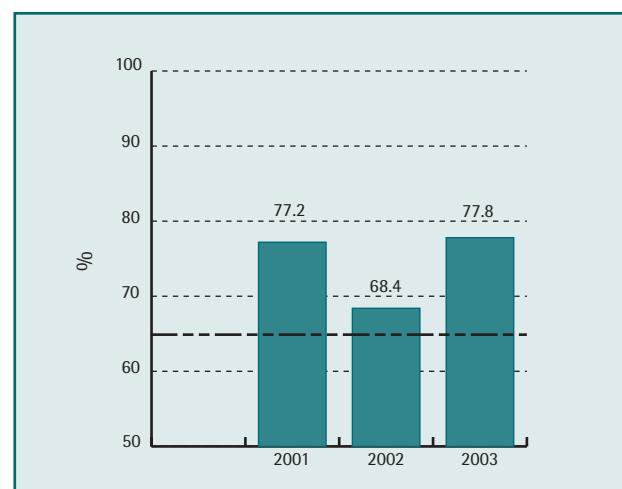
Mapping using ICT cards revealed LF prevalence of 5% to 57% for new districts that started MDA in 2003, and the mf prevalence found in seven new sentinel sites ranged from 0.1% to 23.8 %. Between 2001 and 2003, 20 993 drug distributors were trained, and 2961 people were trained in disability prevention and control.

Table 3.3 Goal: to eliminate LF from Burkina Faso by 2015

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt transmission of LF • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Social mobilization: to build awareness of the programme is planned according to local characteristics by local experts and backed up, where possible, by local political, religious and community leaders • To interrupt transmission using MDA and vector control as a supplementary measure, wherever feasible • Disability control, including self-help care involving intensive local hygiene • Building and sustaining partnerships • Programme management by strengthening management and technical capacity • Door-to-door drug distribution strategy, with some booths

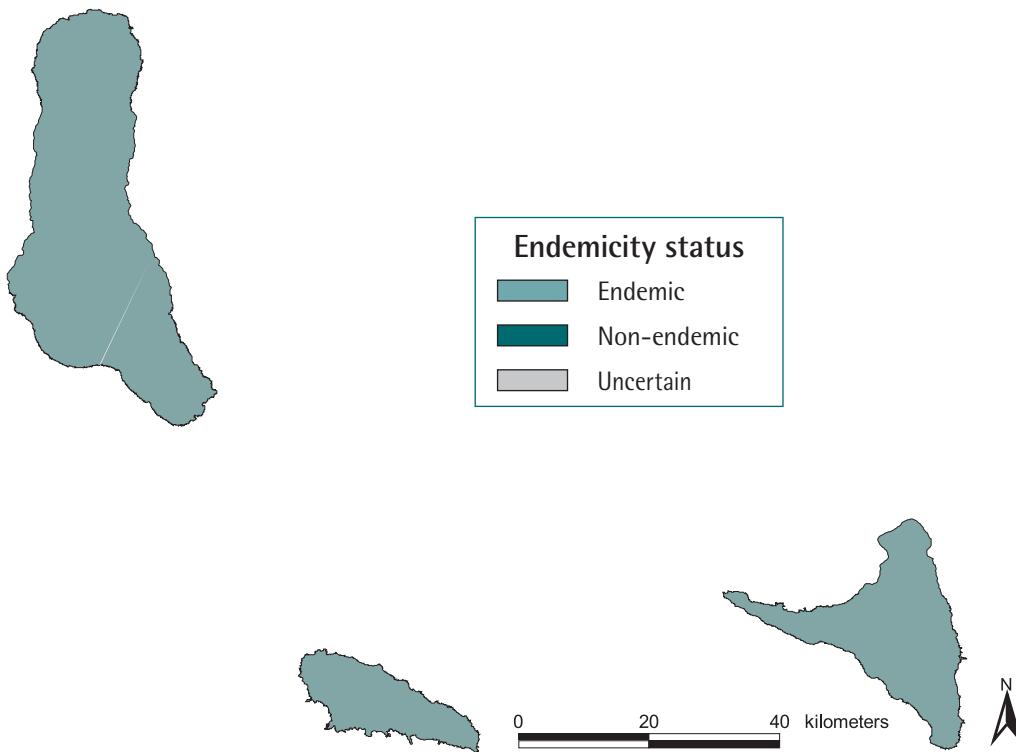
Figure 3.8 Outcomes and planning 2002–2008**Figure 3.10 Geographical coverage****Figure 3.12 IUs with reported coverage >65%**

The LF elimination programme is implemented by the ministry of health assisted by a wide range of partners. WHO provided financial and technical support; Helen Keller International, from the Onchocerciasis Project, provided support for social mobilization, training and supervision; Handicap International actively participated in developing basic principles for the prevention of LF-related disabilities; and the Foundation for Community Development and the Liverpool LF Support Centre provided funding (US\$ 40 000) and assisted in aspects of operational research. GSK donates albendazole and Merck & Co., Inc. donates ivermectin to treat the whole population.

Figure 3.9 LF at-risk population**Figure 3.11 MDA reported coverage****Figure 3.13 Updated mapping status**

Total: 53 IUs		
Uncertain	Non-endemic	Endemic
—	—	53 IUs

COMOROS



LF is one of the major public health problems in Comoros, with its population of approximately 0.6 million. The LF clinical manifestations have not been evaluated recently in sentinel sites. The most accurate data come from a study of Brygoo and Escolivet (1955) which showed elephantiasis prevalence of 1.7% in Moheli.

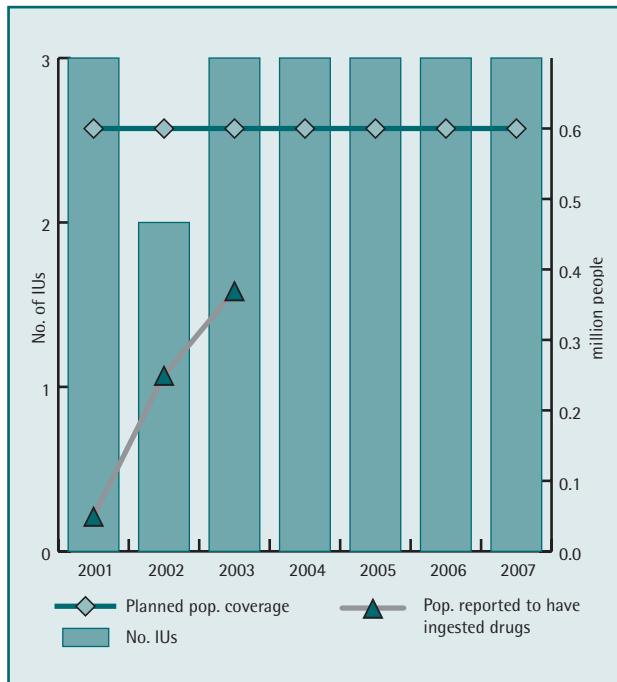
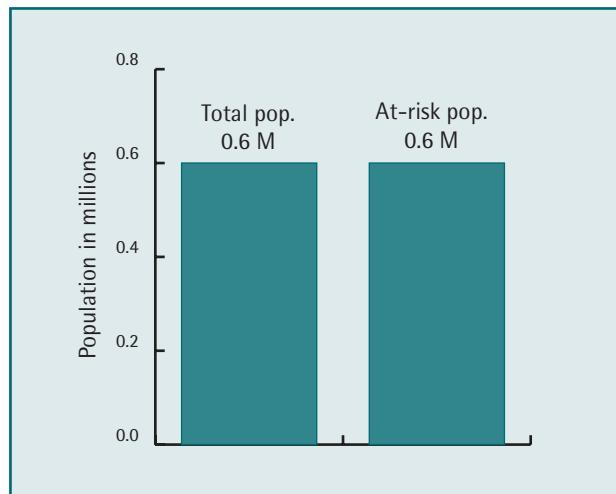
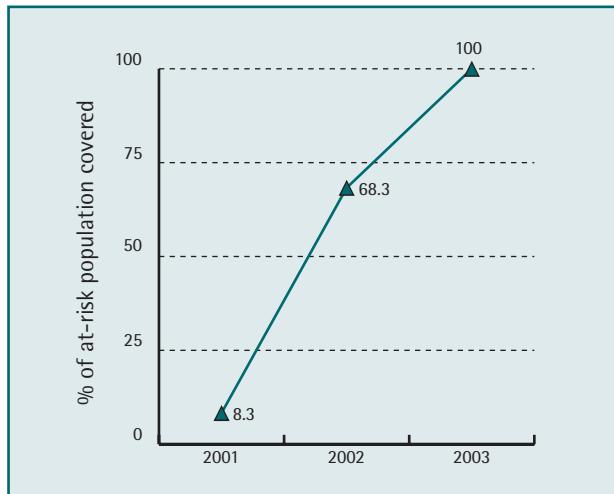
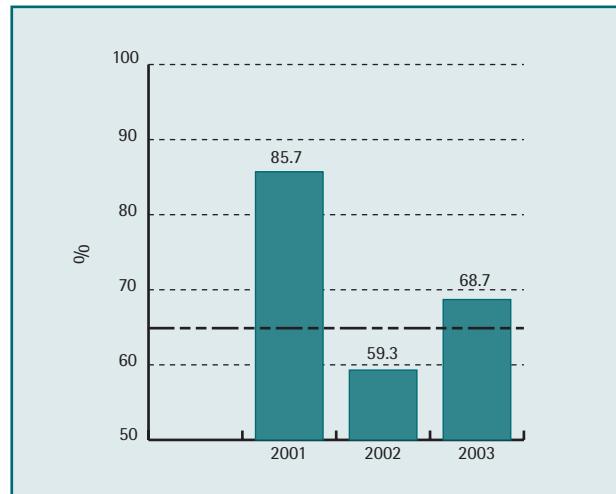
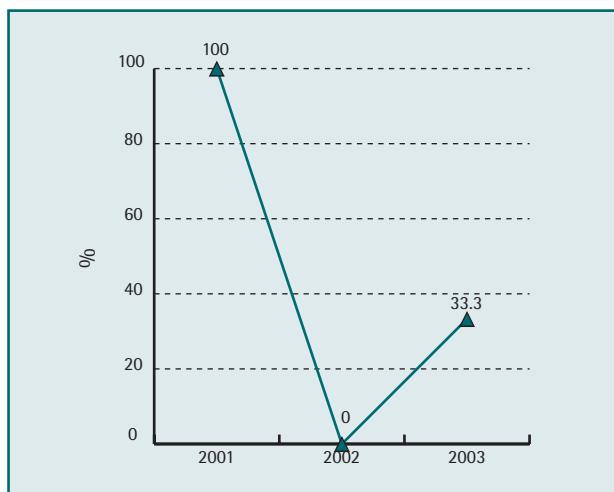
The administrative divisions designated as IUs were the islands of Moheli, Grand Comoros and Anjouan. LF mapping in Comoros was completed in 2000, and showed that all three islands are considered endemic. The first round of MDA using DEC and albendazole began in 2001 where the three IUs were covered. In 2002, only two IUs

were covered by MDA: Grand Comoros and Anjouan; for logistic reasons, Moheli was not covered. Between 2001 and 2003, 3078 drug distributors were trained and 188 individuals were trained in disability prevention and control. In 2003, 545 537 people were covered with a reported coverage of 68.7% (range: 63% to 75%).

The LF elimination programme is administered by the ministry of health with the support of other partners. WHO provided financial and technical support and provides DEC. GSK donates albendazole to treat the full population free of charge.

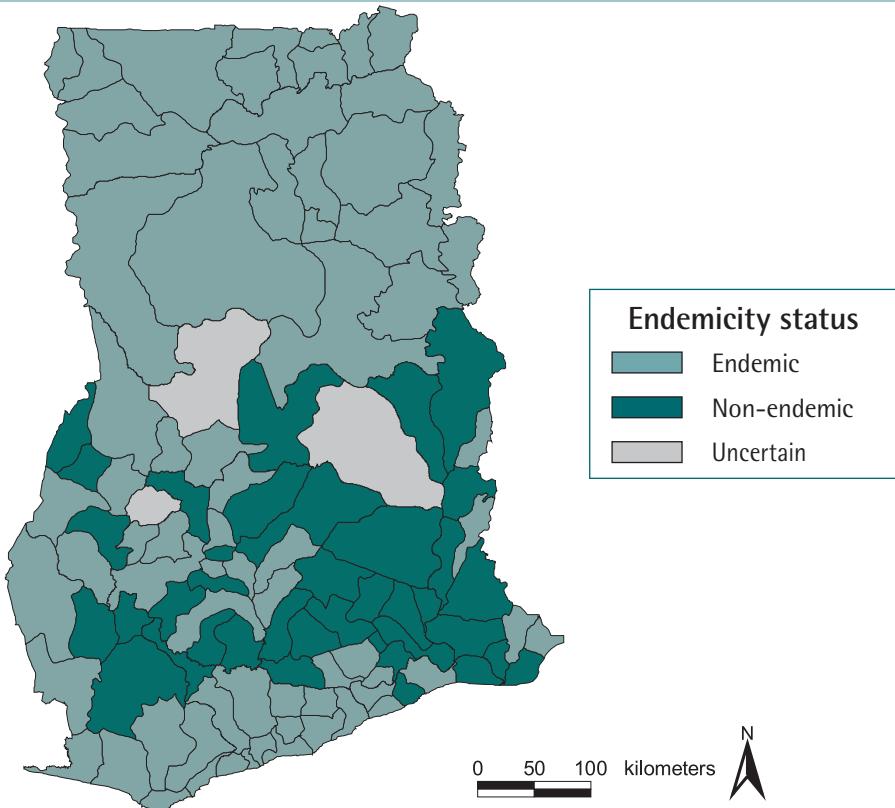
Table 3.4 Goal: to eliminate LF from Comoros as a public health problem

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF 	<ul style="list-style-type: none"> Coverage of the entire at-risk population by MDA for at least five years
<ul style="list-style-type: none"> To prevent and control LF-associated disability 	<ul style="list-style-type: none"> Implementation of simple hygiene measures through a home-based approach Promoting increased access to surgery for those sufferers with one or more urogenital manifestations

Figure 3.14 Outcomes and planning 2001–2007**Figure 3.15 LF at-risk population****Figure 3.16 Geographical coverage****Figure 3.17 MDA reported coverage****Figure 3.18 IUs with reported coverage >65%****Figure 3.19 Updated mapping status**

Total: 3 IUs		
Uncertain	Non-endemic	Endemic
—	—	3 IUs

GHANA



LF is one of Ghana's public health problems: with its population of 19.3 million, 31% of the population is considered at risk. The LF clinical manifestations evaluated in sentinel sites show lymphoedema prevalence to be as high as 2.5% and hydrocele prevalence as high as 2.7%.

The administrative division designated as an IU is the district. LF mapping was completed in 2001 and revealed that 41 districts out of a total of 110 are considered LF-endemic with 6.02 million people considered to be at risk.

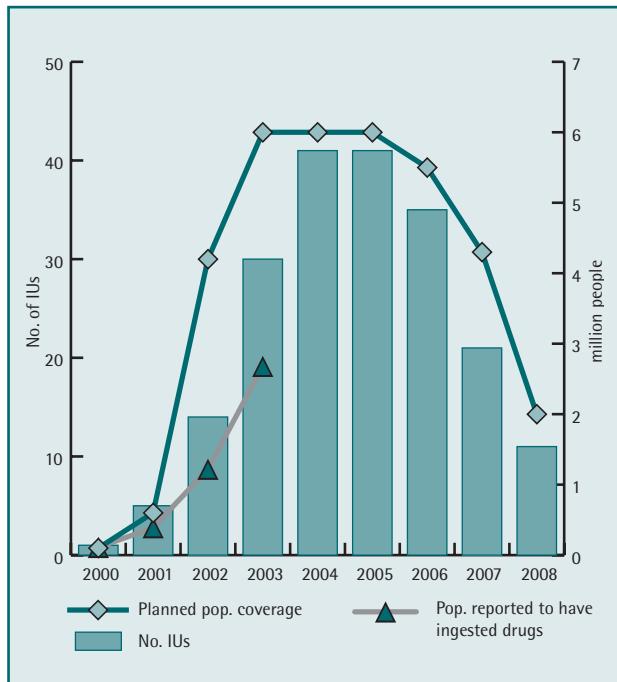
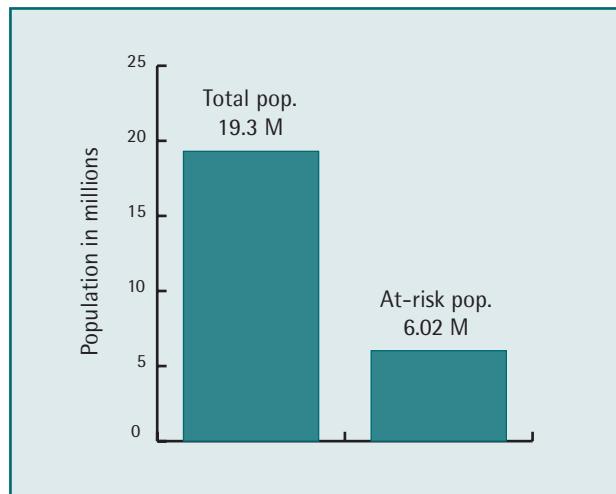
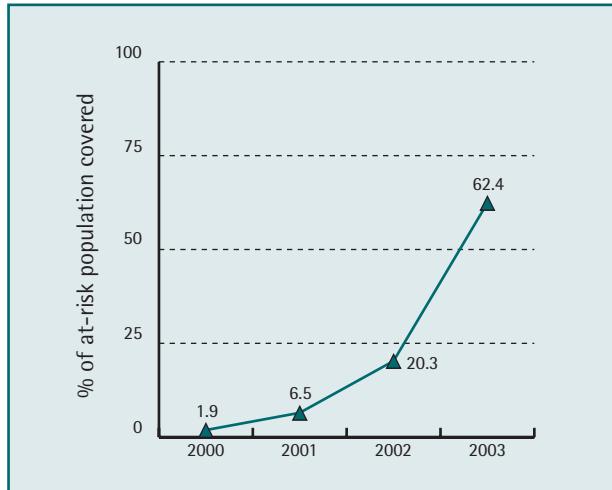
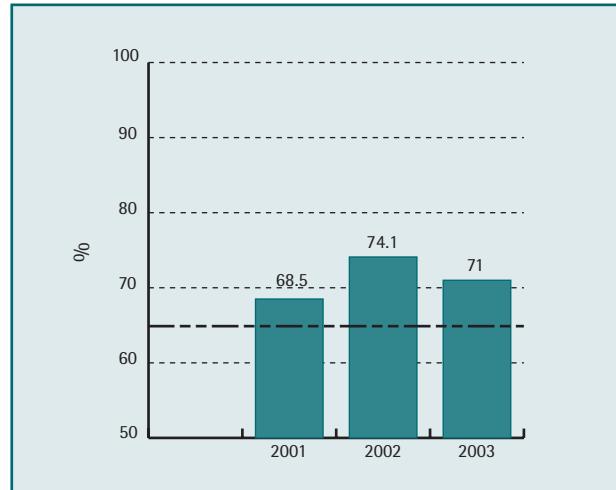
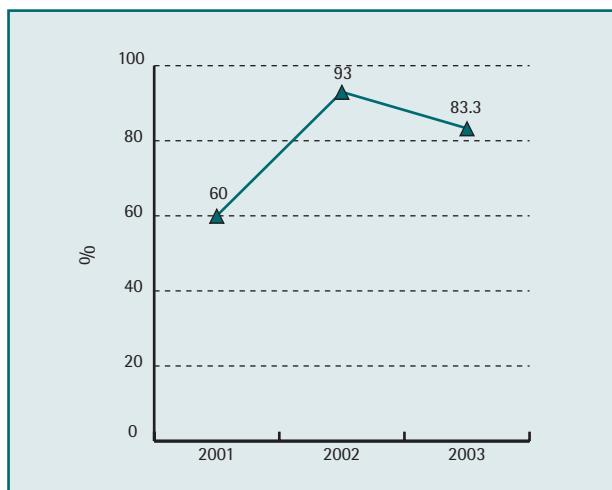
The first round of MDA using albendazole and ivermectin began in 2000 in one district. The second and third rounds in 2001 and 2002 covered five and 14 districts, respectively. During the fourth round, in 2003, nearly 3.8 million people were targeted with a reported coverage of 71% (range: 61.8% to 88.8%).

Mapping with ICT cards demonstrated an LF prevalence of 3% to 12% for new districts that started MDA in 2003, and the microfilaraemia prevalence found in the 44 sentinel sites was as high as 28.3%. Between 2001 and 2003, at least 2098 drug distributors were trained, and 349 people were trained in disability prevention and control.

The LF elimination programme is implemented by the ministry of health. WHO provided financial and technical support. GSK donates albendazole and Merck & Co., Inc. donates ivermectin to treat the full at-risk population. The Catholic Medical Missions Board in the Upper-West Region assisted with all programme activities. Health Development International supported the national programme, and the Liverpool LF Support Centre helped with training and logistics at the national level.

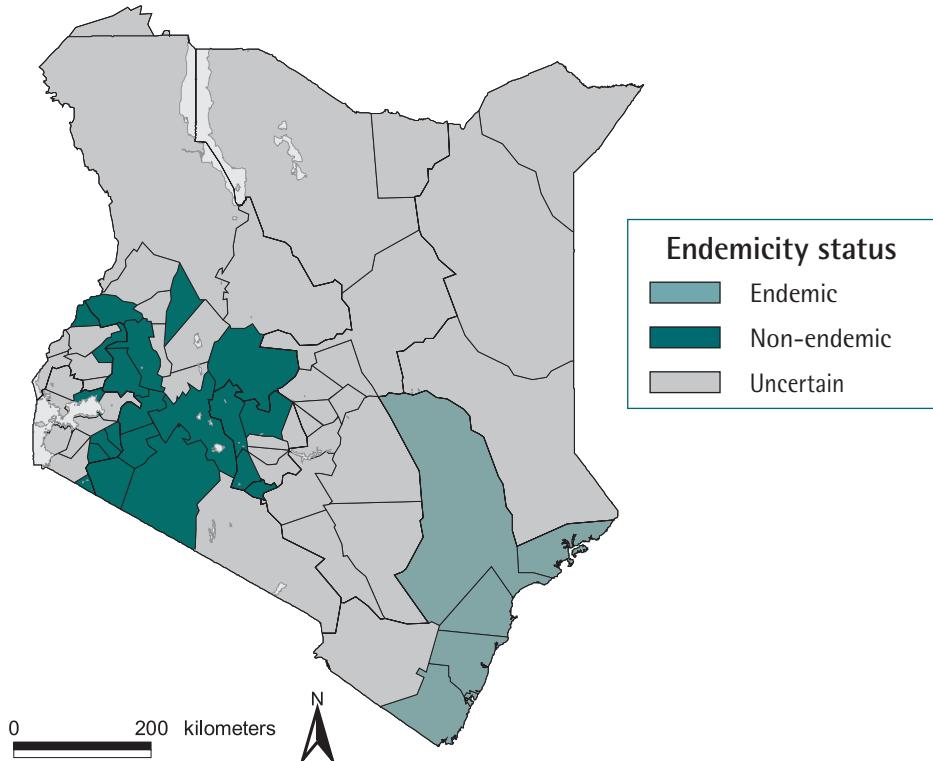
Table 3.5 Goal: to eliminate LF from Ghana as a public health problem

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent and control LF-associated disability 	<ul style="list-style-type: none"> Coverage of the entire at-risk population by MDA for at least five years Implementation of simple hygiene measures through a home-based approach Promoting increased access to surgery for those sufferers with one or more urogenital manifestations

Figure 3.20 Outcomes and planning 2000-2008**Figure 3.21 LF at-risk population****Figure 3.22 Geographical coverage****Figure 3.23 MDA reported coverage****Figure 3.24 IUs with reported coverage >65%****Figure 3.25 Updated mapping status**

Total: 110 IUs		
9 IUs	60 IUs	41 IUs
Uncertain	Non-endemic	Endemic

KENYA



LF is one of Kenya's major public health problems with its population of 31.2 million. It is estimated that a large part of the population is at risk of infection. The LF clinical manifestations evaluated in sentinel sites show a lymphoedema prevalence as high as 8% and hydrocele prevalence that ranges from 7% to 29%.

The administrative division designated as an IU is the district. LF mapping in Kenya is in progress and six districts from the coastal region — Kilifi, Kwale, Lamu, Malindi, Mombasa and Tana River — are already known to be LF-endemic. The first round of MDA using DEC plus albendazole began in 2002 in one district. For the second round of MDA in 2003, 1.45 million people in three IUs were covered with a reported coverage of 79.5% (range: 75% to 85%).

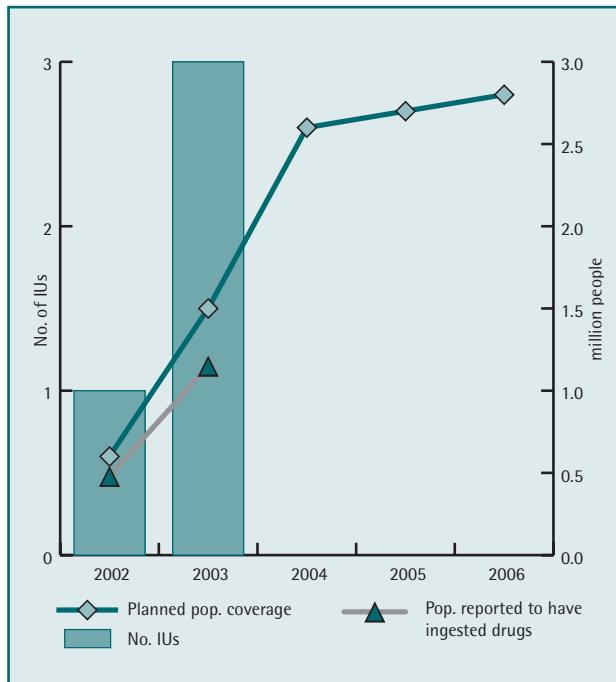
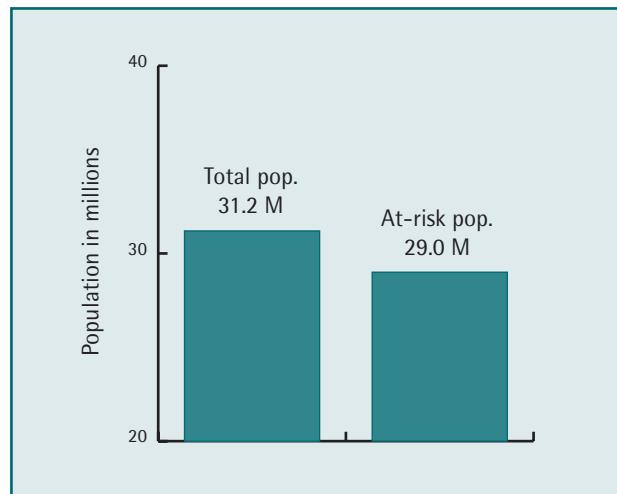
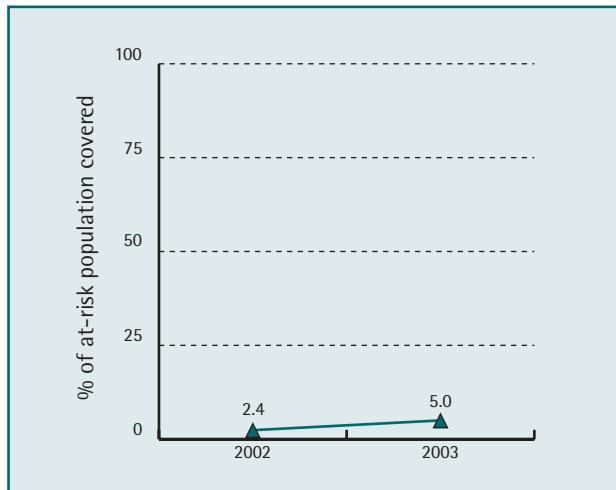
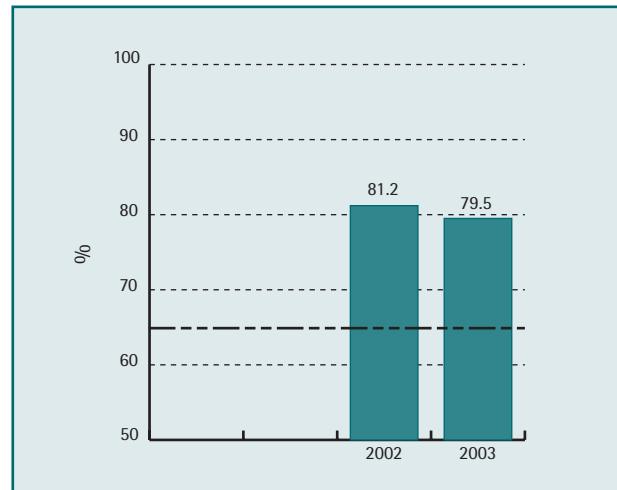
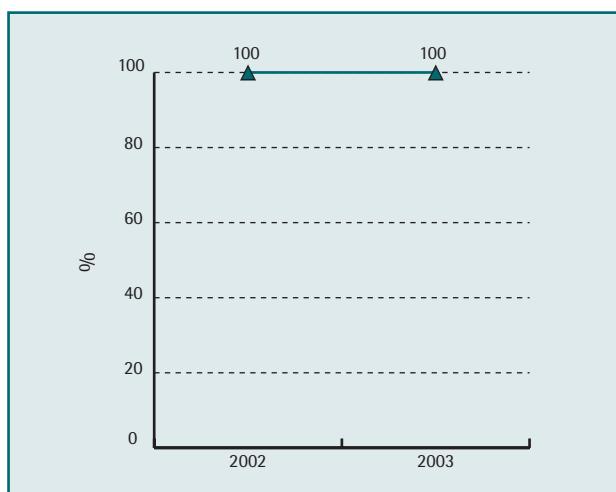
Mapping using a blood test for microfilaraemia, evaluated between 1988 and 2000, demonstrated an LF prevalence

of 27.8% and 16.4 % in Malindi and Kwale, respectively. For new districts that started MDA in 2003, the mf prevalence found in the four sentinel sites ranged from 5.2% to 15.7%. Between 2002 and 2003, 8000 drug distributors were trained but no training was undertaken in disability prevention and control.

The LF elimination programme is implemented by the ministry of health, with financial and technical support from WHO. GSK donates albendazole to treat the full at-risk population. Future partnership initiatives are envisaged with DANIDA, local and international nongovernmental organizations participating in health activities in Coast Province, the Coast Development Authority, commercial and service companies at the Coast (both private and state corporations), private individual business companies and organizations participating in philanthropic activities in Coast Province.

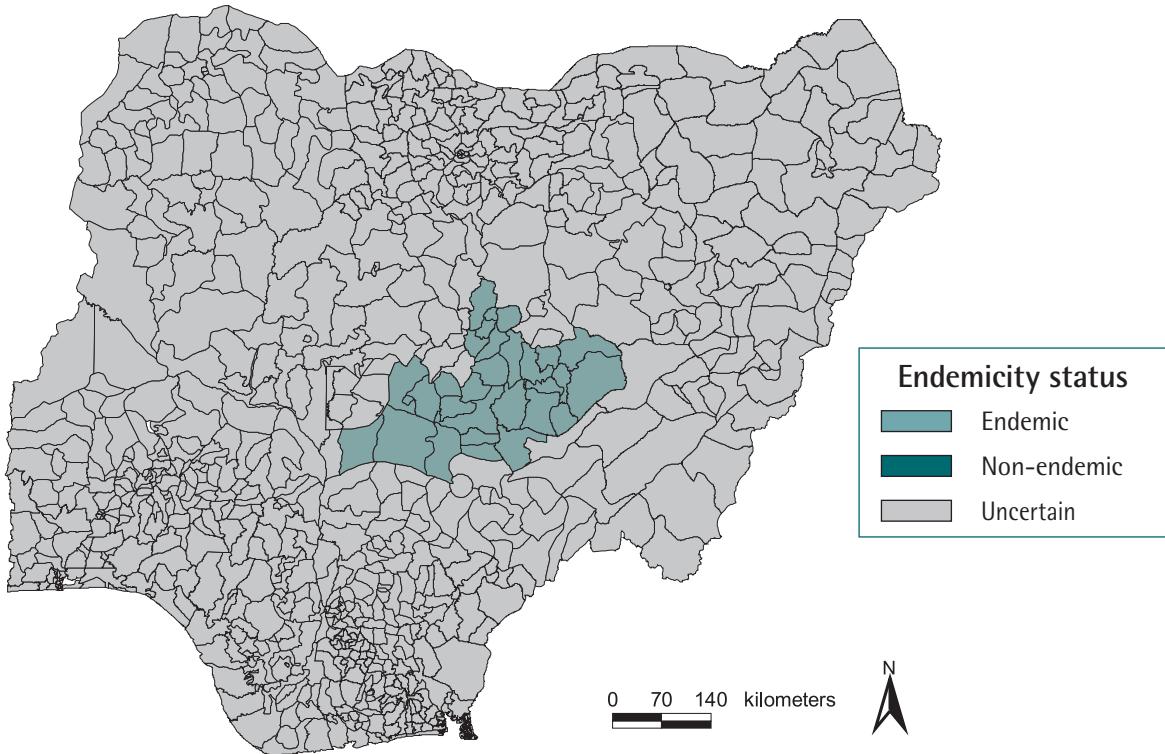
Table 3.6 Goal: to eliminate LF from Kenya by 2010

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF by 2010 To prevent and control LF-associated disability 	<ul style="list-style-type: none"> MDA in all the LF-endemic communities using DEC plus albendazole Community home-based management of lymphoedema Increased access to surgical intervention in those with hydrocele

Figure 3.26 Outcomes and planning 2002-2006**Figure 3.27 LF at-risk population****Figure 3.28 Geographical coverage****Figure 3.29 MDA reported coverage****Figure 3.30 IUs with reported coverage >65%****Figure 3.31 Updated mapping status**

Total: 70 IUs		
Uncertain	Non-endemic	Endemic
45 IUs	19 IUs	6 IUs

NIGERIA



LF is one of the public health problems of Nigeria's population of 113.8 million. It is estimated that a major part of the population is considered to be at risk of LF; mapping is in progress. The LF clinical manifestations evaluated in sentinel sites in 2002 show a lymphoedema prevalence as high as 40%. Some evaluations done in the past showed a hydrocele prevalence that ranges from 8% to 16.5%.

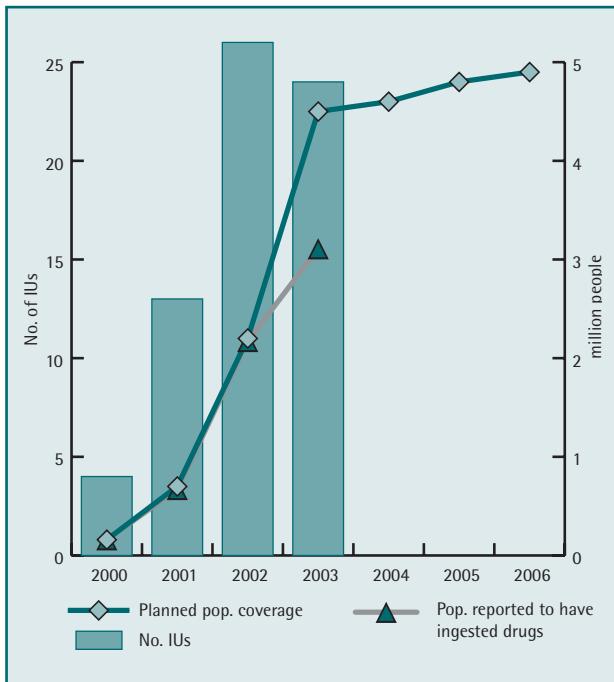
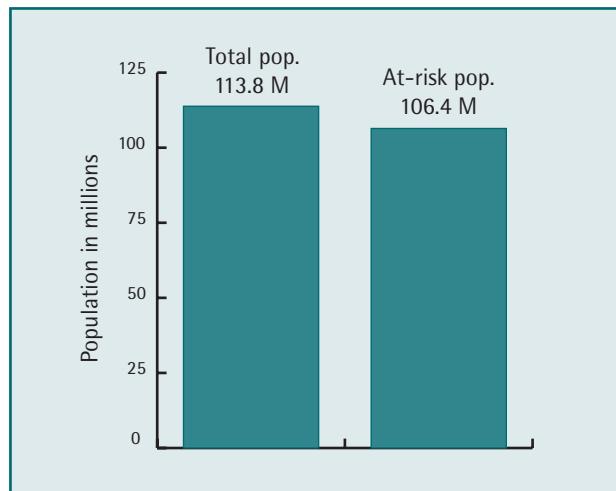
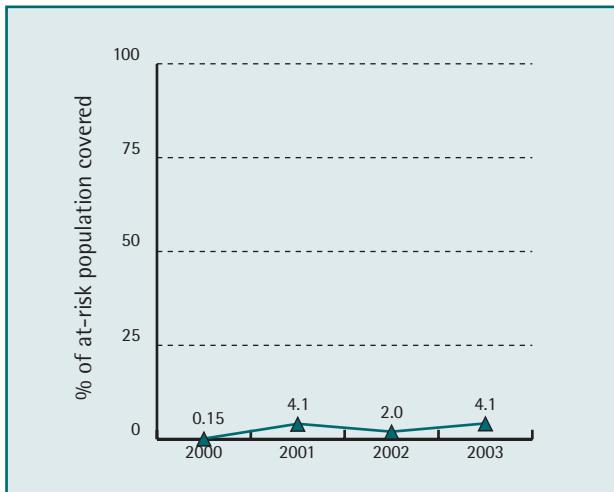
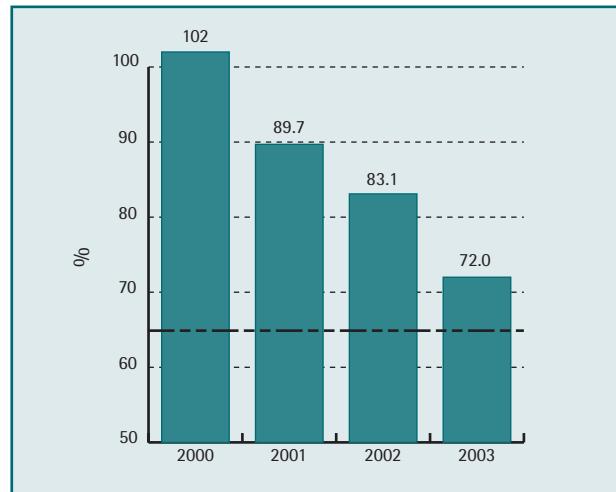
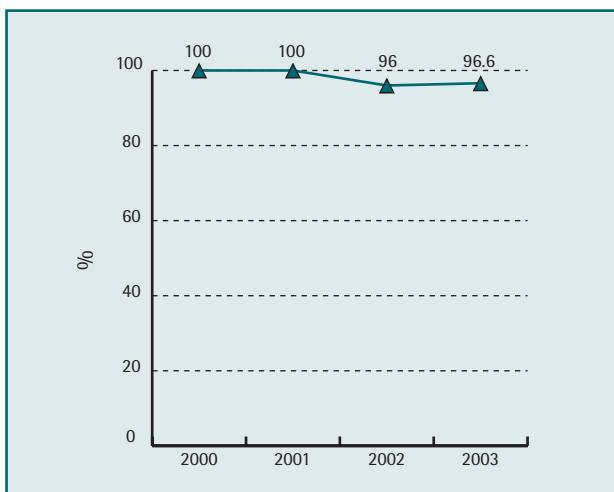
The administrative division designated as an IU is the Local Government Area. LF mapping is in progress and 23 IUs in Plateau and Nasarawa States are considered to be endemic. The first round of MDA using albendazole plus ivermectin began in 2000 in four IUs. In 2001 and 2002, 13 and 30 IUs were covered, respectively. For the fourth round of MDA in 2003, 4.3 million people were targeted with a reported coverage of 72%.

Mapping with ICT cards is in progress and the prevalence could be from 9% to 42%. The mf prevalence found in the eight sentinel sites ranged from 0.5% to 12.7%. Between 2000 and 2003, at least 2723 drug distributors were trained, and 110 people were given training in disability prevention and control.

The LF elimination programme is implemented by the ministry of health. WHO provided financial support for mapping south-west Nigeria. GSK donates albendazole to treat the entire at-risk population. The Carter Center Global 2000 River Blindness Program collaborated with the Federal Ministry of Health in using drug distribution methods similar to those used for treating river blindness.

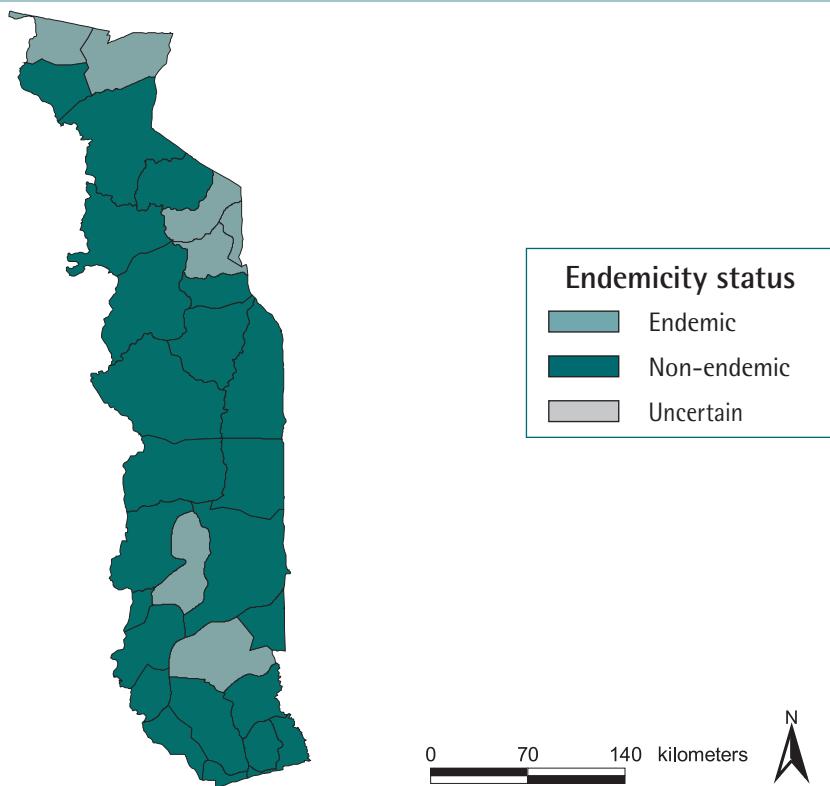
Table 3.7 Goal: to eliminate LF from Nigeria as a public health problem

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF as a public health problem To prevent and control LF-associated disability 	<ul style="list-style-type: none"> MDA using ivermectin and albendazole Health education, hydrocelectomy

Figure 3.32 Outcomes and planning 2000-2006**Figure 3.33 LF at-risk population****Figure 3.34 Geographical coverage****Figure 3.35 MDA reported coverage****Figure 3.36 IUs with reported coverage >65%****Figure 3.37 Updated mapping status**

Total: 774 IUs		
694 IUs	10 IUs	70 IUs
Uncertain	Non-endemic	Endemic

TOGO



LF is a health problem for Togo's population of approximately 5 million, of which more than 21% are considered to be at risk. The LF clinical manifestations evaluated in sentinel sites show a hydrocele and lymphoedema prevalence as high as 1% and 2%, respectively.

The administrative or health division designated as an IU is the prefecture. The mapping of LF, completed in 2000, showed that seven out of 30 prefectures are considered LF-endemic. The first round of MDA using albendazole and ivermectin began in 2000 in Binah, situated in the region of Kara. In 2001 and 2002, during the second round, three and six IUs, respectively, were covered with the co-administration of the two drugs. Under the third round, in 2003, 1.06 million people were covered with a reported coverage of 80.6%.

Mapping with ICT cards demonstrated an LF prevalence of 1% in Kozah, the new prefecture that began MDA in 2003. The mf prevalence found in the six sentinel sites was as high as 22%. Between 2000 and 2003, 3025 drug distributors were trained, and 240 people were given training in disability prevention and control.

The LF elimination programme is implemented by the ministry of health, assisted by WHO, and DFID. Health and Development International, Norway, provided technical and financial support. GSK donates albendazole and Merck & Co., Inc. donates ivermectin to treat the entire at-risk population.

Table 3.8 Goal: to eliminate LF from Togo by 2015

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt transmission of LF • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Mass drug distribution of albendazole plus ivermectin • Social mobilization • Monitoring, supervision and evaluation • Case identification and management • Information, education and communication (IEC)

Figure 3.38 Outcomes and planning 2000-2007

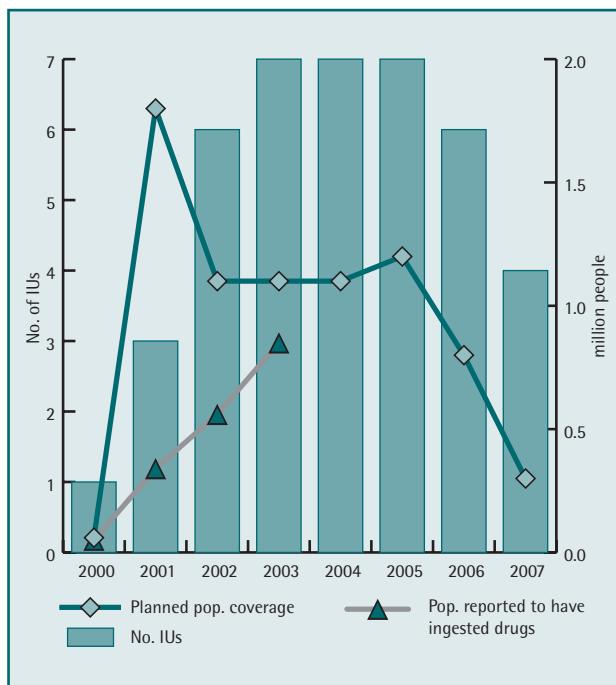


Figure 3.39 LF at-risk population

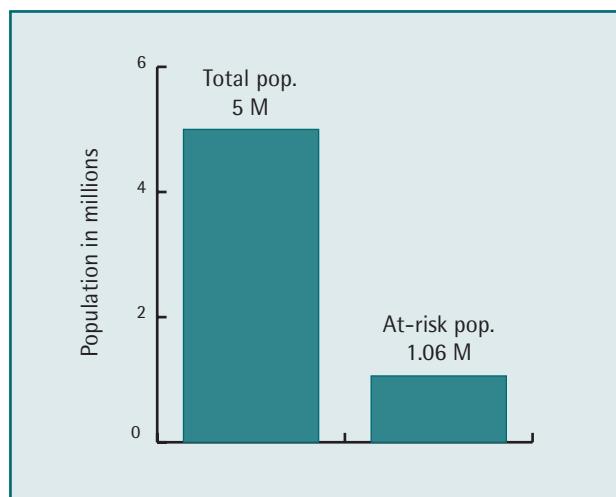


Figure 3.40 Geographical coverage

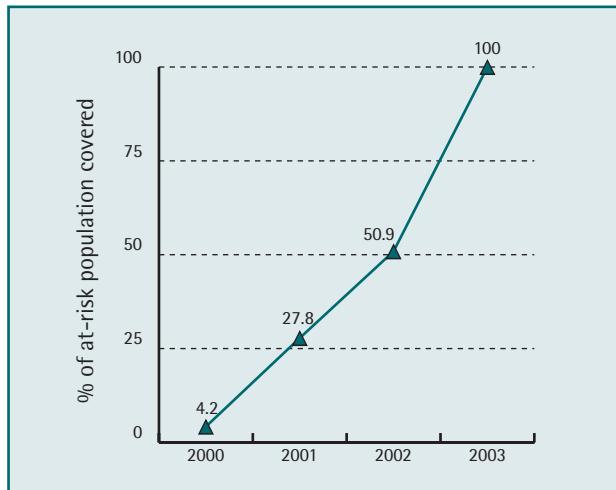


Figure 3.41 MDA reported coverage

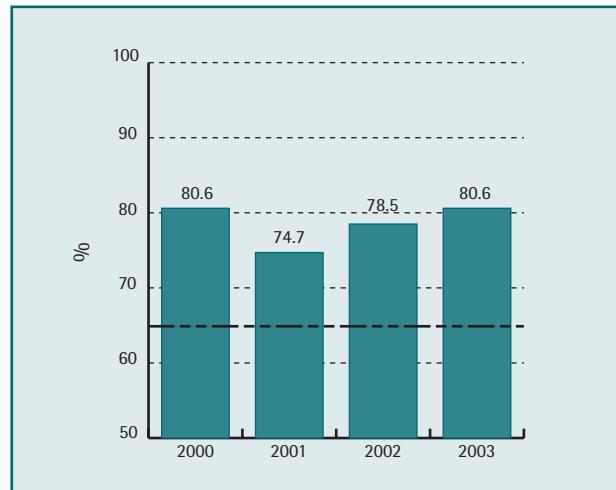


Figure 3.42 IUs with reported coverage >65%

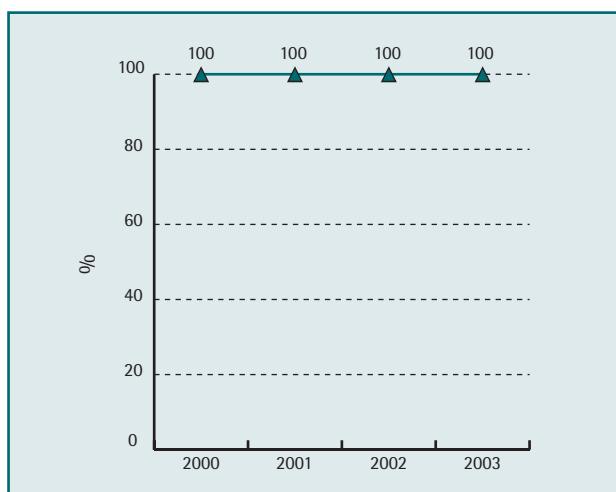
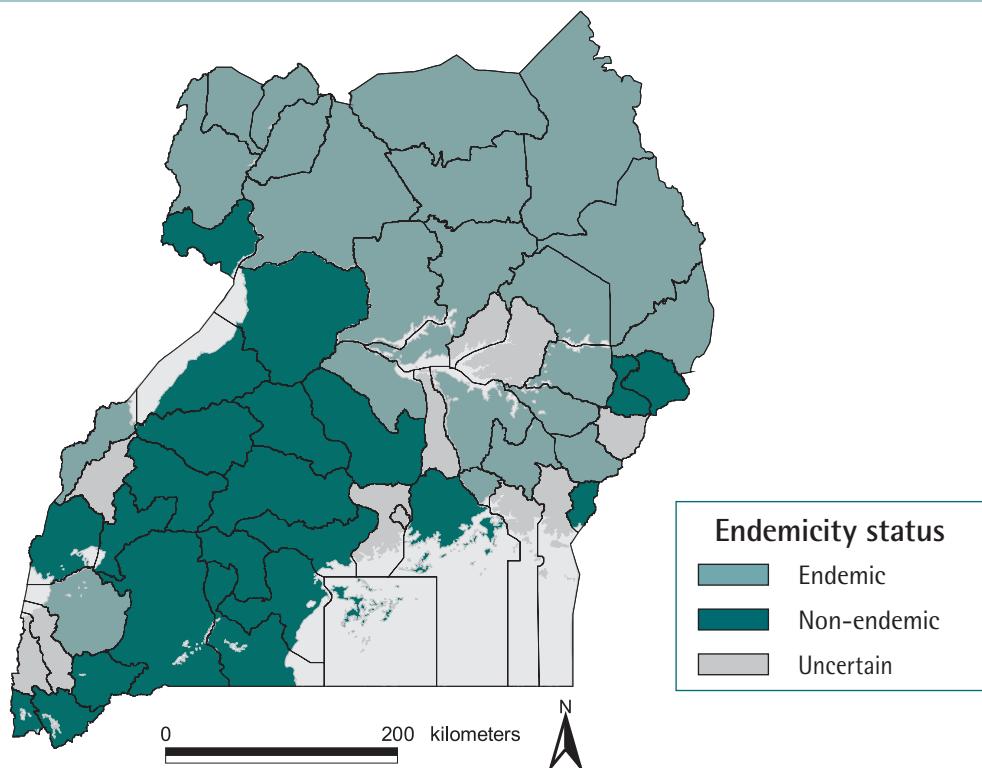


Figure 3.43 Updated mapping status

Total: 30 IUs		
1 IU	22 IUs	7 IUs
Uncertain	Non-endemic	Endemic

UGANDA



LF caused by *W. bancrofti* is widespread in Uganda. Preliminary mapping results show that at least 22 districts in the east, north-east, north, north-west, west and districts around the Lake Kyoga/Lake Kwania basin are endemic. This mapping, based on the use of ICT cards that detect specific circulating filarial antigens (CFA), revealed that the major burden of LF is concentrated in the northern, eastern and north-eastern parts of the country, with ICT prevalence of over 40% recorded in adults in some districts. Most of southern, central and western parts of the country were found to be LF-free.

A few districts in the extreme west had low antigenaemia. The major chronic clinical manifestations of LF are

hydrocele in males and lymphoedema in both males and females. In baseline surveys conducted in the districts of Katakwi, Lira and Soroti/Kaberamaido, microfilaraemia above 20% and ICT rates of over 40% were recorded in some communities (Onapa et al, 2001). Hydrocele, the most common chronic manifestation in Uganda, was found to have prevalence as high as 28% in males aged 20 years and above. These findings demonstrate that LF constitutes a heavy public health burden in Katakwi, Lira and Soroti/Kaberamaido and neighbouring districts. In fact, the problem of hydrocele was so serious that in Obalanga area of Katakwi district, in 1996, a group of young men formed an association to help hydrocele victims. This association, originally known as Obalanga

Table 3.9 Goal: to eliminate LF from Uganda by 2015

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent LF-associated disability 	<ul style="list-style-type: none"> Annual community-directed treatment with ivermectin plus albendazole for at least five years Intensive social mobilization using the COMBI approach Educate the population on simple hygiene measures that help to prevent lymphoedema and its progression to elephantiasis or secondary infection Initially, to set up sub-county disability management programmes in two sub-counties (one per district) Organize free hydrocelectomy camps to improve compliance and offer hope to hydrocele sufferers

Hydrocele Eradication Association, has registered over 2000 members, most of them hydrocele and lymphoedema sufferers. The Association has now expanded to cover the whole district and is known as the Katakwi Filariasis Elimination Association.

The administrative division designated as an IU is the district. LF mapping has been completed and 24 out of 56 districts (IUs) are known to be LF-endemic. The first round of MDA using albendazole and ivermectin began in 2002 in Katakwi and Lira districts. The second round of MDA planned for Katakwi and Lira in August–September 2003 could not be carried out because of insecurity that engulfed parts of the two districts. In 2003, MDA was planned to be extended to eight new districts. Mapping with ICT cards had demonstrated LF prevalence of between 1.9% and 26.8% in the eight new districts that were to begin MDA in 2003. Most of the targeted districts, however, except Kamuli (a low priority district), were also affected by rebel insurgency. Thus, MDA in all these districts was postponed indefinitely. The situation is improving and some of the displaced communities have started to return to their villages; rebel activity has virtually died down. It is hoped that it will very soon be possible to carry out MDA. There is definitely a very high demand for LF drugs, especially in Lira and Katakwi districts.

In 2002, a total of 64 trainers (Training of Trainers – district-level supervisors) were trained in Lira and Katakwi

districts; and a total of 7713 community drug distributors (CDDs) were trained in the two districts. Although no specific training in disability management was organized, demonstrations of the techniques involved were made by health workers and a documentary of the process prepared for future use.

The LF elimination programme is implemented by the ministry of health, with technical and financial support from WHO. The drugs are donated by Merck & Co; Inc. and GSK, who through the MDP are supplying ivermectin and albendazole tablets, respectively, for as long as they are required. Support has been received from the Liverpool LF Support Centre, DFID and the MDP. A request for support to PELF, Uganda, has been submitted to the Carter Center's Global River Blindness Program, which it is hoped will consider supporting the scaling up of LF in some districts in the north and north-west where it is funding the Onchocerciasis Control Programme. Integration of these two programmes and, possibly, the Schistosomiasis/Intestinal Helminth Control Programme would synergize these three efforts. It is also hoped that requests for help with disability management (both lymphoedema and hydrocelectomy) will be submitted to Liverpool LF Support Centre and Emory LF Support Center. Attempts to attract the support of large corporate bodies in Uganda have not been successful, so far.

Figure 3.44 Outcomes and planning 2002–2008

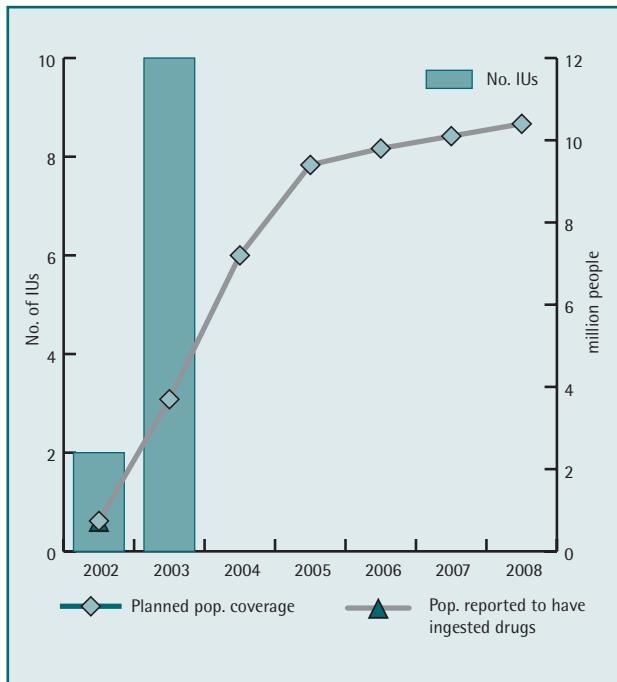


Figure 3.45 LF at-risk population

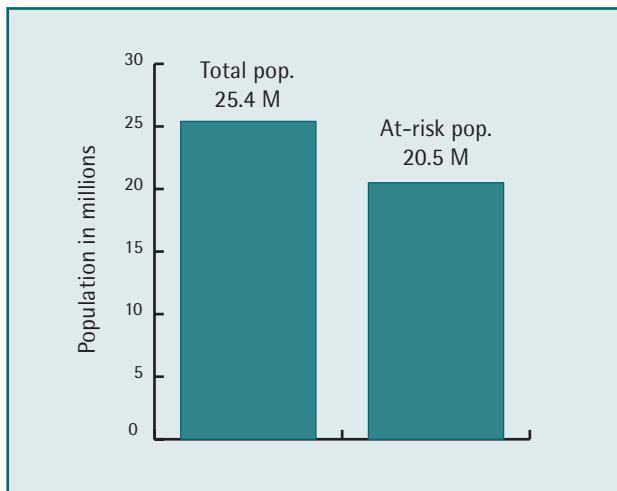


Figure 3.46 Geographical coverage

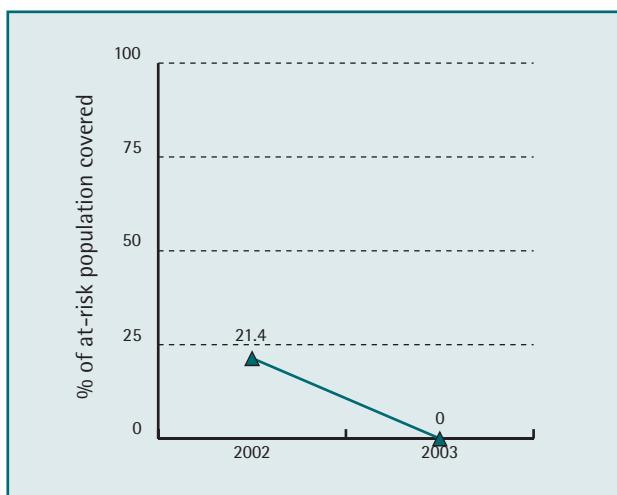


Figure 3.47 MDA reported coverage

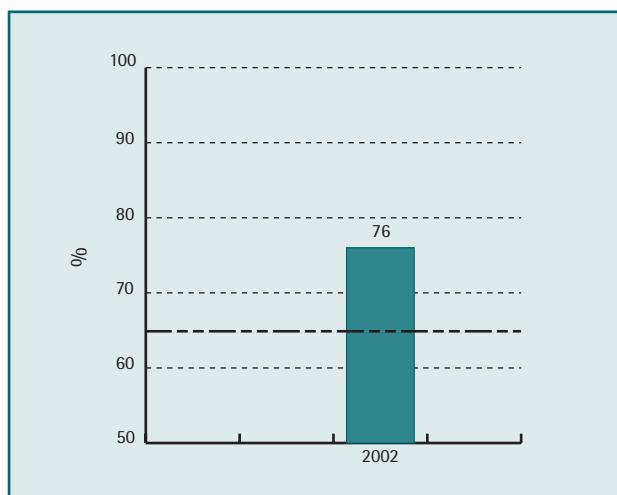


Figure 3.48 IUs with reported coverage >65%

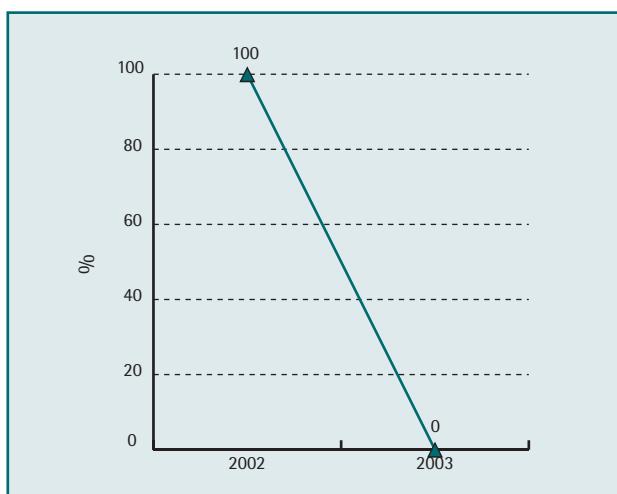
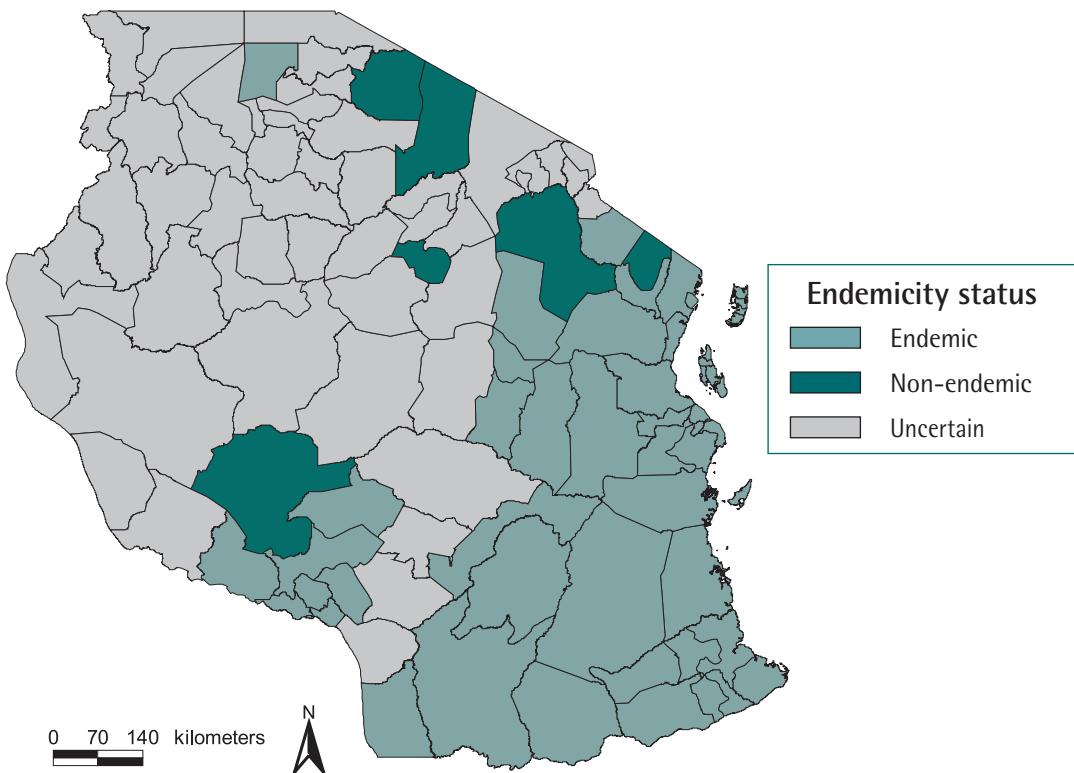


Figure 3.49 Updated mapping status

Total: 56 IUs		
Uncertain	Non-endemic	Endemic
5 IUs	27 IUs	24 IUs

UNITED REPUBLIC OF TANZANIA



LF is one of the public health problems for the United Republic of Tanzania's mainland population of 35 million. It is estimated that a large part of the population is at risk. The LF clinical manifestations evaluated in sentinel sites in Pwani and Mtwara regions show a hydrocele prevalence of 23% to 59.2% and a lymphoedema prevalence of 7.9%.

The administrative division designated as an IU is the district. LF mapping is in progress and 50 of 110 districts are known to be LF-endemic. The first round of MDA using albendazole and ivermectin began in 2000 in Mafia district. The second and third rounds of MDA covered six and 11 districts, respectively. In 2003, 2.81 million

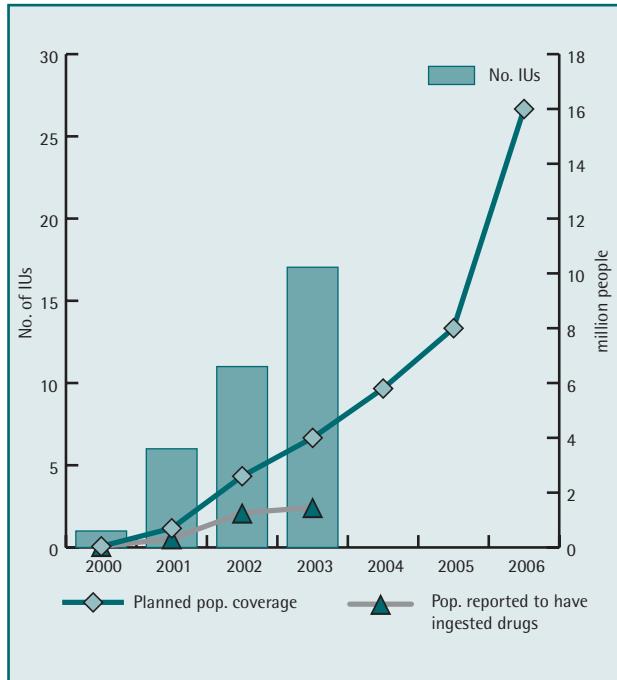
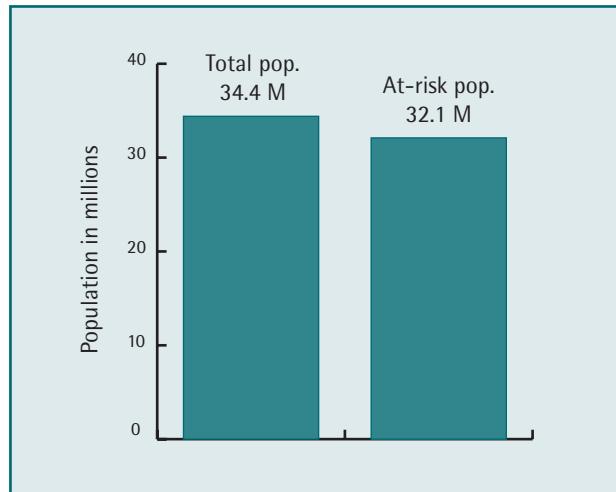
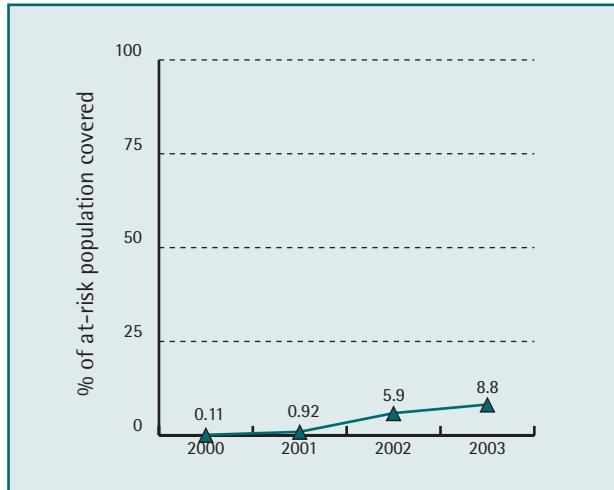
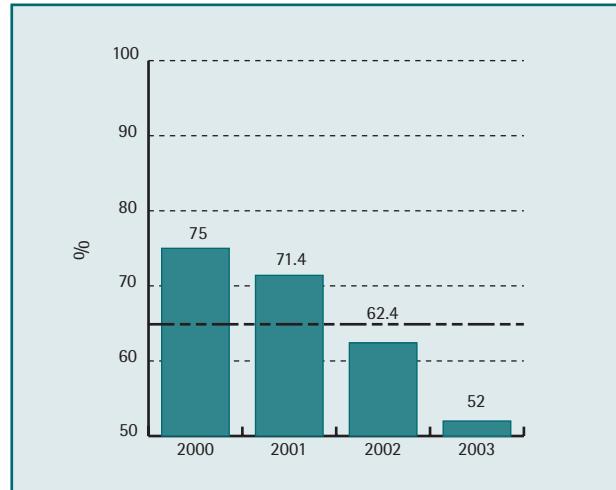
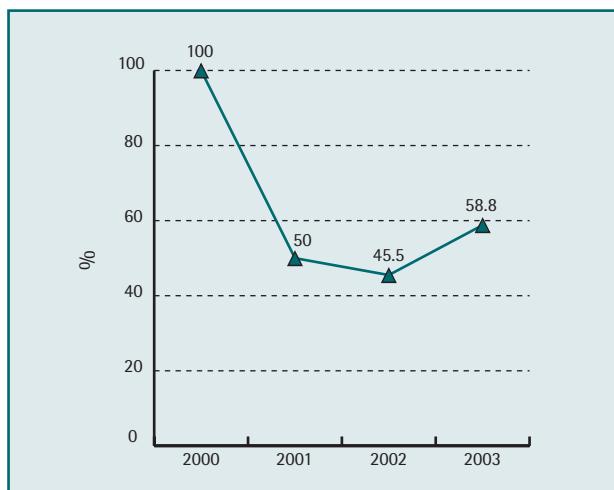
people in 17 IUs were covered with a reported coverage of 59% to 91%.

Mapping with ICT cards demonstrated an LF prevalence of 47% to 60% in six new districts that started MDA in 2003, and the mf prevalence found in the two sentinel sites ranged from 4.5% to 14%. Between 2000 and 2003, 6261 drug distributors were trained, and 39 people received training in disability prevention and control.

The LF elimination programme is implemented by the ministry of health. WHO provided financial and technical support, and GSK donates albendazole to treat the full at-risk population.

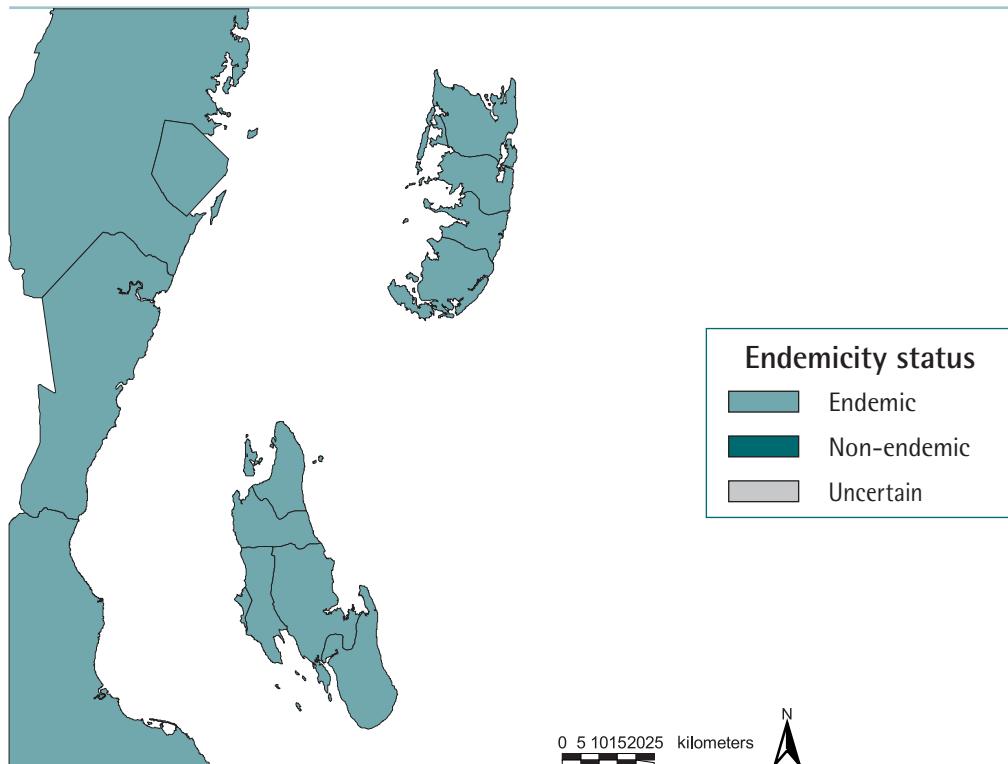
Table 3.10 Goal: to eliminate LF from United Republic of Tanzania as a public health problem

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt transmission of LF • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Reduction in prevalence to less than 1% in all endemic areas • Interruption of transmission confirmed by xenomonitoring • Hydrocelectomy for those requiring it • Database for all those who have registered for surgery and those who have received surgery

Figure 3.50 Outcomes and planning 2000-2006**Figure 3.51 LF at-risk population****Figure 3.52 Geographical coverage****Figure 3.53 MDA reported coverage****Figure 3.54 IUs with reported coverage >65%****Figure 3.55 Updated mapping status**

Total: 110 IUs		
58 IUs	2 IUs	50 IUs
Uncertain	Non-endemic	Endemic

ZANZIBAR, UNITED REPUBLIC OF TANZANIA



LF is a major health problem for Zanzibar's population of more than one million. The LF clinical manifestations evaluated in sentinel sites show a hydrocele and lymphoedema prevalence of 6.4% and 5%, respectively.

The administrative division designated as an IU in Zanzibar, United Republic of Tanzania, comprises the two islands. Mapping of LF in Zanzibar has been undertaken since 1989. The mf prevalence in Unguja and Pemba Islands was 8% and 12%, respectively, with an at-risk population estimated at 1.04 million.

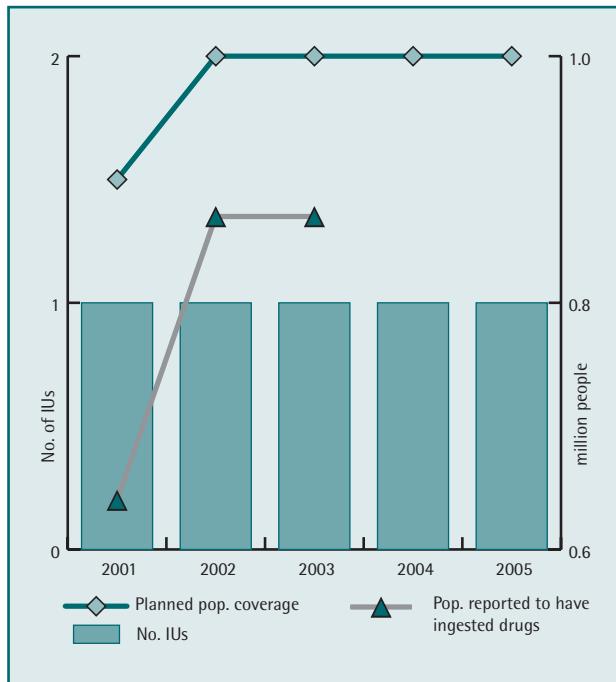
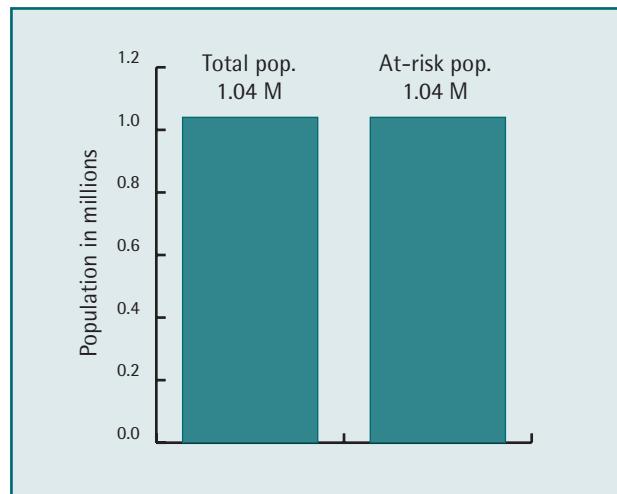
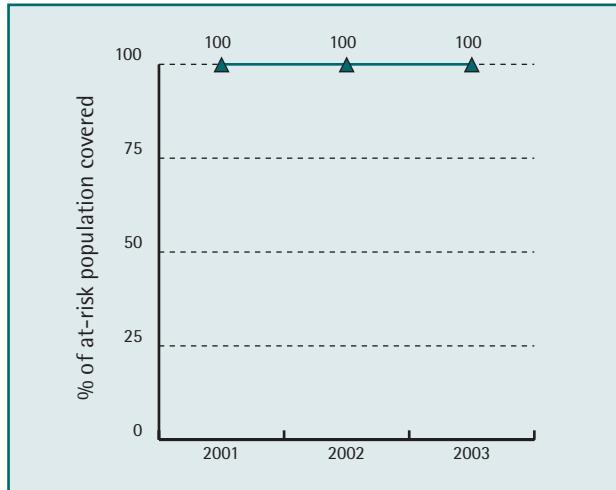
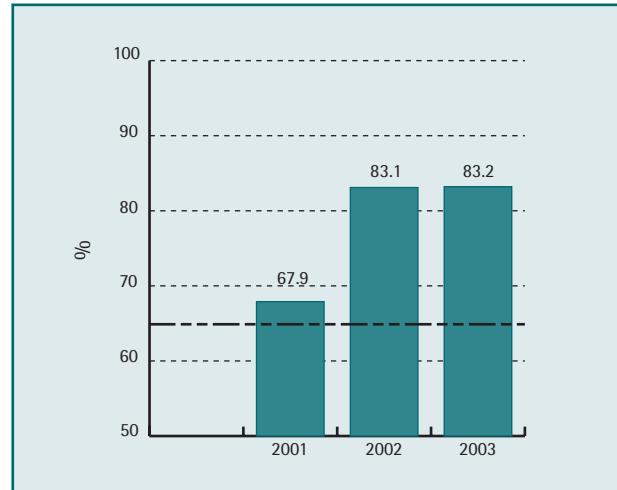
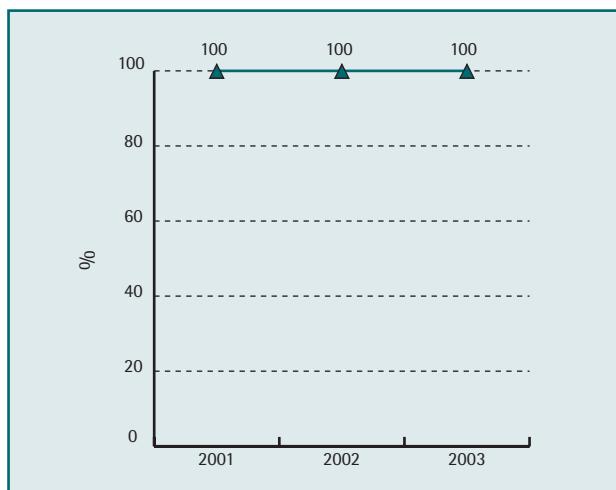
In 2001, the first round of MDA covered the two islands with the co-administration of ivermectin and albendazole. The second round, in 2002, covered an at-risk

population of 818 155. The third round, in 2003, covered 1 049 399 people with a reported coverage of 83% (range: 80.1% to 89.2%). Between 2001 and 2003, eight training courses were conducted for MDA where 222 people were trained.

The LF elimination programme is administered by the ministry of health and supported by a number of partners. WHO provided financial and technical support; the nongovernmental organization Handicap International actively participated in developing basic principles for the prevention of LF-related disabilities; and the Liverpool LF Support Centre assisted in aspects of operational research. GSK donates albendazole and Merck & Co., Inc. donates ivermectin to treat the entire population.

Table 3.11 Goal: to eliminate LF from Zanzibar, United Republic of Tanzania, by 2008

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent LF-associated disability 	<ul style="list-style-type: none"> Community MDA using ivermectin and albendazole following door-to-door approach Home-based care approach: <ul style="list-style-type: none"> train health workers train informal carers and community members Health education Production and dissemination of IEC materials on disability prevention and control Hydrocelectomy

Figure 3.56 Outcomes and planning 2000-2006**Figure 3.57 LF at-risk population****Figure 3.58 Geographical coverage****Figure 3.59 MDA reported coverage****Figure 3.60 IUs with reported coverage >65%****Figure 3.61 Updated mapping status**

Total: 1 IU		
Uncertain	Non-endemic	Endemic
-	-	1 IU

AMERICAN PROGRAMME REVIEW GROUP

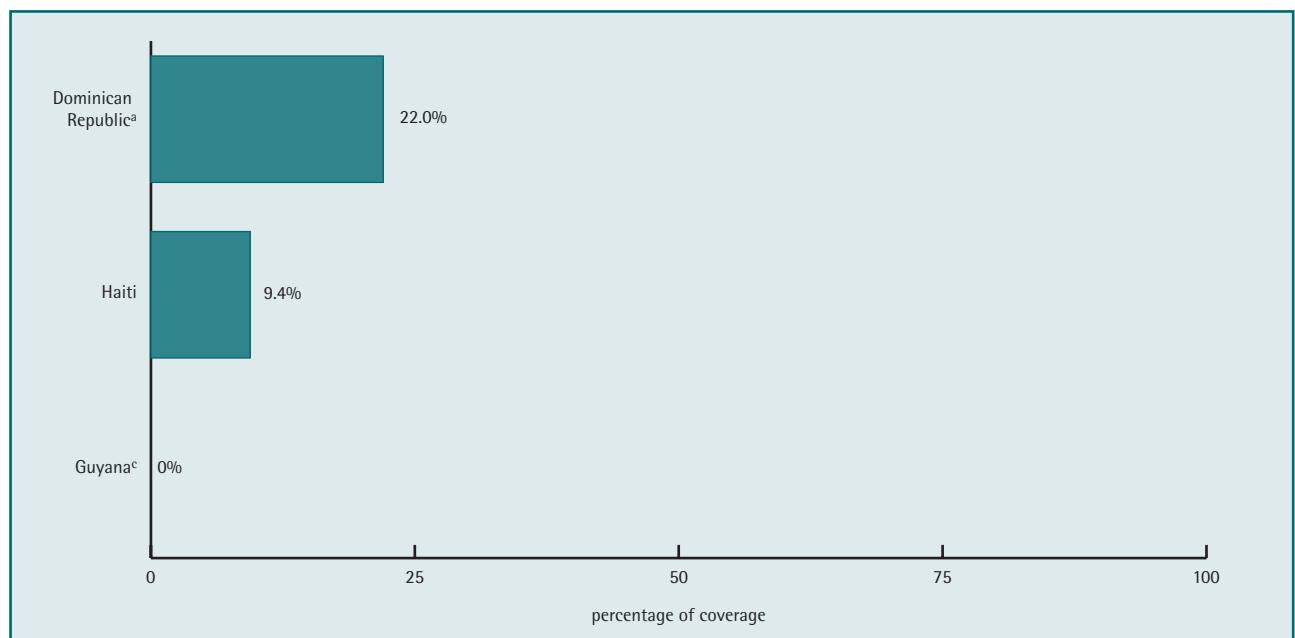
At present, all seven endemic countries have started LF elimination activities, namely: Brazil, Costa Rica, Dominican Republic, Guyana, Haiti, Suriname and Trinidad and Tobago. In 2003 nearly 1.8 million people were covered by MDA. The geographical coverage of the American PRG programmes implementing MDA activities can be seen in Table 3.11 below.

The role of partnership and alliances has been of paramount importance for the elimination programmes in the region, with CDC, Emory University, Liverpool School of Tropical Medicine, DFID and various non-governmental organizations. In addition, it is felt that the LF elimination project should be part of a more synergistic approach involving other health projects to take advantage of the already established infrastructure and its human resources.

Table 3.11 MDA coverage and at-risk population in the American Programme Review Group, 2003

	Population covered (million)	At-risk population (million)	At-risk population covered (%)
Dominican Republic ^a	0.33	1.5	22.0
Haiti	0.76	8.1	9.4
Guyana	0.71	0.7	
Total	1.80	10.3	11.3

Figure 3.62 American Programme Review Group: geographical coverage^b by country in 2003

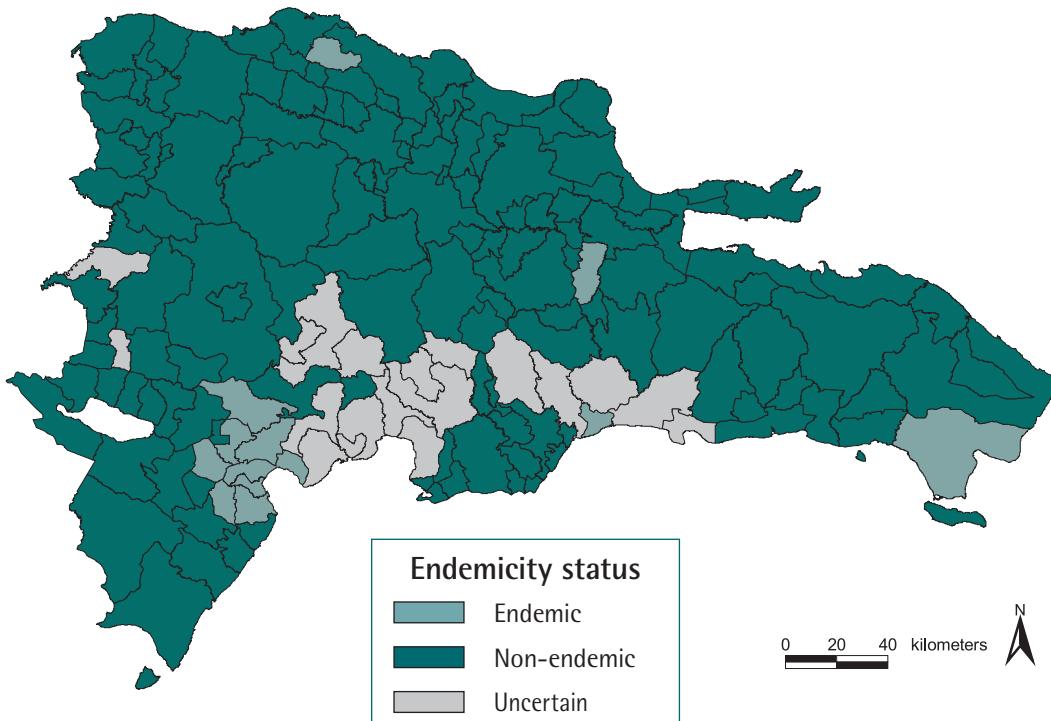


^a Estimated at-risk population as denominator, LF mapping is in progress.

^b Geographical coverage = total population in IUs where MDA is taking place x 100/total population of all endemic IUs.

^c No data available.

DOMINICAN REPUBLIC



LF presents a major public health problem for the Dominican Republic's population of more than 9 million. The ministry of health estimates that 17% of the total population could be considered at risk. The LF clinical manifestations evaluated in sentinel sites show a hydrocele prevalence that ranges from 0.2% to 1.1% and a lymphoedema prevalence ranging from 0.7% to 1.67%.

The administrative division designated as an IU is the municipality. Mapping started in 1998 and is ongoing: 13 municipalities (out of 144 surveyed) were considered LF-endemic. For the first MDA in 2001, 13 municipalities were targeted and covered by the co-administration of DEC and albendazole. The second MDA was in 2003; 0.33 million people were covered with a reported coverage of 75.1% (range: 44% to 97%), using a door-to-door drug distribution strategy.

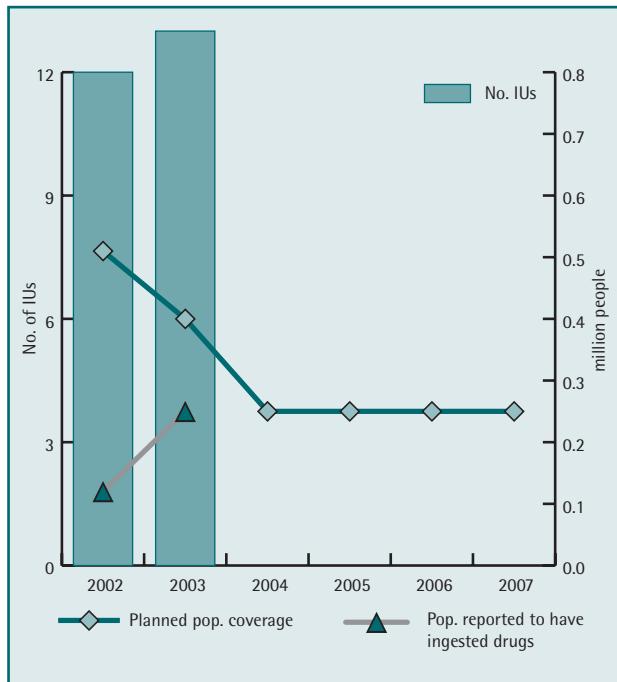
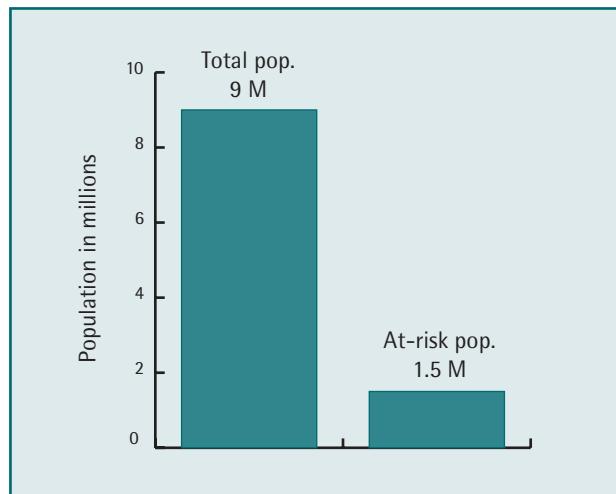
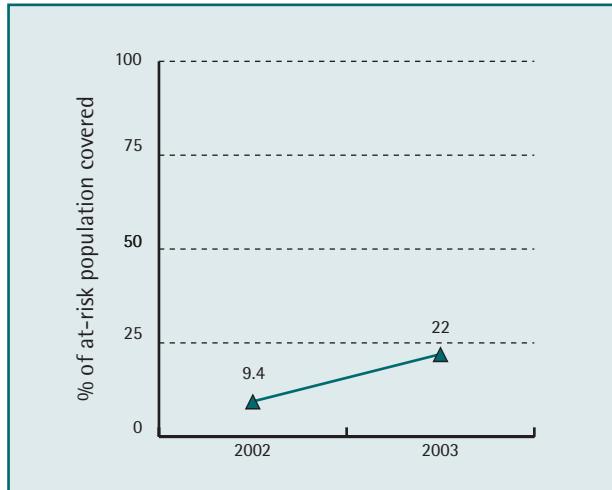
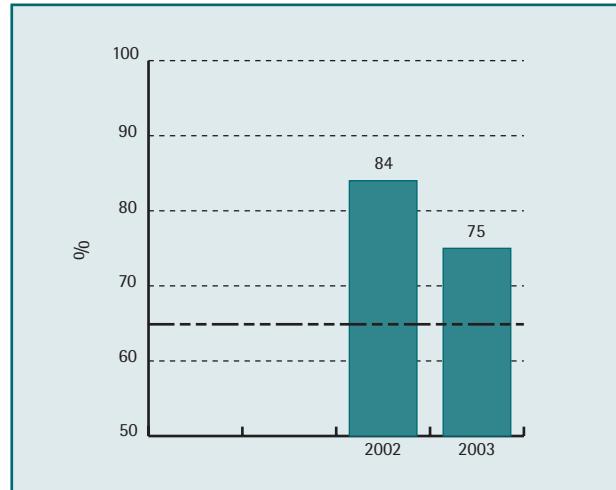
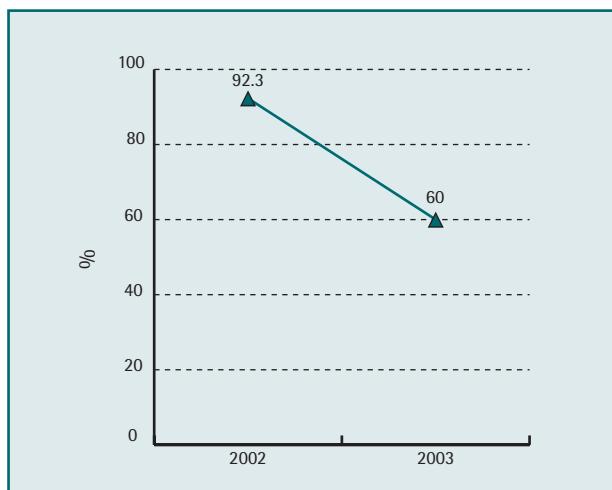
Mapping with ICT cards demonstrated a prevalence of LF of 11.8% in the new IU of La Cienaga; the mf prevalence found was 2.98%. Between 2001 and 2003, 3299 drug distributors and 956 supervisors were trained; 7 people participated in training on disability prevention and control.

After completion of LF mapping, the programme plans to scale up MDA of albendazole and DEC to reach the full population living in endemic areas.

Financial and technical support have been provided through the Atlanta node by the Bill and Melinda Gates Foundation and WHO. A local partnership was developed with the Hospital Jaime Mota for the LF disability alleviation. Future partnership initiatives envisaged are with the Dermatologist Institute, Plan International and universities.

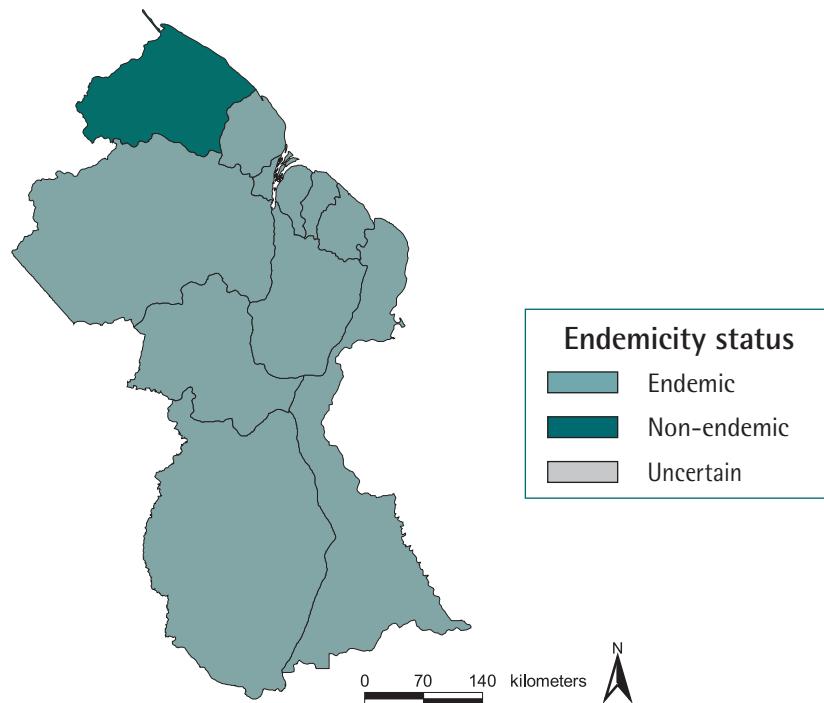
Table 3.12 Goal: to eliminate LF from the Dominican Republic by 2010

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent LF-associated disability 	<ul style="list-style-type: none"> Annual door-to-door MDA Social mobilization Establish a disability control programme based on: <ul style="list-style-type: none"> training health staff in public and private centres in management of cases local patient support groups to sustain motivation on basic hygiene measures alliance with institutions (universities, dermatologists, institutes, nongovernmental organizations, ministry of education, etc.) to ensure cases are given complete attention

Figure 3.63 Outcomes and planning 2000-2006**Figure 3.64 LF at-risk population****Figure 3.65 Geographical coverage****Figure 3.66 MDA reported coverage****Figure 3.67 IUs with reported coverage >65%****Figure 3.68 Updated mapping status**

Total: 163 IUs		
Uncertain	Non-endemic	Endemic
16 IUs	134 IUs	13 IUs

GUYANA



LF is a major public health problem in Guyana. Mapping was completed in 2001. The estimated at-risk population is 639 000 people – 90% of the entire population. The proportion of infected population is 9.3%.

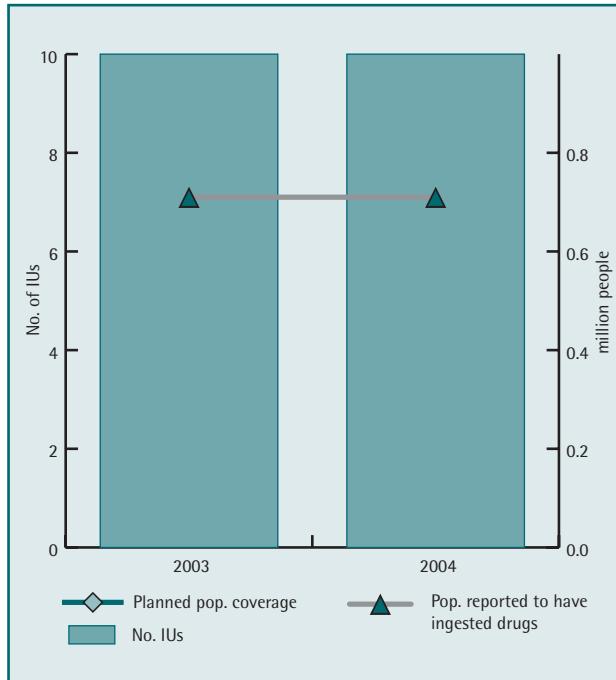
The country is divided into 10 administrative regions. The region was designated as the IU. Nine of the 10 regions (IUs) are considered endemic for LF. Surveys conducted in 2002 revealed that approximately 0.5% of the total population has lymphoedema and 0.1% hydrocele. Two fixed sentinel sites and two spot check sites were established in 2003. Baseline ICT prevalence was 35% in the sentinel site of Georgetown and 18% in that of New Amsterdam.

The ministry of health authorities decided to adopt the diethylcarbamazine-fortified salt (DEC-fortified salt) treatment regimen and the importation of DEC-fortified

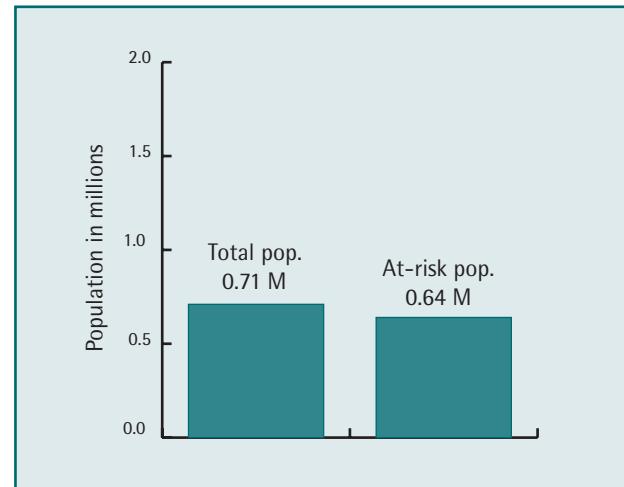
salt was therefore approved by the National Cabinet and the Food and Drug Department in 2002. Importation of the DEC-fortified salt, which is supplied by three companies (from Cuba, Jamaica and Trinidad) commenced in June 2003. The supplies from Cuba and Trinidad and Tobago were not guaranteed; only Jamaica has been exporting fortified salt and some problems occurred due to the change of staining of the product. The official programme launch was in July 2003 and was limited to Georgetown. It is expected to cover the entire country within the next year. A monitoring and evaluation plan has been developed to evaluate salt use at the household level. Implementation of this plan will take place in 2004. A quality control system to monitor the salt fortification process was in place prior to the 2003 launch. All imported salt is tested by the Food and Drug Department with confirmatory testing by CDC.

Table 3.13 Goal: to eliminate LF from Guyana by 2006

Objectives	Strategies
<ul style="list-style-type: none"> To implement DEC-fortified salt MDA regimen in conjunction with disability management activities To decrease suffering from, and worsening of, LF-related disability To integrate the LF elimination programme into ongoing community health worker activities 	<ul style="list-style-type: none"> Establish salt association to strengthen private sector partnership Promote and sustain population support through social marketing and mobilization Establish disability clinics in all regions, in coordination with existing dermatology/leprosy mobile clinics Continue health worker training

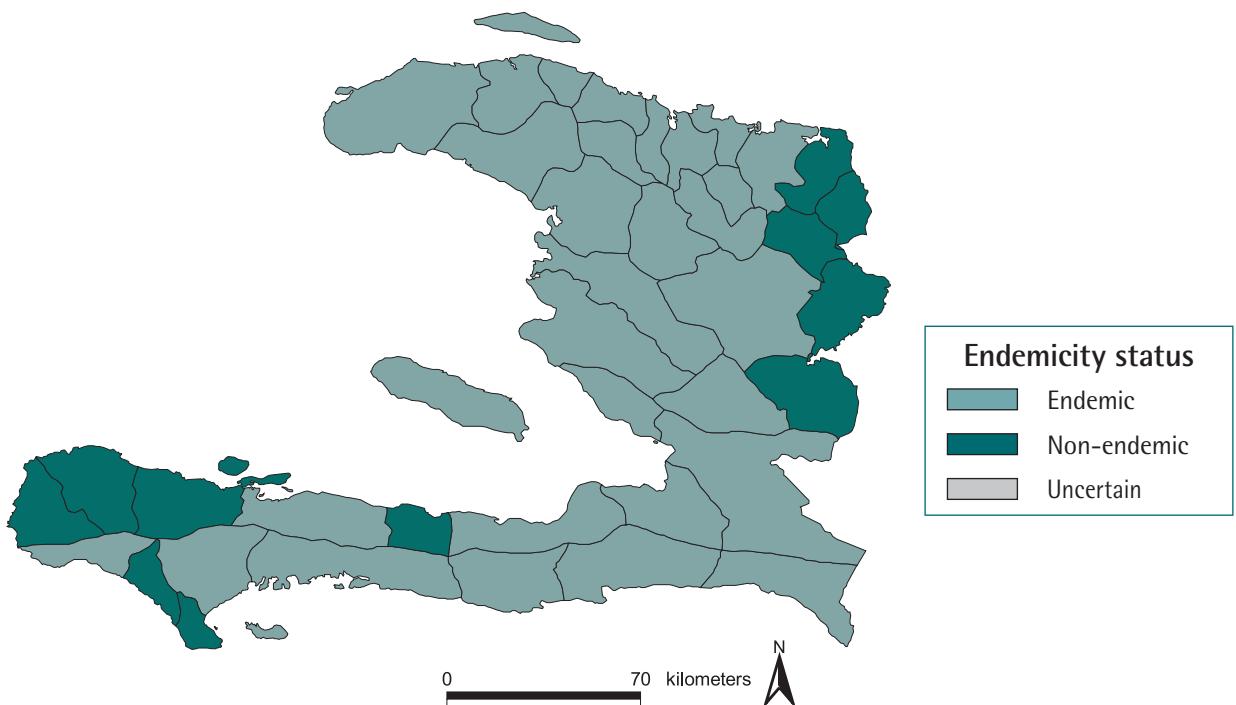
Figure 3.69 Outcomes and planning 2000-2007**Figure 3.71 Geographical coverage****Figure 3.73 IUs with reported coverage >65%**

The LF elimination programme is implemented by the Ministry of Health of Guyana with the technical cooperation of PAHO/WHO's country and regional offices and with the close collaboration of a wide range of partners including CDC, the Emory LF Support Center, the Liverpool LF Support Centre and UNICEF. The Bill and Melinda Gates Foundation is currently the principal financial partner of the initiative.

Figure 3.70 LF at-risk population**Figure 3.72 MDA reported coverage****Figure 3.74 Updated mapping status**

Total: 10 IUs		
	1 IU	9 IUs
Uncertain	Non-endemic	Endemic

HAITI



LF is a major health problem for Haiti's population of more than 8 million. There is no sentinel site data of LF clinical manifestations but Dr Y. Michelet, in his medical dissertation in 1981, reported a hydrocele and lymphoedema prevalence of 32% and 7.2%, respectively, in Leogane city.

The administrative division designated as an IU in the country is the commune. LF mapping was completed in 2001: 119 communes (IUs) out of 133 are considered endemic for LF with an at-risk population considered to be 8 million. The prevalence evaluated by ICT was 3.9% (range: 1.3% to 13.4%)

The first round of MDA started in 2001 with DEC and albendazole co-administration and covered the Leogane IU. The second MDA round in 2002 covered nine IUs. Three IUs – Arcahaie, Tabarre and Gressier, with a target population of around 100 000 – were targeted for DEC-salt strategy in 2003. In the third round of MDA in 2003, 757 976

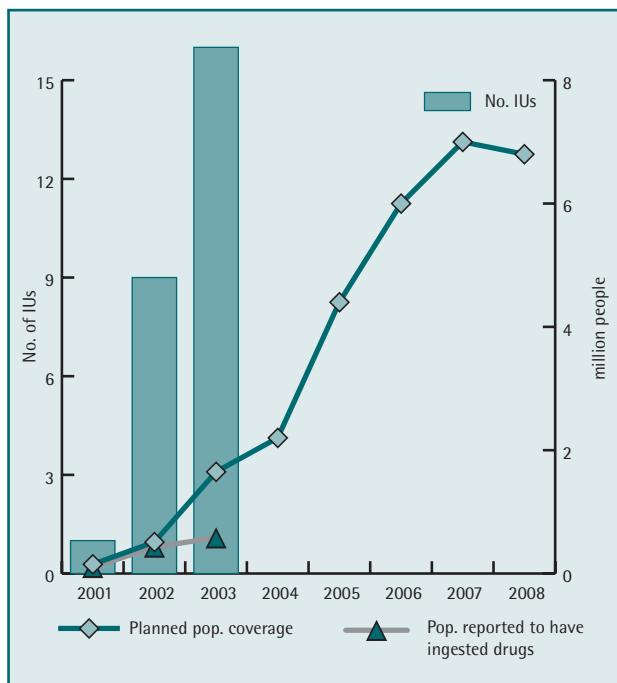
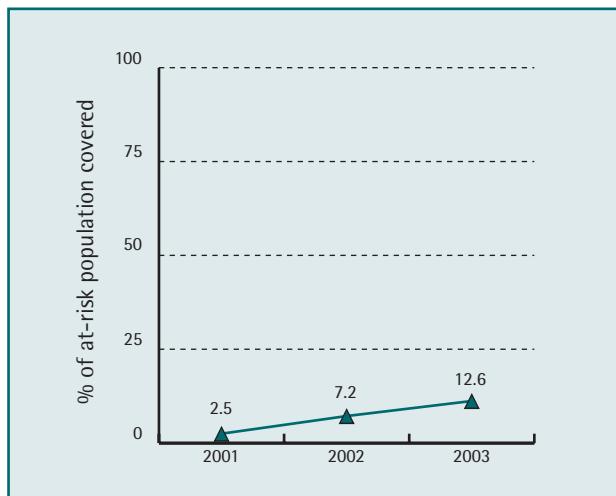
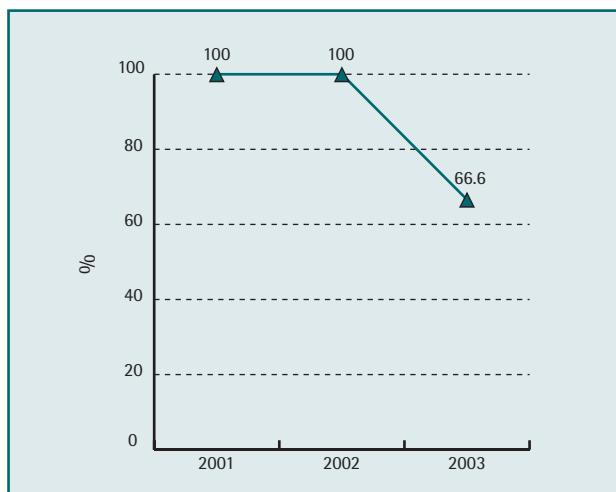
people were targeted with a reported coverage of 77% for six communes where the MDA was done (because of some operational difficulties, not all the communes targeted in the planning operational plan were effectively covered).

Mapping with ICT cards demonstrated an LF prevalence of 7% to 28% for new districts that started MDA in 2003, and the mf prevalence found in sentinel sites ranged from 1.8% to 28.6%. Between 2001 and 2003, 2541 drug distributors were trained and 30 people participated in training in disability prevention and control.

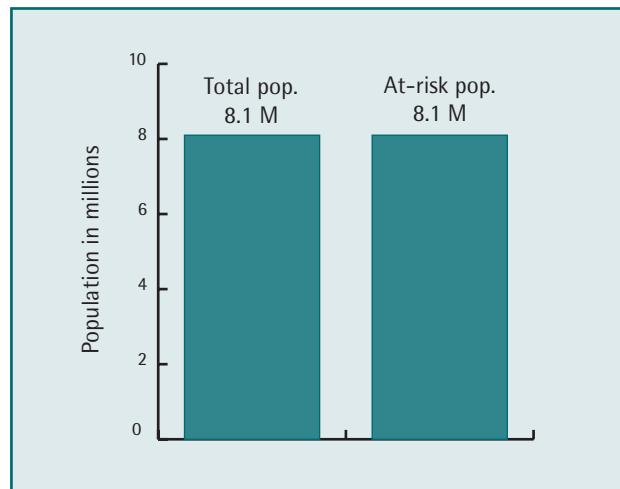
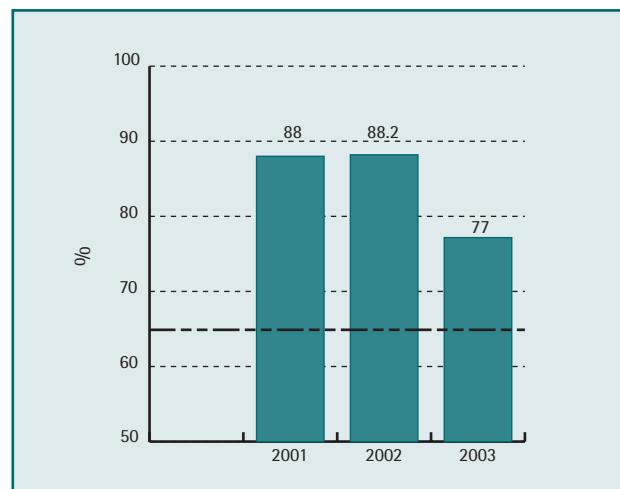
The LF elimination programme is implemented by the ministry of health assisted by a wide range of partners. WHO provides financial and technical support; the University of Notre Dame, USA, provides support for research and CDC provides technical assistance and funding. Interchurch Medical Assistance, UNICEF, Hôpital Saint Croix and Hôpital Sacré Coeur in Milot are

Table 3.14 Goal: to eliminate LF from Haiti as a public health problem by 2020

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent LF-associated disability 	<ul style="list-style-type: none"> Expand MDA campaigns (DEC plus albendazole) MDA (DEC-fortified salt) in 3 IUs (100 000 people) Disability management clinics Increase the number of community-based support groups Continue operational research to optimize patient care and monitoring and evaluation techniques

Figure 3.75 Outcomes and planning 2000-2007**Figure 3.77 Geographical coverage****Figure 3.79 IUs with reported coverage >65%**

also key partners. GSK donates albendazole to treat the entire population. In addition, the University of Notre Dame received a grant from the Bill and Melinda Gates Foundation for US\$ 5 million for Haiti.

Figure 3.76 LF at-risk population**Figure 3.78 MDA reported coverage****Figure 3.80 Updated mapping status**

Total: 133 IUs		
	60 IUs	73 IUs
Uncertain	Non-endemic	Endemic

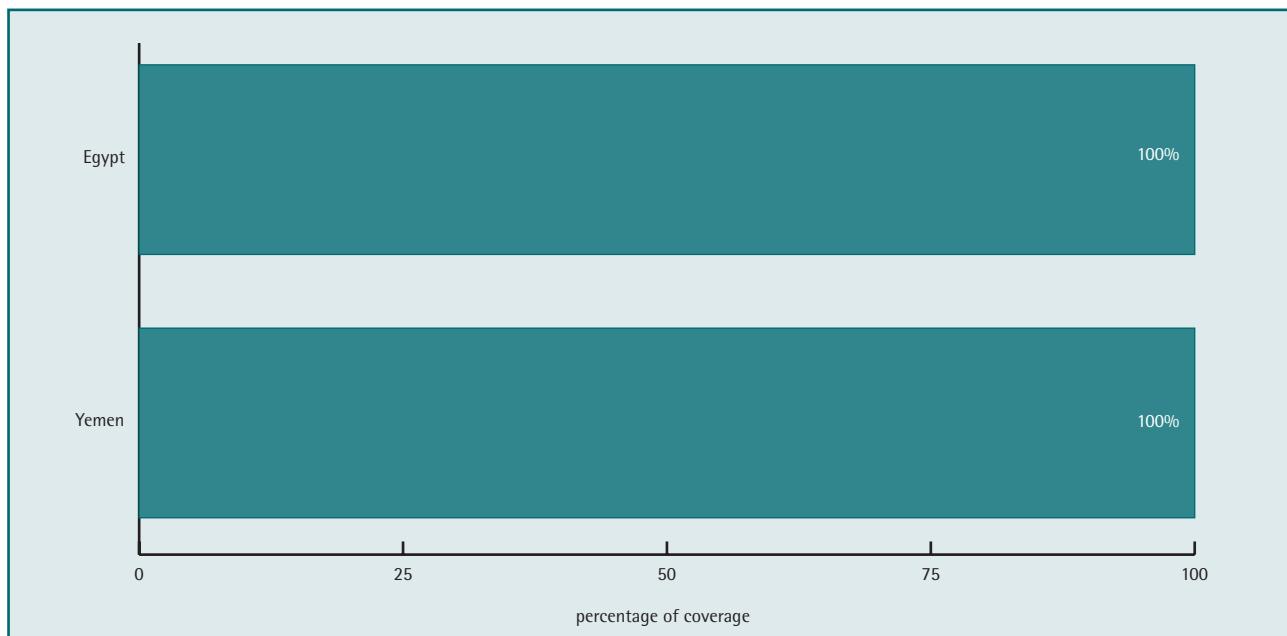
EASTERN MEDITERRANEAN PROGRAMME REVIEW GROUP

Of the three endemic countries, Egypt and Yemen have started LF elimination activities. Egypt was one of the first countries to join GPELF in developing a national programme to eliminate LF as a public health problem, with the particular aim of reducing mf prevalence rates to less than 1/1000. So far, the Egypt PELF has succeeded in maintaining high MDA coverage rates. If such rates can be sustained for the planned period, it is likely that the MDA programme will lead to the elimination of LF as a public health problem in Egypt. Preparatory activi-

ties have been carried out in the third endemic country, Sudan, but remain in abeyance for the time being. In 2003 nearly 3 million people were covered by MDA. The geographical coverage of the Eastern Mediterranean PRG is shown in Figure 3.81.

On the entomological side, a recent study in Egypt showed that rates and intensities of mf ingestion and L3 production by mosquitoes fed on smear-negative treated subjects were significantly lower than female mosquitoes fed on smear-positive treated subjects. The researchers therefore concluded that zero smears could be a practical goal of elimination programmes.

Figure 3.81 Eastern Mediterranean Programme Review Group: geographical coverage^a by country in 2003



^a Geographical coverage = total population in IUs where MDA is taking place x 100/total population of all endemic IUs.

Assessment of disease burden

Nocturnally periodic LF caused by *W. bancrofti* infection has been endemic in rural areas of Egypt for a long time. *C. pipiens* is the main mosquito vector and is extremely prolific throughout the country. The distribution of the disease is focal and it is the most important vector-borne disease to cause a major public health problem in six governorates of the Nile Delta, as well as in Giza and Assiut governorates in Upper Egypt. As a result of sustained control measures put in place by the Egyptian Ministry of Health and Population, however, most endemic villages have low infection prevalence rates and intensity.

Onchocerciasis is endemic in Yemen. The LF situation, however, was uncertain because few lymphoedema cases were recognized, without confirmed laboratory diagnosis, so transmission was possible but uncertain. The leprosy mission, a unit related to the Yemeni Ministry of Public Health, is also responsible for onchocerciasis control and prevention. As the mission has a well-developed network of clinics throughout the country, it was chosen as the responsible body for the national PELF.

LF is endemic in Sudan, based on published and unpublished data from scattered spot surveys and hospital

records. The disease is focally endemic in the southern states of Bahr Al Jabal, Buheirat, East Equatoria, Jongoli, North Bahr Al Gazal, Warab, West Bahr Al Gazal, West Equatoria, Unity and Upper Nile, as well as in Blue Nile and Darfur states in central Sudan. In addition, five more states — El Gezira, Gadarif, Khartoum, Northern and Sinnar — are thought to be LF-endemic. As no recent systematic epidemiological surveys have been done, however, other states cannot be considered free of LF.

Mapping

In Yemen in 2000, as a first step towards identifying possible endemic localities, questionnaires and pamphlets showing photos of cases with chronic manifestation (lymphoedema and lymphoceles) were distributed to key informants, including government hospitals and local health authorities, as well as community leaders in all governorates. Analysis of data gathered from the key informants, in addition to the environmental data of these areas, revealed that 13 subdistricts in six governorates are more likely to be LF-endemic whereas another 24 subdistricts in different governorates are less likely to be endemic. Consequently, many lot quality assurance surveys using the ICT card test were carried out in these suspected areas during 2001–2002. While 11 of the 13 suspected subdistricts had at least one positive card test and were therefore eligible for MDA, these surveys revealed that none of the other 24 subdistricts were LF-endemic.

Mapping of LF in Sudan is currently hampered because a peace treaty has not yet been signed between the Sudanese Government and the Sudan People's Liberation Army, and 10 southern states are considered to be under military control. As a result, there are certain areas that cannot be accessed by government employees for epidemiological purposes, so the true picture remains unclear. Nevertheless, in 2003 a pilot survey in four states — Bahr Al Jabal, Blue Nile, Sinnar and West Bahr Al Gazal — was carried out for rapid assessment of the LF situation using the questionnaire approach and a limited number of ICT cards to confirm the presence of active filarial infection.

The survey in Sinnar state revealed that many cases immigrated from the Blue Nile state. Surprisingly, of 21 villages surveyed in Blue Nile state, 12 (57.1%) were LF-endemic by the ICT test (1–2 cards per village). Out

of 28 villages in the state of Bahr Al Gazal, key informants in 18 villages (64.3%) reported 21 lymphoedema and 86 hydrocele cases. The questionnaire survey in 39 villages in Bahr Al Jabal state discovered 84 cases of lymphoedema and 40 of hydrocele; however, only two villages were confirmed endemic by testing a limited number of subjects using the ICT test. This primary survey with limited resources documented the existence of several LF-endemic areas in Sudan and should therefore continue to map other endemic localities by lot quality assurance surveys using ICT cards in the same states; other states should also be considered if possible.

MDA coverage

The Egyptian programme is based on MDA of single annual doses of DEC (6 mg/kg) in combination with albendazole (400 mg). All villages with antigen prevalence rates of 1% or more were included in the programme with the goal of achieving an MDA coverage rate of about 80% of the total population in the target villages. Children under two years of age and pregnant women were excluded. The programme depended on a well-developed network of rural health centres as part of the MOHP infrastructure.

To date, the national PELF has successfully completed three rounds of MDA in 161 endemic villages (in 2000) and 179 endemic villages (in 2001 and 2002). The total number of people covered increased from 1 759 553 in 2000 to 2 305 724 in 2001 and 2 426 968 in 2002. This resulted from several factors, namely the addition of more IUs in 2001, increased community participation and population growth. The MOHP estimated that, in 2000, the overall MDA coverage rate reached 86.8% of the target population, 96.6% in 2001, and 87.2% in 2002. In accordance with these data, an independent evaluation sponsored by the WHO Regional Office for the Eastern Mediterranean and carried out following the third round in seven governorates revealed an overall MDA coverage rate of 87.6%.

Adverse reactions after the first MDA were rare and mostly of mild to moderate severity, the most frequent being fever, headache and myalgia. These symptoms, believed to be caused mainly by dying worms, usually disappeared within two to three days. Adverse reactions following the second and third rounds of MDA were

greatly reduced compared with those observed following the first round. Spot surveys in several localities following each round of MDA showed that the drug combination made a remarkable impact on mf prevalence rates and intensities. In a recent study in four localities it was observed that the overall mf prevalence rate decreased by 75% (from 8.0% to 2%) and the median mf levels in mf-positive subjects fell by 79% (from 42/ml to 9/ml). The mf/ml/population dropped by 94% (from 13.0 to 0.8), after two rounds of MDA.

For the purpose of the Yemen PELF, the Ozla (subdistrict) was chosen as the IU. In 2002 an initial pilot MDA was implemented in Wisab subdistrict, Dhamar governorate (with a population of about 12 800) and two subdistricts of Socotra island, Hadramout governorate (with a population of about 29 000). The first round of MDA using a combined drug regimen of ivermectin (200 µg/kg) plus albendazole (400 mg) was carried out from house to house by distributors from the primary health centre, who also witnessed that the tablets were swallowed. Children under five years of age and pregnant women were excluded from the MDA. The programme estimated an overall MDA coverage rate of 85% (86% in Socotra and 84% in Wisab).

Active surveillance was carried out in the areas covered of 1400 people selected randomly to monitor the different side-effects of the therapy. No serious adverse experiences were notified and all side reactions were mild. The main reactions were development of swellings (3%), fever (0.9%) and headache (0.9%). In addition, 76 (5.4%) of the people surveyed reported passing different types of intestinal worms.

In 2003, the second round of MDA was carried out in the same areas and also in nine other IUs that were shown to be endemic by lot quality assurance surveys using ICT cards. In the intervening period, laboratory technicians were trained to use thick blood smears to evaluate the impact of MDA in the areas covered. The evaluation process in the 11 areas covered by MDA is scheduled to take place in September–October 2003. Finally, to complete LF mapping by lot quality assurance surveys using ICT cards, another 20 IUs thought to be endemic will be surveyed during the period January–March 2004.

Training and participation

A training component was included in the Egyptian programme for physicians and nurses working at the rural health centres of the target villages participating in MDA implementation. Social mobilization included meetings with local village leaders, distribution of pamphlets and posters, and brief television and radio broadcasts to spread information on the LF elimination programme, raise people's awareness and encourage community participation.

Prior to MDA in Yemen, training sessions were held for 634 workers at primary health centres. Social mobilization activities included meetings with community leaders and schoolteachers, distribution of health education materials, TV spots and short radio interviews.

COUNTRIES WHERE LF IS UNCERTAIN

Saudi Arabia

Saudi Arabia, with an estimated population of approximately 24 million, is divided into 13 provinces for administrative purposes. LF was first reported through a few chronic cases from two areas (Assir and Jazan) in the 1970s. During the 1990s, several expatriates, mostly Indians, were found to be LF-positive. Recently, based on a questionnaire survey, a total of 51 clinical cases (15–20 years of age) with elephantiasis or hydrocele, although a-microfilaraemic, were identified from three areas: Assir (44 cases), Jazan (4 cases) and Mecca city (3 cases). Consequently, 34 laboratory technicians were trained to perform the ICT card test but, because of a technical problem encountered at that time with the Binax ICT cards showing false-positive results after 10 minutes, the use of ICT cards was precluded in school surveys in suspected endemic areas. Serological evaluation of the LF situation was postponed pending the production of a modified version of the ICT card.

Oman

According to the latest general population census (2001) Oman has a population of approximately 2.5 million, of whom 26.3% are expatriates. Many of these expatriates come to work in Oman from LF-endemic countries (such as Egypt and India) and have possibly lived in LF-endemic areas. Some expatriates may have become infected with *W. bancrofti* or *B. malayi* before their arrival

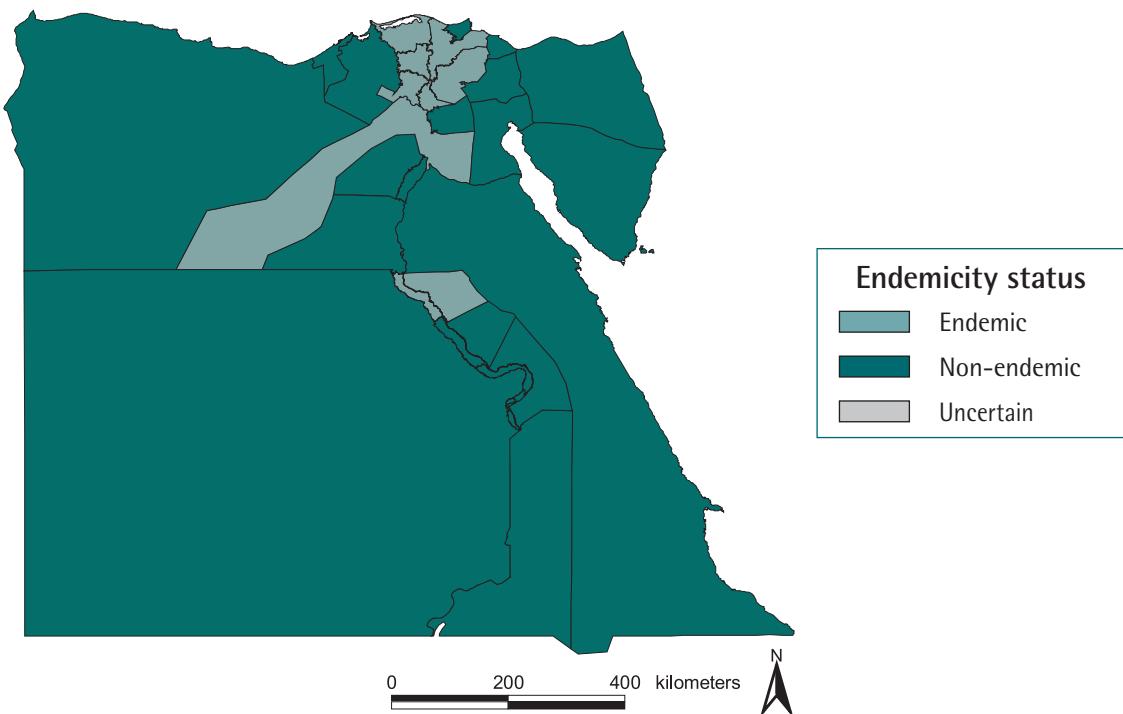
in Oman, and therefore represent a significant source of LF transmission. In support of this view, a recent study found an antigenaemia prevalence rate of 4.2% in Indian expatriates living in Oman, based on the ICT card test. LF is a notifiable disease; over the last decade, the health authorities in Oman have identified 15 cases, of whom 7 were Omanis who had lived for some time in LF-endemic countries. While some of the 15 cases presented with lymphoedema, others had microfilaraemia or suggestive positive antibody tests.

In an effort to verify the LF status in 59 suspected Wilayat (districts) during 2002, health authorities in Oman carried out a rapid assessment of the community burden of the disease using the questionnaire approach.

Of 640 community leaders included in the survey as key informants, 23 (3.6%), representing 12 districts, reported seeing cases with chronic manifestation (lymphoedema). Of 930 physicians, 21 (3.1%) had observed cases of lymphoedema or hydrocele. The next step is to conduct school surveys using the ICT card test in suspected LF-endemic localities and to test representative blood samples from blood donors in areas considered free of LF.

In conclusion, sporadic cases of chronic LF disease exist in certain districts of Oman. As yet, however, LF transmission may not represent a health threat. Health authorities are committed to join WHO's global efforts and to take the necessary steps to prepare Oman for certification as an LF-free country.

EGYPT



LF is a public health problem in Egypt. Egypt has an estimated population of over 74 million, of whom more than 60% reside in the densely populated governorates of the Nile Delta. The LF at-risk population was estimated at 2.8 million. The LF clinical manifestations evaluated in sentinel sites show a hydrocele prevalence from 0.5% to 11% and a lymphoedema prevalence from 0% to 22%.

The administrative division designated as an IU is the village. Mapping concerns an estimated 179 endemic villages in eight of the 26 governorates. The pre-MDA mf prevalence ranged from 0.2% to 4.2% in sentinel sites.

The first MDA round under PELF began in 2000 and covered 97% of the IUs, using a door-to-door drug distribution strategy. The second and third rounds in 2001 and 2002 covered 99.4% and 100% of the IUs, respectively. The fourth round in 2003 targeted 2.8 million people with a reported coverage (eligible population) of 93.2% (range:

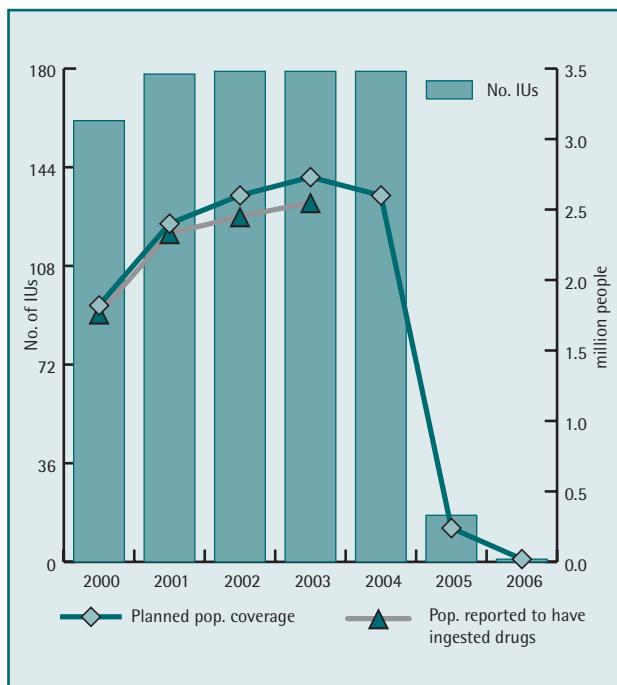
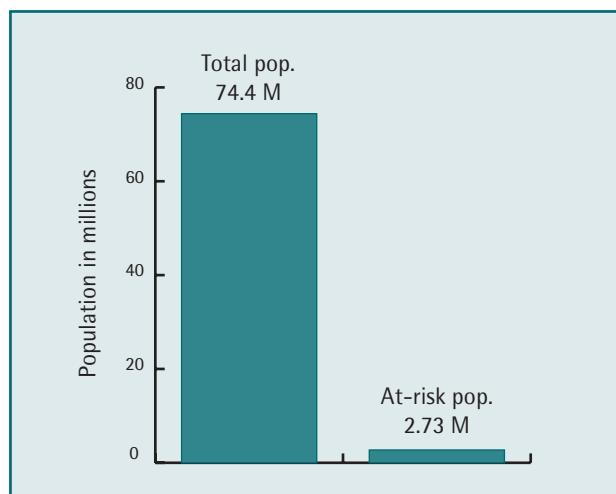
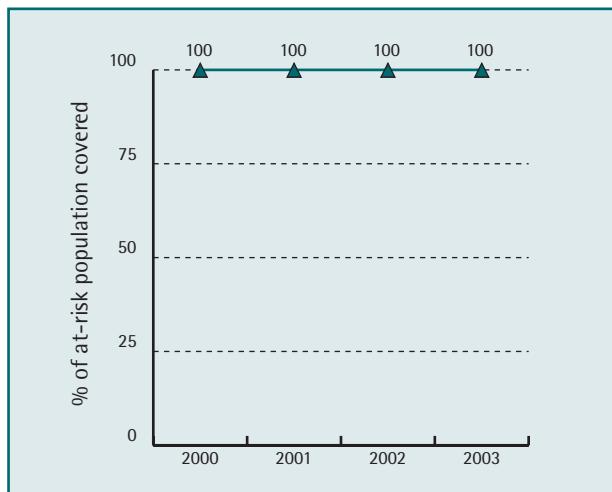
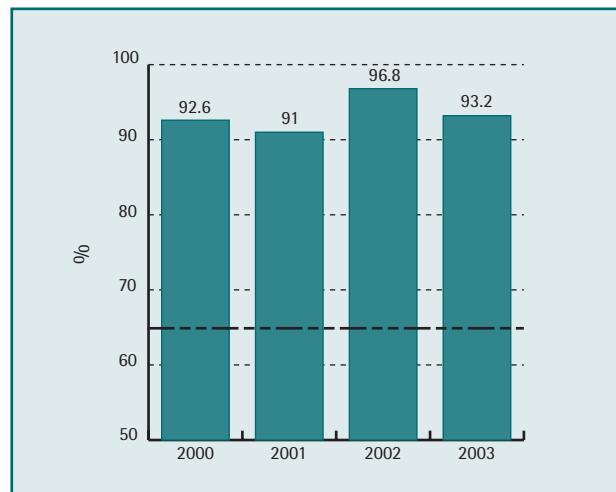
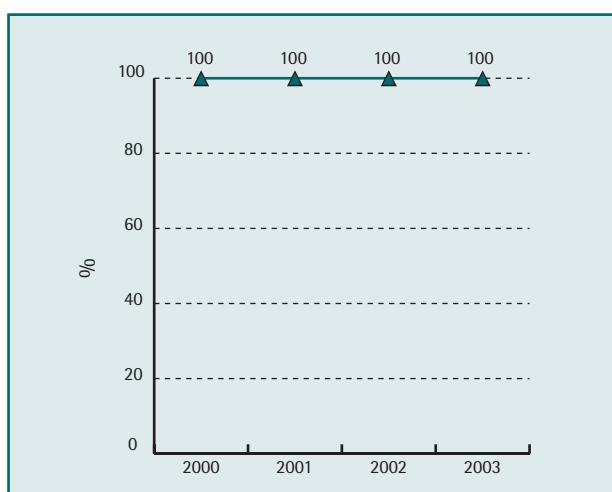
90% to 93%). Between 2000 and 2003, 71 training courses were conducted for MDA, and 1758 people were trained.

As part of the ministry's active surveillance, 54 villages (two per district), representing the eight endemic governorates, were surveyed in August 2003. These sentinel villages were chosen because they had relatively high baseline mf prevalence rates (before the national elimination programme) or low coverage rates in the last MDA campaign. A total of 500 inhabitants per village were surveyed at night for mf (thick smears); seven villages (13%) were reported to have at least one mf-positive subject. The mf prevalence in positive villages ranged between 0.2% and 1%.

The Ministry of Health and Population of Egypt conducted the LF elimination programme. WHO and AFESD provided financial and technical support. GSK donates albendazole to treat the entire population.

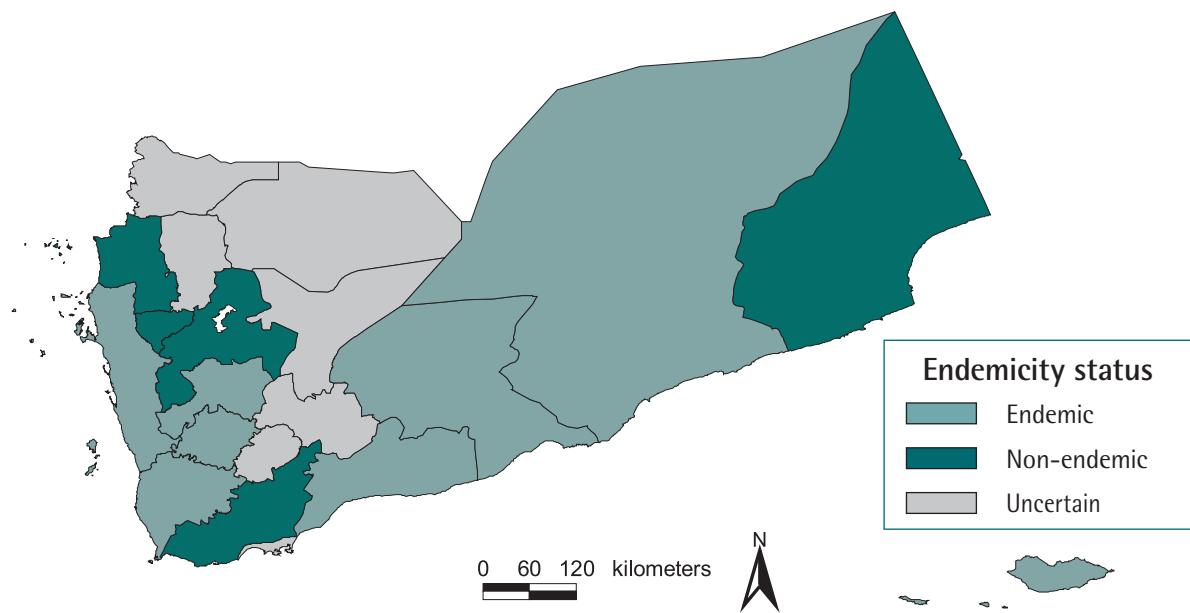
Table 3.15 Goal: to eliminate LF from Egypt by 2008

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent disability associated with LF 	<ul style="list-style-type: none"> MDA, using DEC plus albendazole tablets, with door-to-door distribution Palliative treatment done by the outpatient clinics of two institutes: <ul style="list-style-type: none"> - Research Institute for Medical Entomology and the National Institute for Tropical Diseases

Figure 3.81 Outcomes and planning 2000-2006**Figure 3.82** LF at-risk population**Figure 3.83** Geographical coverage**Figure 3.84** MDA reported coverage**Figure 3.85** IUs with reported coverage >65%**Figure 3.86** Updated mapping status

Total: 4000 IUs		
3821 IUs	-	179 IUs
Uncertain	Non-endemic	Endemic

YEMEN



LF is a public health problem in Yemen. The population of the country is 20.1 million, with an estimated LF at-risk population of about 0.1 million. There are no recent data on clinical manifestations.

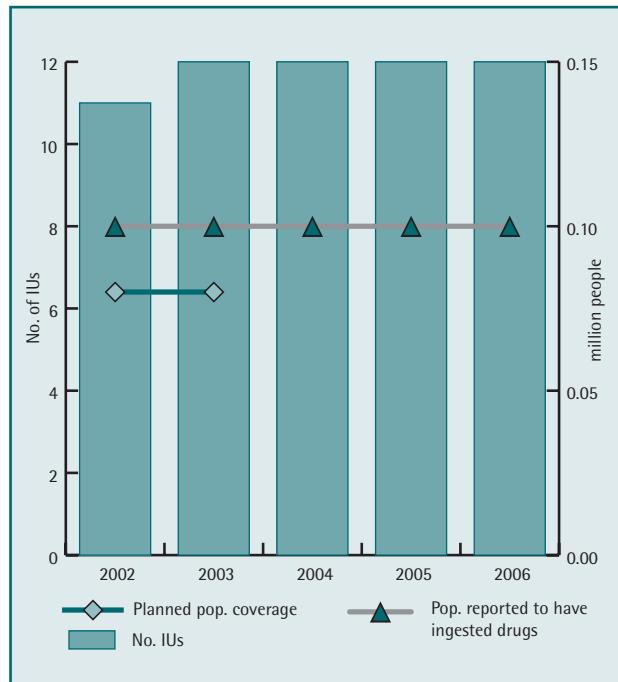
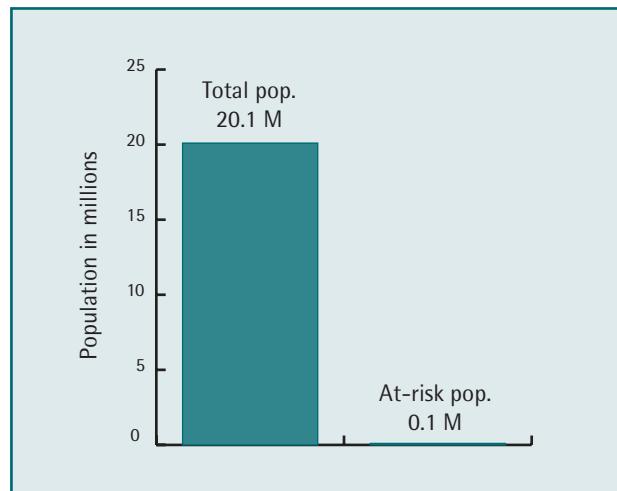
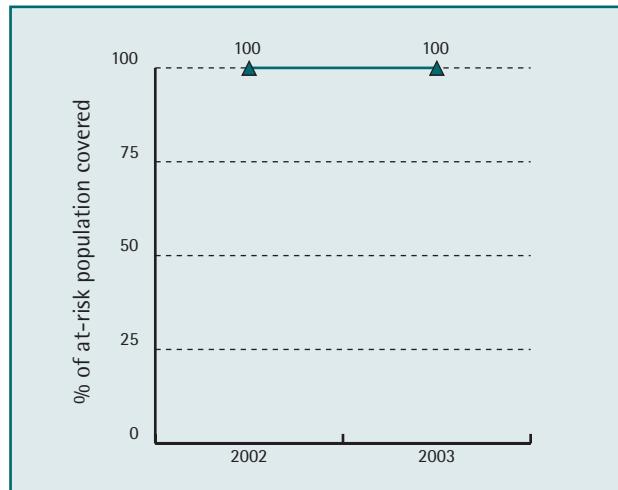
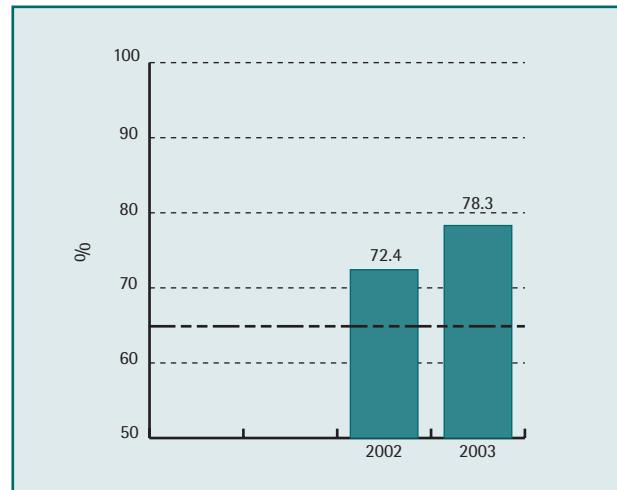
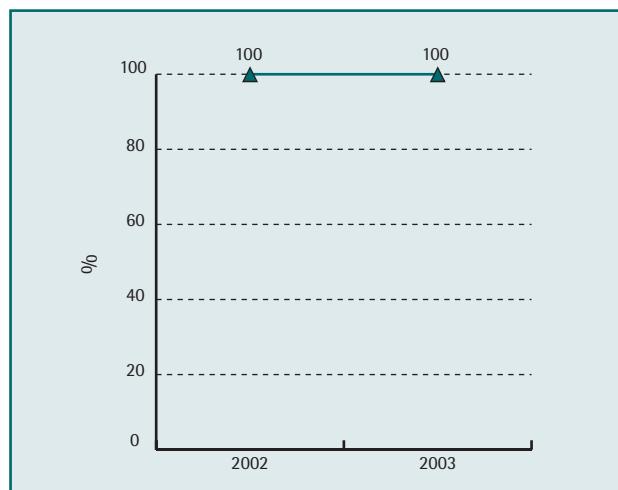
Administratively, Yemen is divided into 20 governorates, each divided into districts; each district is divided into subdistricts (Ozla) and these, in turn, are divided into villages. The administrative division designated as the IU is the subdistrict. Mapping was started in 2000 with an estimated at-risk population of approximately 0.1 million: 12 IUs were considered (or found) to be endemic following surveys undertaken for CFA. Prevalence of antigenaemia evaluated by ICT cards in endemic areas ranged from 1.3% to 40%.

The first MDA round under PELF began in 2002 and covered 11 IUs, i.e. 92% of the endemic IUs. The second round of MDA in 2003 targeted 104 821 people with a reported coverage of 78% (range: 68% to 78%). The door-to-door drug administration strategy was used. Between 2002 and 2003, 10 training courses for MDA trained 234 people.

The Yemen Ministry of Public Health conducted the LF elimination programme. WHO provided technical assistance and ICT diagnostic cards, and financial assistance was received from AFESD. GSK donates albendazole to treat the entire population and Merck & Co., Inc. donates ivermectin.

Table 3.16 Goal: to eliminate LF from Yemen by 2010

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF and prevent recurrence of new infections To reduce and prevent LF-associated disability 	<ul style="list-style-type: none"> • Interruption of transmission through yearly MDA with ivermectin plus albendazole in the IU with >1% of antigenaemia prevalence • Managing individual sufferers presenting an acute and chronic phase of the disease by teaching them simple hygiene measures through a community home-based care approach

Figure 3.87 Outcomes and planning 2002-2006**Figure 3.88 LF at-risk population****Figure 3.89 Geographical coverage****Figure 3.90 MDA reported coverage****Figure 3.91 IUs with reported coverage >65%****Figure 3.92 Updated mapping status**

Total: 286 IUs		
Uncertain	Non-endemic	Endemic
30 IUs	244 IUs	12 IUs

MEKONG-PLUS PROGRAMME REVIEW GROUP

The Mekong-Plus countries – Brunei Darussalam, Cambodia, China, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Republic of Korea, Thailand, Timor-Leste and Viet Nam – come under the auspices of two WHO regions: South-East Asia and the Western Pacific. Geographically, the countries extend from India to Australia and form one of the most heavily LF-endemic areas of the world containing all three species of parasite: *W. bancrofti*, *B. malayi* and *B. timori*. Excluding China and the Republic of Korea, the total population in the 10 countries that are endemic amounts to about 500 million and the at-risk population is estimated at about 255 million. *Brugia* spp predominate in many countries of the Mekong-Plus region and in some countries, such as Indonesia and Malaysia, zoonotic infections and transmission are important. Many of the countries in the Mekong-Plus region have common borders and hence cross-border spread of infection is a major problem resulting from human migration.

The Mekong-Plus PRG was established in late 2001 under an interregional agreement. The Mekong-Plus PRG held its fourth meeting on 23–24 October 2003 in Manila, the Philippines, at which the progress of activities in each country was thoroughly reviewed; constraints and problems were brought to light and solutions were proposed. Many PRG members were involved in country missions to Cambodia, Indonesia, the Philippines and Viet Nam to discuss problems related to implementation and advocacy; their proactive role at country level is an important goodwill activity that facilitates progress.

To date, mapping for endemicity has been completed in all of the eight endemic countries, except the Lao People's Democratic Republic. MDA with DEC plus albendazole has commenced in all Mekong-Plus countries except the Lao People's Democratic Republic, where the endemic status has yet to be determined (see Table 3.17).

Table 3.17 Status of activities in the Mekong-Plus Programme Review Group, 2003

Country	Plan of Action	Mapping	Applied	First MDA	Target	Problems
Brunei Darussalam	–	Completed	–	–	–	Funds
Cambodia	Completed	Completed	–	2004	2007	Funds
China	–	–	–	–	Completed	Elimination criteria
Indonesia	Completed	Completed	Completed	2003	2010	Commitment and advocacy
Lao People's Democratic Republic	–	–	–	–	–	Commitment
Malaysia	In progress	Completed	In progress	2003	2010	Funds for first year
Myanmar	Completed	Completed	Completed	2001	2010	Logistics
Philippines	Completed	Completed	Completed	1999	2010	Commitment and advocacy
Republic of Korea	–	–	–	–	Completed	Elimination criteria
Thailand	Completed	Completed	Completed	2002	2008	Advocacy
Timor-Leste	Completed	Completed	In progress	–	2010	Advocacy
Viet Nam	Completed	Completed	In progress	2003	2010	Commitment

Since MDA began, GSK has been shipping albendazole tablets to countries on a regular basis. This important activity, based on the recommendations of the PRG, has maintained a high level of accountability and transpar-

ency thanks to the meticulous supervision of GSK. The estimated albendazole and DEC tablet requirements for 2004 are indicated in Table 3.18.

Table 3.18 Estimated albendazole and DEC tablet requirements for 2004, Mekong-Plus Programme Review Group

Country	Date of MDA 2004	No. of albendazole tablets required	No. of DEC tablets required (100 mg)
Cambodia	April	224 360	257 711
Indonesia	September	641 000	1 603 162
Malaysia	October	2 900 000	7 200 000
Myanmar	November	17 000 000	44 200 000
Philippines	July	10 700 000	26 800 000
Thailand	November	144 000	1 500 000
Viet Nam	November	680 000	1 700 000
Total		32 289 360	83 260 873

Scaling up coverage

Scaling up of MDA coverage in the next few years is given high priority, because MDA will continue to be the essential means to interrupt transmission and stop the spread of infection. The PRG feels, however, that scaling

up should be realistic and must be within the limits of available human and financial resources. An estimate of the population to be covered by MDA up to the year 2005, in order to scale up coverage to more than 78 million at-risk population, is given in Table 3.19.

Table 3.19 MDA coverage in the Mekong-Plus Programme Review Group

Country	Population		Number covered			Number planned		
	Total population millions	At-risk population millions	2000	2001	2002	2003	2004	2005
Cambodia	10.20	2.00					500 000	1 000 000
Indonesia	197.80	150.00			1 000 000	3 000 000	4 500 000	6 000 000
Malaysia	20.10	1.99						500 000
Myanmar	46.50	56.00	1 803 306	9 275 000	21 276 000	27 928 000	32 135 000	
Philippines	67.80	29.00	331 526	2 236 110	11 033 639	21 000 000	29 000 000	29 000 000
Thailand	58.30	0.17			125 000	125 000	125 000	125 000
Viet Nam	74.00	10.00			1 100 000	3 200 000	4 000 000	10 000 000
Total	474.50	249.16	331 526	4 039 416	22 533 639	48 601 000	66 053 000	78 760 000

Needs for funds and funding gaps

Between now and 2005, funds for scaling up MDA operations will have to be sought. Table 3.20 indicates the estimated costs of LF elimination in the Mekong-Plus countries for the period 2003–2005. A breakdown of cases, by activities, is shown and it is anticipated that

for MDA alone, inclusive of the year 2005, an amount of approximately US\$ 760 000 will be needed. It is also projected that a funding gap of US\$ 4.8 million will need to be filled. Table 3.21 gives an estimate, by country, up to 2005 and beyond.

Table 3.20 Estimated costs of LF elimination activities in Mekong-Plus Programme Review Group

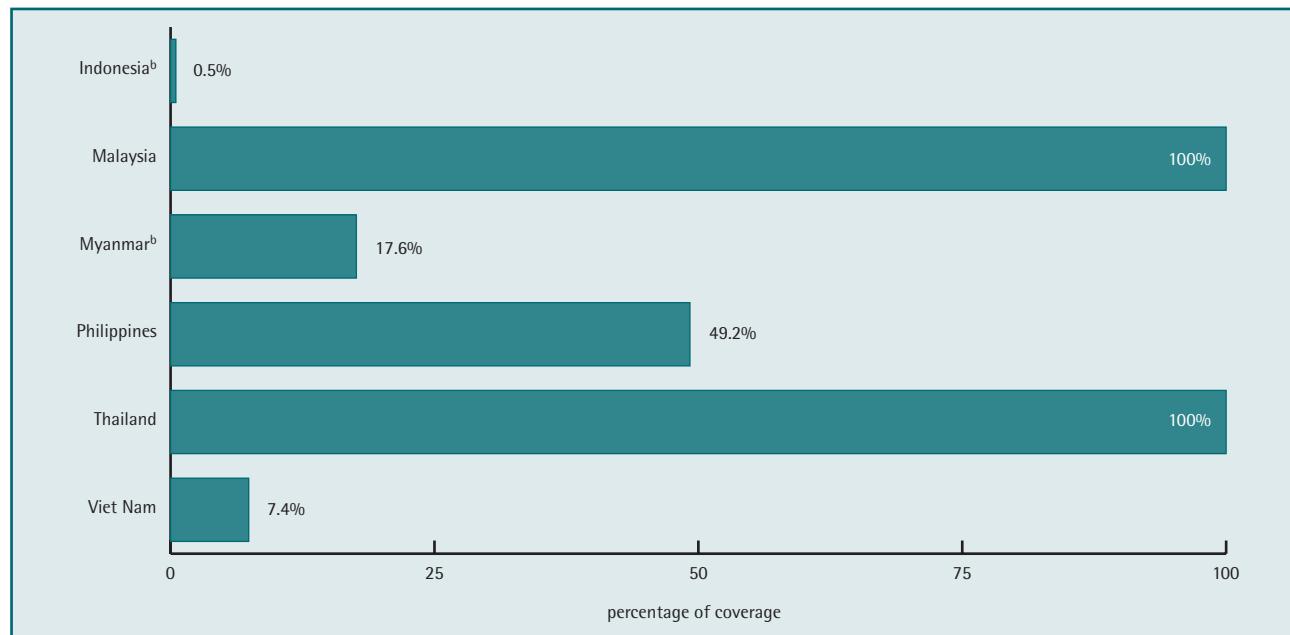
	2003	2004	2005
Number of people to be covered	48.6 million	65.4 million	78.7 million
Country costs	US\$	US\$	US\$
MDA	667 300	760 000	760 000
Social mobilization	554 000	316 000	318 000
Disability prevention	92 000	93 000	92 000
Logistics	2 000	2 000	3 000
Mapping	94 000	84 000	84 000
Training	84 000	88 000	95 000
Surveillance, monitoring and evaluation	95 000	248 000	248 000
Operational research	10 000	10 000	10 000
Total country costs	1 598 300	1 601 000	1 610 000
Regional costs			
Regional PRGs	15 000	15 000	15 000
Ad hoc meetings	10 000	10 000	10 000
Coordination and management	10 000	10 000	10 000
Training and technical support to countries	40 000	20 000	35 000
Programme managers' meetings	20 000	20 000	20 000
Basic, operational and implementation research	26 000	30 000	26 000
Social mobilization	10 000	20 000	20 000
Surveillance and monitoring	26 000	26 000	13 000
Total regional costs	157 000	151 000	149 000
Funding available	150 000	150 000	150 000
Funding gap	-1 605 300	-1 602 000	-1 609 000

Table 3.21 Funding gaps in the Mekong-Plus Regional Programme Review Group

Country	2003	2004	2005	2003-2005	2006-2010	2011-2020
	US\$	US\$	US\$	US\$	US\$	US\$
Cambodia	22 000	42 000	52 000	116 500	200 000	200 000
China	20 000	179 000	170 000	360 000	100 000	0
Indonesia	—	—	—	1 174 300	—	—
Lao People's Democratic Republic	30 000	45 000	47 000	122 000	200 000	200 000
Malaysia	390 000	0	0	390 000	0	0
Myanmar	174 000	399 500	506 300	1 280 300	3 641 000	—
Philippines	186 000	324 000	476 500	986 500	1 000 000	1 000 000
Thailand	—	—	—	44 300	—	—
Viet Nam	0	0	0	0	1 000 000	1 000 000

The Mekong-Plus PRG envisages the elimination of LF from the region by 2020. At present, 10 of the 12 endemic countries have started elimination activities. Mapping in all countries will be completed by 2004, and full MDA

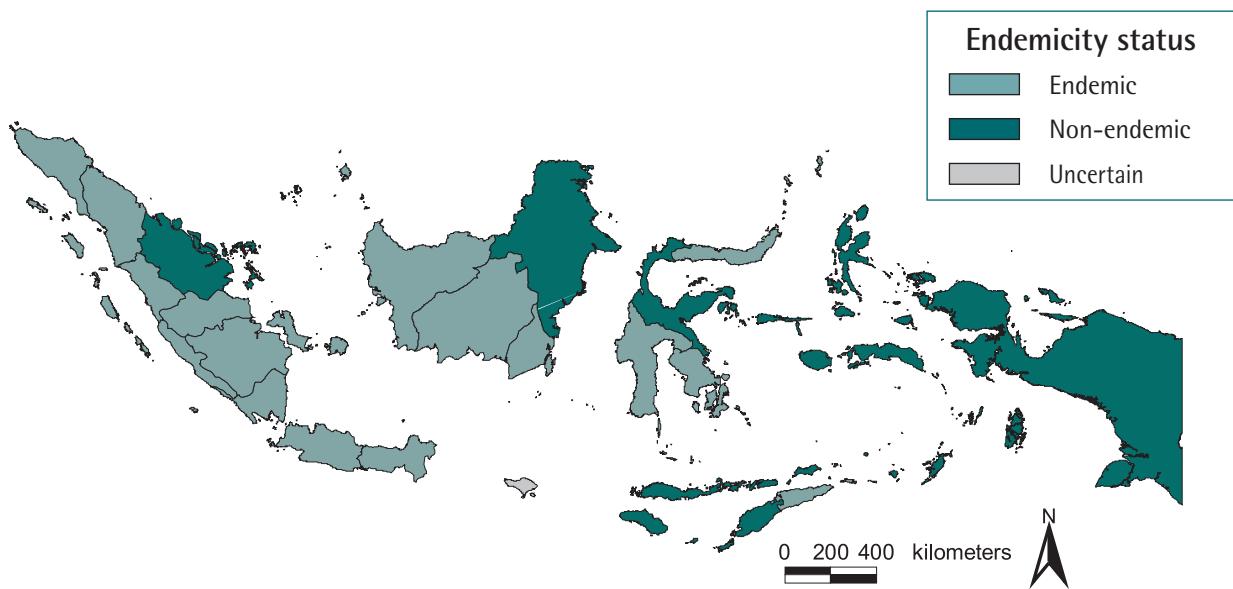
coverage will be implemented in all countries by 2010. In 2003 nearly 23.8 million people were covered by MDA. The geographical coverage of the Mekong-Plus PRG can be seen in Figure 3.93 below.

Figure 3.93 Mekong-Plus Programme Review Group: geographical coverage^a by country in 2003

^a Geographical coverage = total population in IUs where MDA is taking place x 100/total population of all endemic IUs.

^b Estimated at-risk population as denominator, LF mapping is in progress.

INDONESIA



LF is one of the major health problems faced by Indonesia's population of approximately 210.5 million. The ministry of health estimated an at-risk population of 150 million in 20 of the 23 provinces. LF is caused by three types of filaria: *W. bancrofti*, *B. malayi* and *B. timori*. The LF clinical manifestations; hydrocele and lymphoedema, were not evaluated in sentinel sites but in a national survey where lymphoedema prevalence was estimated at 0.4% in a sample of 5063 people.

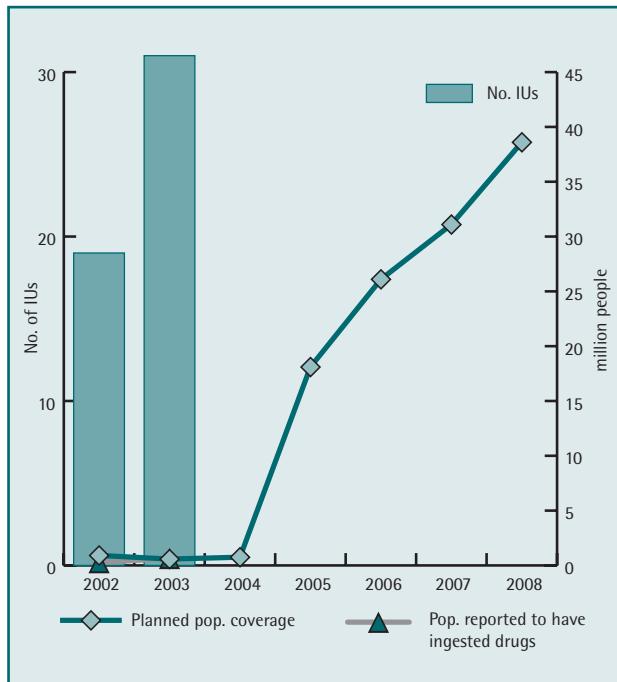
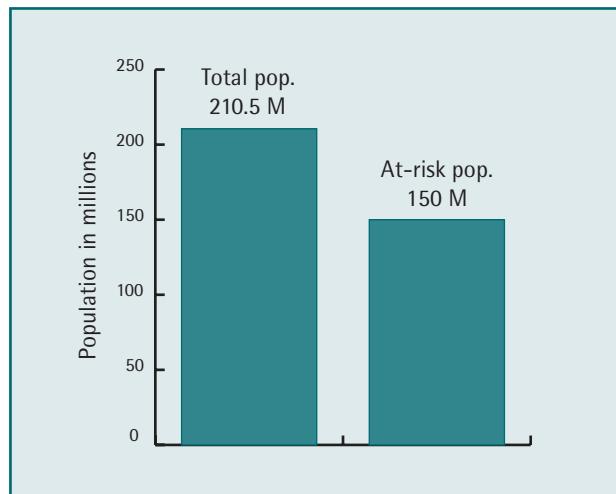
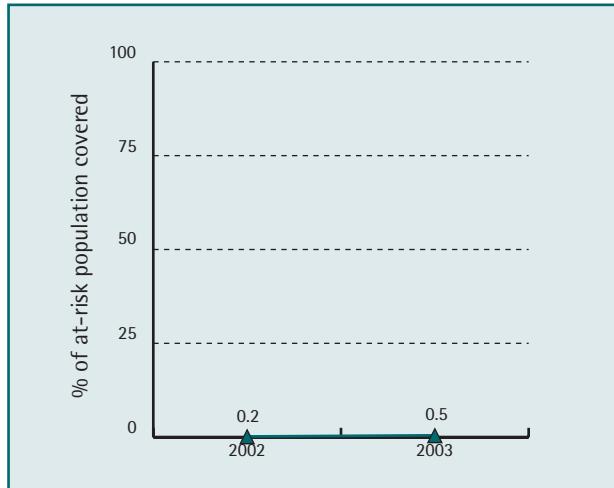
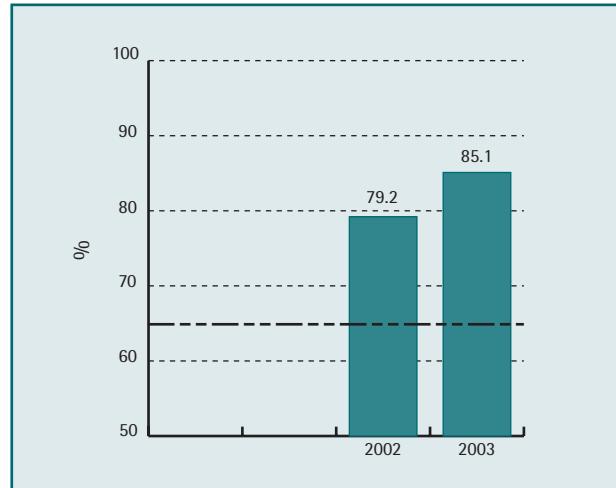
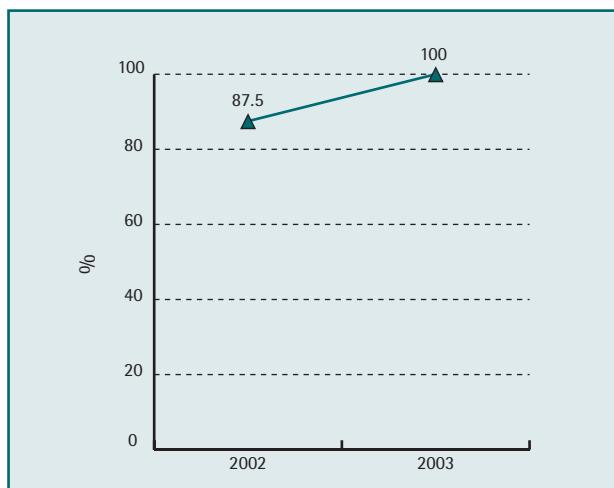
The administrative division designated as an IU is the sub-district. Mapping of LF in Indonesia is still in progress, but there are extensive historical data based on a microfilaria survey. In 1975, a national filariasis control

programme was established and started drug distribution with DEC alone. Since 1991, low-dosage DEC has been administered weekly, for a period of 40 weeks. The first round of MDA started in 2002 and covered 16 IUs. For the second round in 2003, 746 064 people were covered in 31 IUs. The reported coverage was 82% (range: 69.8% to 94%). Door-to-door drug distribution and the booth strategy were used.

Financial and technical support has been provided by WHO, and GTZ supported social mobilization and advocacy activities. GSK donates albendazole to treat the population.

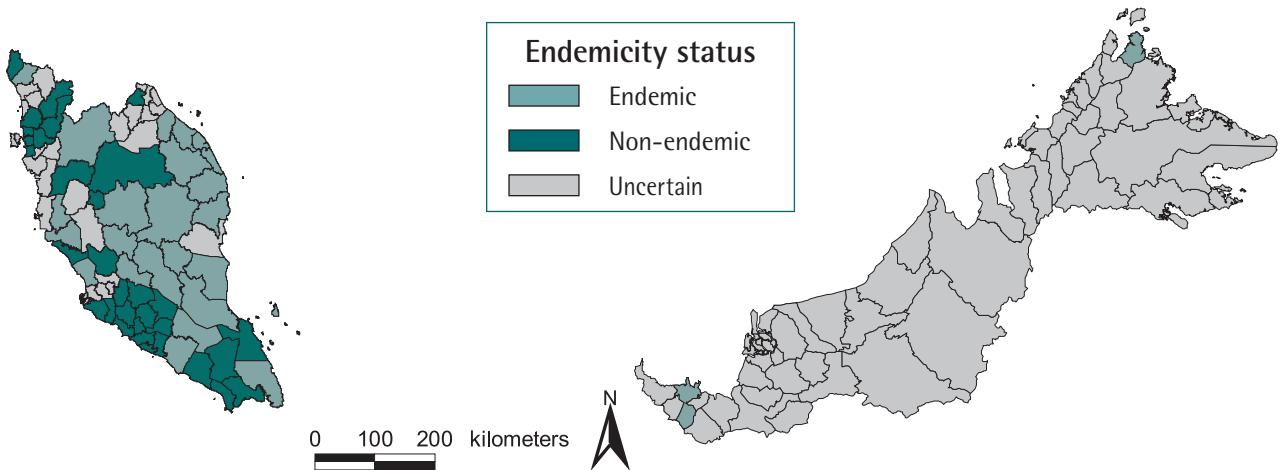
Table 3.22 Goal: to eliminate LF from Indonesia by 2015

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt LF transmission To prevent LF-associated disability 	<ul style="list-style-type: none"> Social mobilization Partnership Mobilization resources: <ul style="list-style-type: none"> - district, provincial and central levels - private sector, community - international resources (WHO, etc.) Strengthening of human resources: training Implementation in phases, depending on the capability of district government

Figure 3.94 Outcomes and planning 2002-2008**Figure 3.95 LF at-risk population****Figure 3.96 Geographical coverage****Figure 3.97 MDA reported coverage****Figure 3.98 IUs with reported coverage >65%****Figure 3.99 Updated mapping status**

Total: 3832 IUs		
3514 IUs	87 IUs	231 IUs
Uncertain	Non-endemic	Endemic

MALAYSIA



LF is a public health problem for Malaysia's population of approximately 24.4 million, at least 2.9 million of whom are considered to be at risk from the disease. *B. malayi* occurs more frequently (98%) than *W. bancrofti* (2%). There are no recent data of LF clinical manifestations evaluated in sentinel sites, but the lymphoedema prevalence could be less than 1%, according to the national survey in 1997 of a sample of 65 764 people. Hydrocele cases are likely to be very few, as is the case in areas where *Brugia* is predominant.

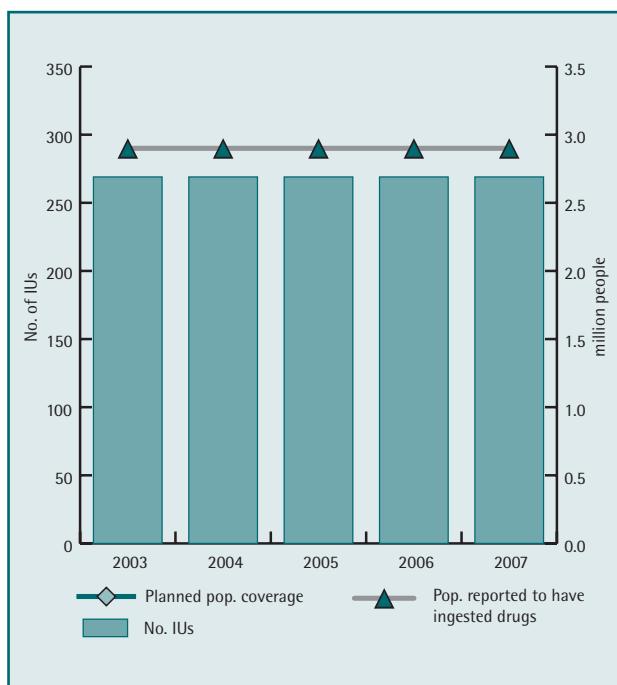
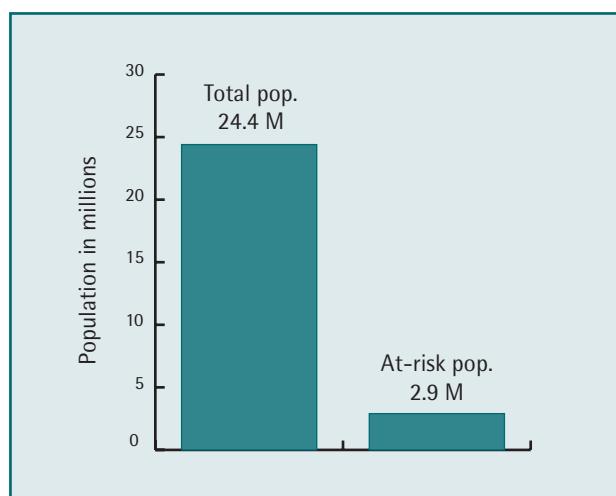
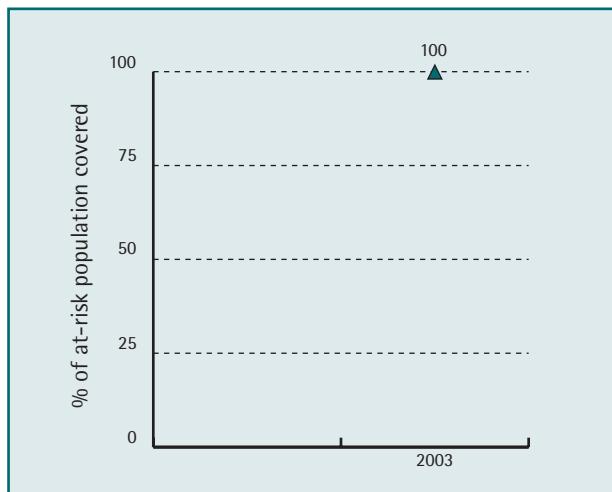
Most states use *mukim* (local administrative unit) as the IU, but the state of Sabah uses the district, and the state of Sarawak uses the subdistrict. Mapping is in progress: 154 IUs are considered endemic out of a total of 934.

The first round of MDA using albendazole and DEC began in 2003 in the 154 endemic IUs, 2.91 million people were targeted with a reported coverage range of 11.6% to 92.7%. Historical data with microfilaraemia demonstrated an LF prevalence of between 0.04% and 8.5% for the IU that started MDA in 2003. Between 2002 and 2003, 53 members of staff were trained in the interruption of transmission and in disability prevention and control.

The LF elimination programme is implemented by the ministry of health. Human resources are mainly from the ministry of health, including those from the Pharmaceutical and Health Education Divisions, the Institute of Medical Research and some other local institutions. WHO provided financial and technical support. GSK donates albendazole to treat the whole population.

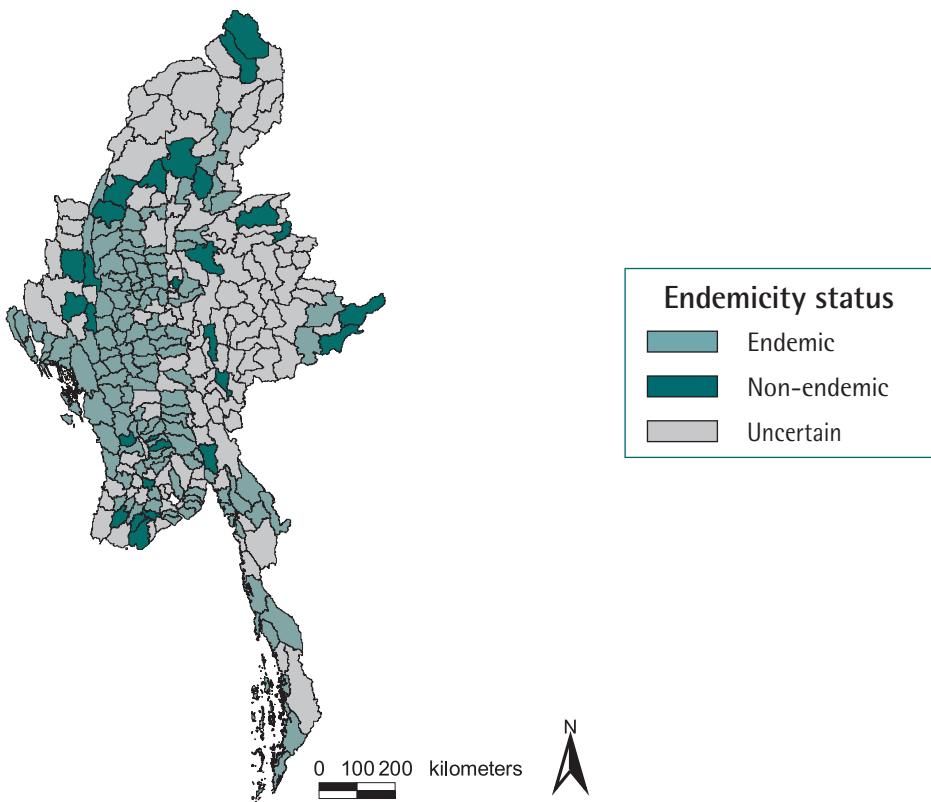
Table 3.23 Goal: to eliminate LF from Malaysia as a public health problem

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt LF transmission To prevent and control LF-associated disability 	<ul style="list-style-type: none"> Covering the entire at-risk population by MDA for at least 5 years Implementation of simple hygiene measures through a home-based approach. Promoting increased access to surgery for those sufferers with one or more urogenital manifestations

Figure 3.100 Outcomes and planning 2003-2007**Figure 3.101 LF at-risk population****Figure 3.102 Geographical coverage****Figure 3.103 MDA reported coverage****Figure 3.104 IUs with reported coverage >65%****Figure 3.105 Updated mapping status**

Total: 934 IUs		
Uncertain	Non-endemic	Endemic
-	780 IUs	154 IUs

MYANMAR



LF is a major public health problem for Myanmar's population of 52 million, at least 47 million of whom are considered to be at risk of LF.

The administrative division designated as an IU is the district. The national PELF is one of 50 projects included in the National Health Plan 2000–2006. LF mapping is in progress: 12 million people and 100 townships need to be evaluated with ICT cards. The principal parasite is *W. bancrofti*, transmitted mainly by *C. quinquefasciatus*. The highest endemicity (mf rates >10%) occurs in the central region, with lower levels (1–5%) in the hilly regions.

A National Filariasis Control Programme (NFCP) was established in 1970. Based on the strategy of night mass blood surveys and selective treatment at the district and township levels, the LF programme is integrated with basic health services, headed by the township medical officer for implementation of case management,

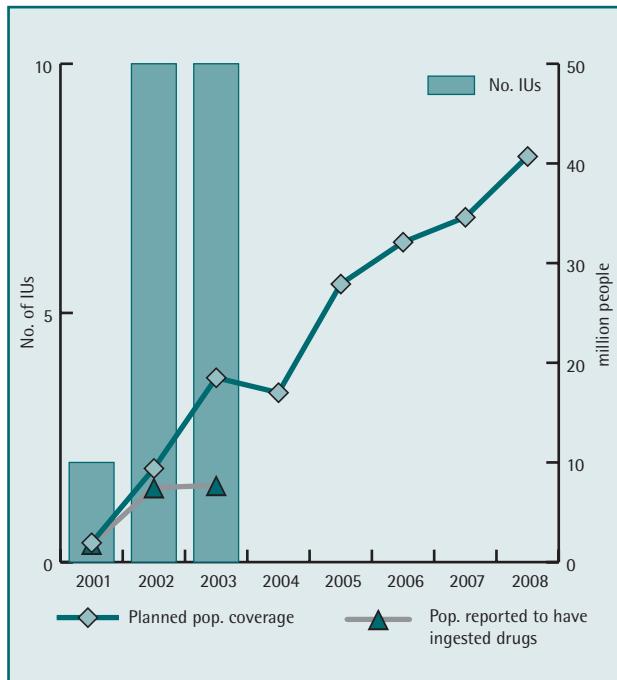
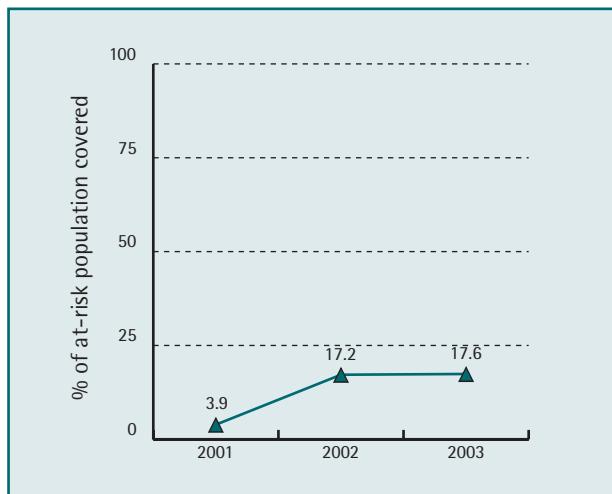
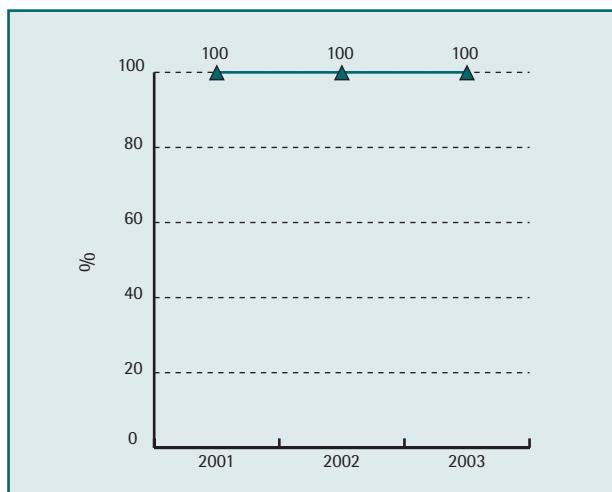
prevention and control of vector-borne diseases. In 1996, a pilot MDA with DEC was implemented in two townships of Sagaing Division and was extended later to eight townships in five states or divisions.

The first round of MDA, using albendazole plus DEC, started in 2001 and covered two IUs. In 2002, for the second round, 10 IUs were covered; the third round, in December 2003, covered the same 10 IUs. Although 17 million people were targeted in 2003, only 8 million could be covered because of unavailability of DEC in December 2003. Reports are still being collected and post-MDA coverage surveys are still being implemented.

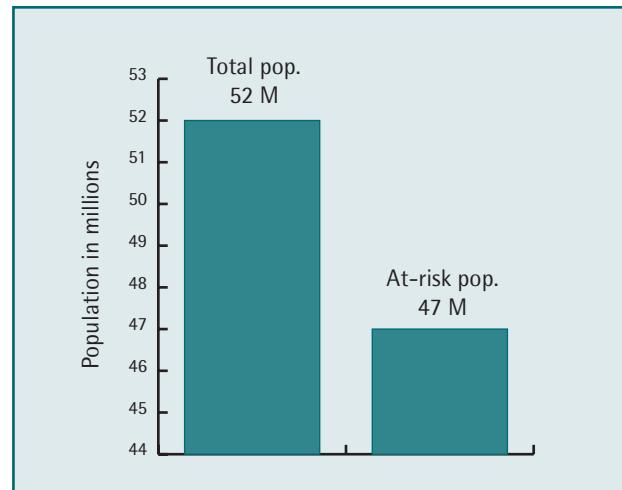
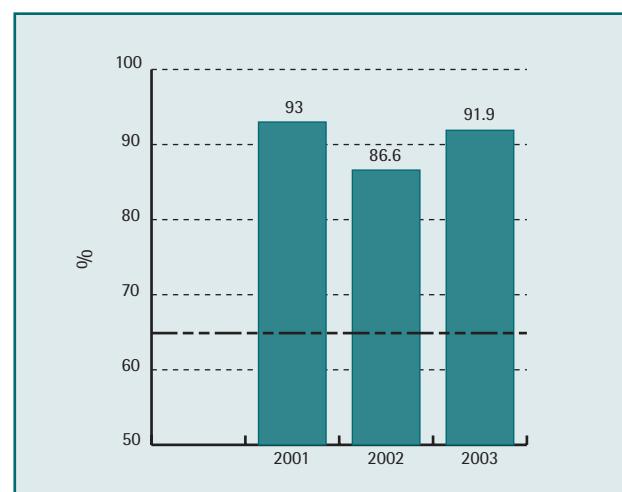
The door-to-door strategy was adopted in all IUs since 2002 in accordance with the recommendation of the National Task Force for ELF because of the higher coverage that could be obtained than with the booth strategy.

Table 3.24 Goal: to eliminate LF from Myanmar by 2020

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt LF transmission with MDA To prevent LF-associated disability 	<ul style="list-style-type: none"> Information and education to grass-roots level through the COMBI approach Implementation of MDA using albendazole plus DEC A programme of IEC for the community Strengthen capability of staff in basic health services and vector-borne disease control regarding MDA, disability control and elimination of LF

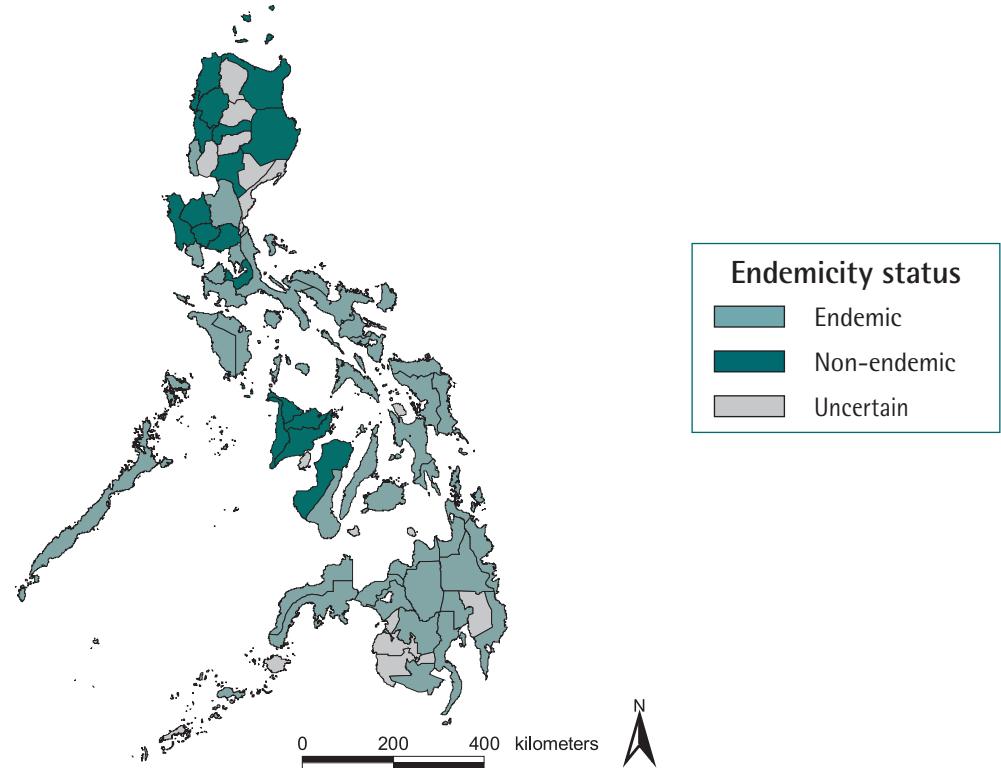
Figure 3.106 Outcomes and planning 2001-2008**Figure 3.108 Geographical coverage****Figure 3.110 IUs with reported coverage >65%**

The Myanmar Ministry of Health has conducted the LF elimination programme with limited assistance from outside sources. GSK donates albendazole, and WHO provided DEC and operational funds in 2002. Future partnership initiatives envisaged are with the Liverpool LF Support Centre.

Figure 3.107 LF at-risk population**Figure 3.109 MDA reported coverage****Figure 3.111 Updated mapping status**

Total: 324 IUs		
Uncertain	Non-endemic	Endemic
100 IUs	23 IUs	201 IUs

PHILIPPINES



LF is one of the major health problems faced by the population of approximately 68 million. The LF at-risk population estimation is close to 35% of the total population. The magnitude of disability caused by the disease within the community is unknown.

The administrative division designated as an IU is the municipality. Mapping of LF is still in progress: 373 IUs out of 1566 have been identified as endemic, but there are 559 more IUs that have yet to be mapped. There are an estimated 23.5 million people at risk of LF.

The first round of MDA under the national PELF was piloted in 2000 and covered 26 IUs. In 2001, PELF started a countrywide campaign and covered 91 IUs; in 2002, coverage was expanded to 185 IUs. For the third round, in

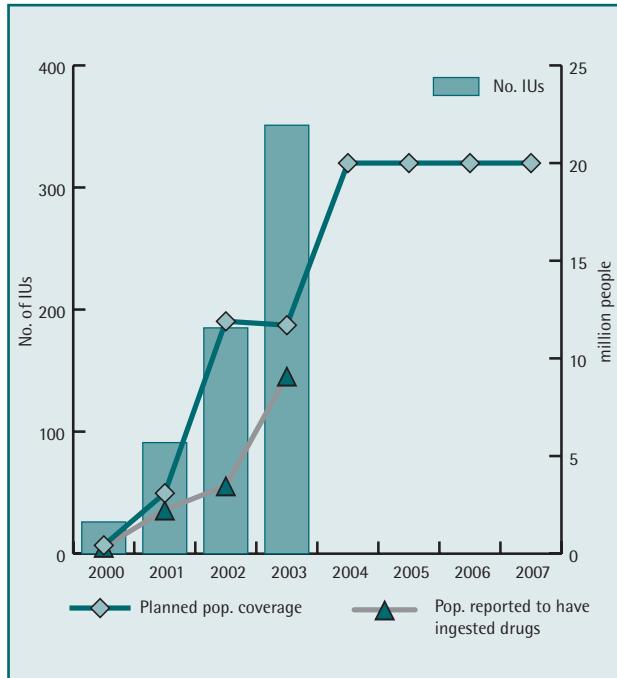
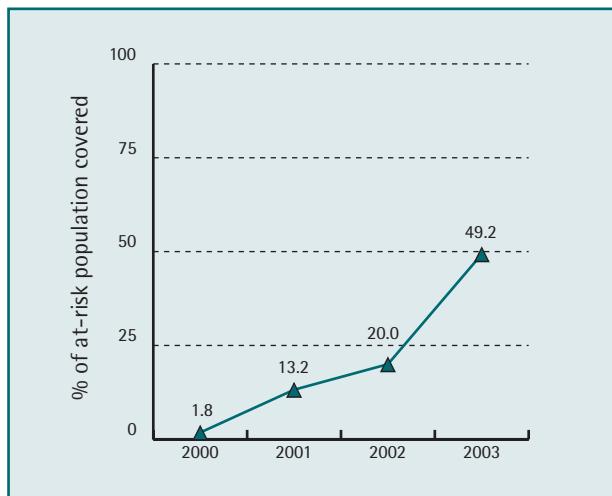
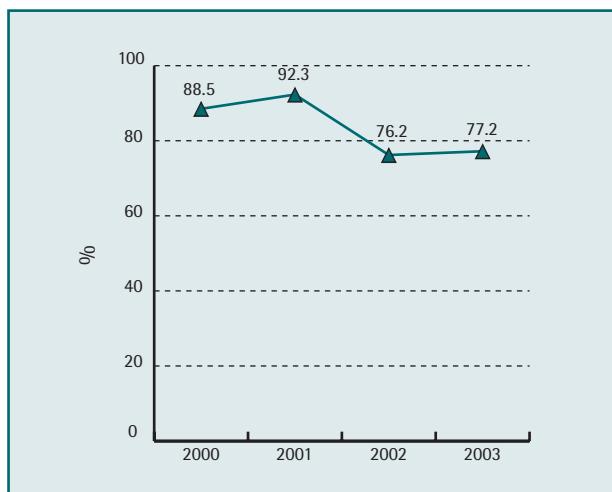
2003, the number of IUs targeted for implementation was 373. The reported coverage was 78.7% (4% to 156%).

The strategy used was door-to-door and booth drug distribution.

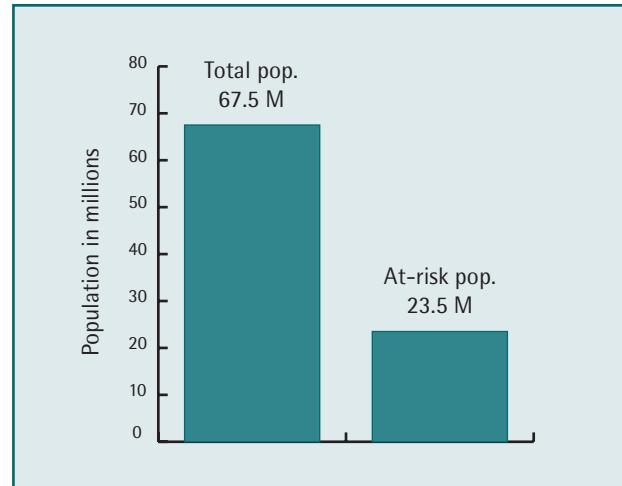
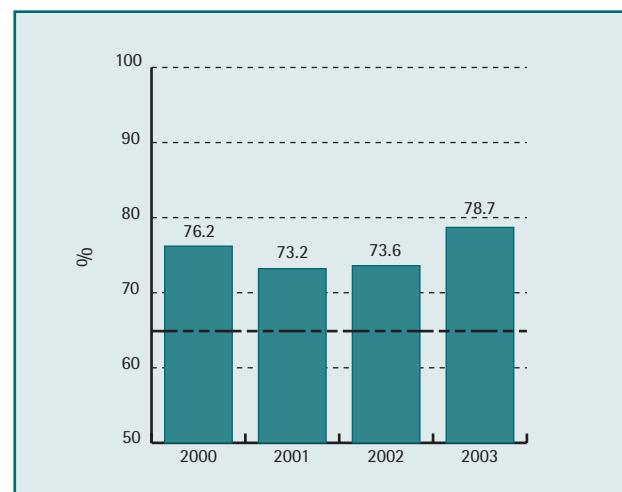
WHO and private partners, such as GSK, have provided technical and logistic support. Other partners, such as the Development Bank of the Philippines, have provided donations in kind, while the Guardian Brotherhood non-governmental organization also provided support for advocacy and logistics. A future partnership initiative envisaged is the creation of a Coalition for the Elimination of Lymphatic Filariasis (CELF) comprising all stakeholders working together for the common goal at the national and local levels.

Table 3.25 Goal: to eliminate LF from Philippines by 2010

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt LF transmission • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Identify LF-endemic areas through mapping • Mass treatment of the population (2 years of age and over) in all endemic areas using DEC plus albendazole for five consecutive years • Determine the magnitude of LF-associated disability • Establish and increase the awareness of disability prevention among affected families and communities

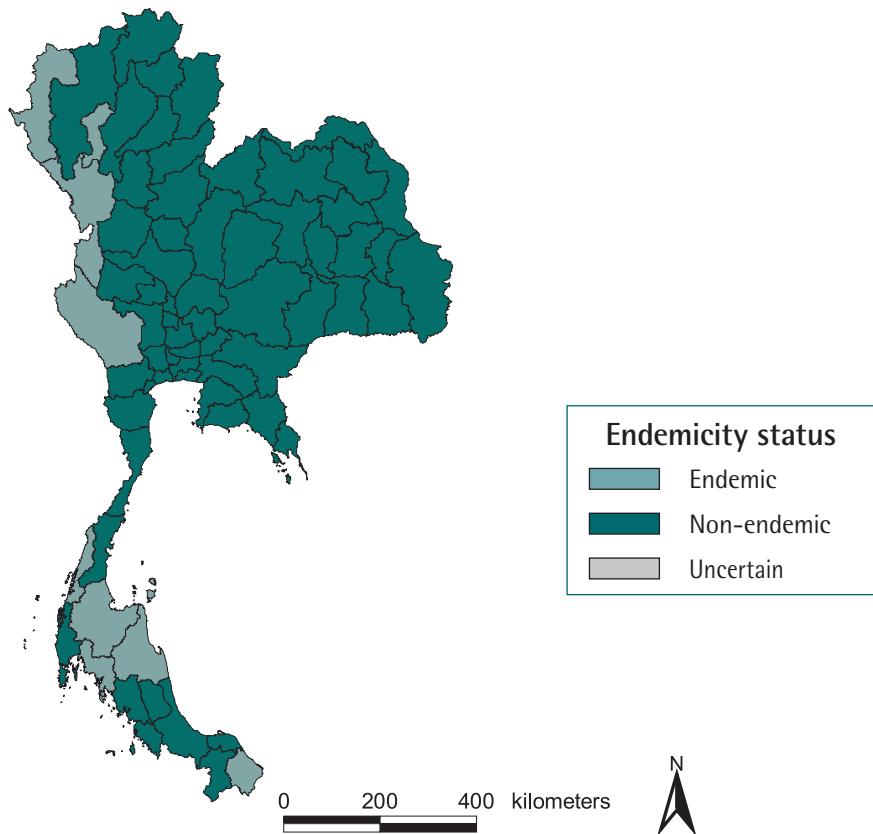
Figure 3.112 Outcomes and planning 2000-2007**Figure 3.114 Geographical coverage****Figure 3.116 IUs with reported coverage >65%**

Apart from the supply of albendazole and routine support from the department of health (of approximately US\$ 100 000), funds and resources to scale up the campaign from 2004 onwards are lacking. Firm pledges and support are needed to sustain the momentum and achieve the objectives by 2010.

Figure 3.113 LF at-risk population**Figure 3.115 MDA reported coverage****Figure 3.117 Updated mapping status**

Total: 1566 IUs		
Uncertain	Non-endemic	Endemic
500 IUs	693 IUs	373 IUs

THAILAND



LF is one of the public health problems for Thailand's population of approximately 62.3 million. Almost 0.2% of this population is considered at risk. The LF clinical manifestations evaluated recently in sentinel sites show an absence of cases of hydrocele and lymphoedema.

The administrative division designated as an IU is the subvillage. Mapping was completed in 1999 and, based on microfilaraemia data, 336 IUs with an at-risk population of 125 725 were considered endemic.

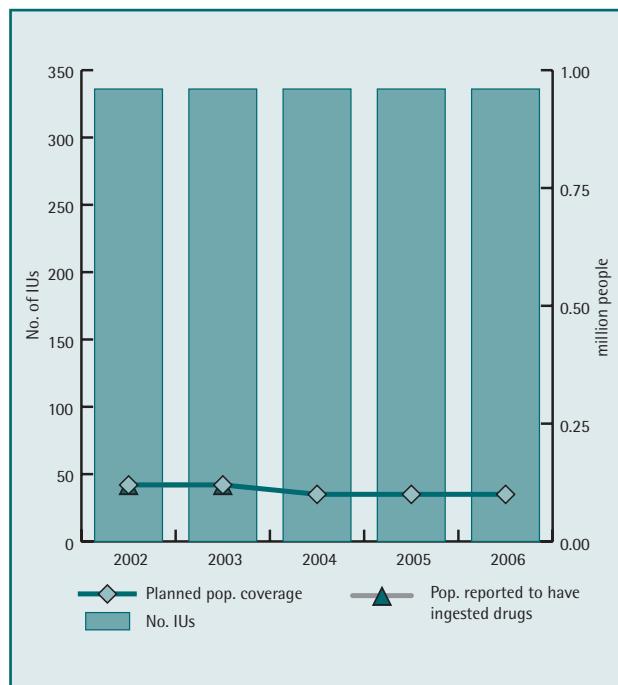
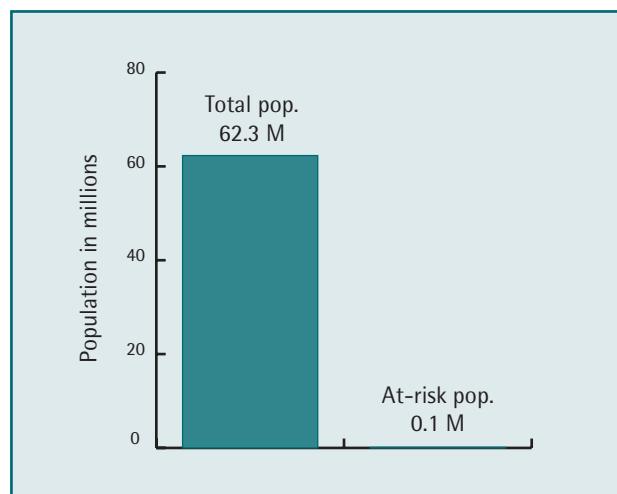
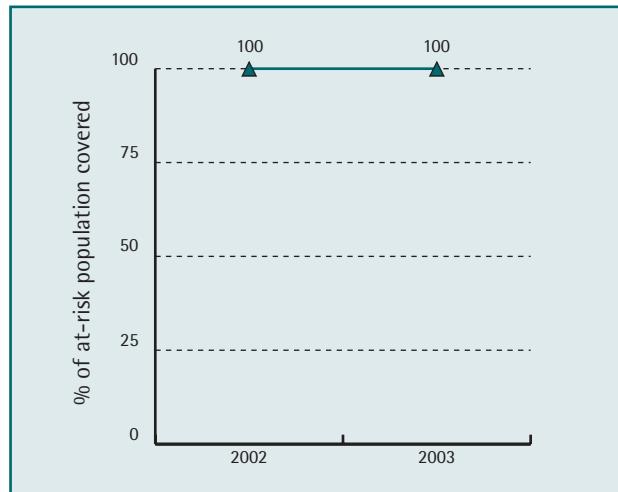
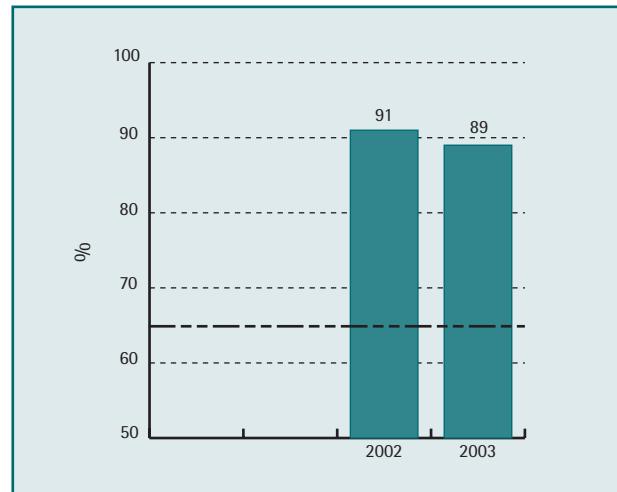
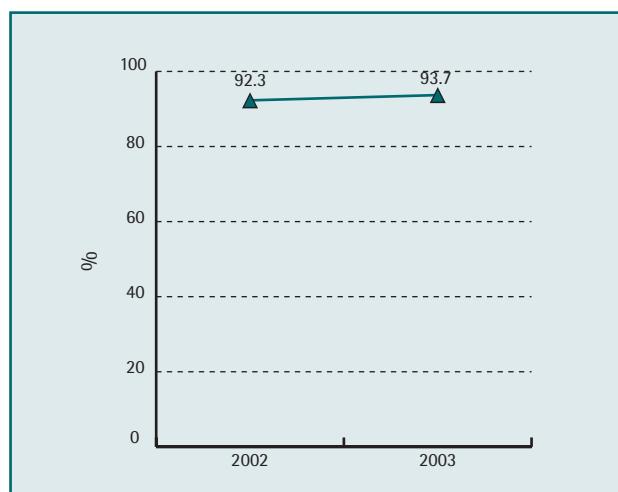
The first round of MDA using albendazole and DEC began in 2002 in all 336 endemic IUs. The second round began in 2003, targeting 0.139 million people with a reported coverage of 89.0% (range: 51% to 100%)

Between 2002 and 2003, 2563 drug distributors were trained, and 211 people were given training in disability prevention and control.

The LF elimination programme is implemented by the ministry of health. WHO provided financial and technical support. GSK donates albendazole to treat the whole population. Future partnership initiatives envisaged are with the Royal Thai Army, the Ministry of Defence and the Department of Livestock Development, Ministry of Agriculture and Cooperatives.

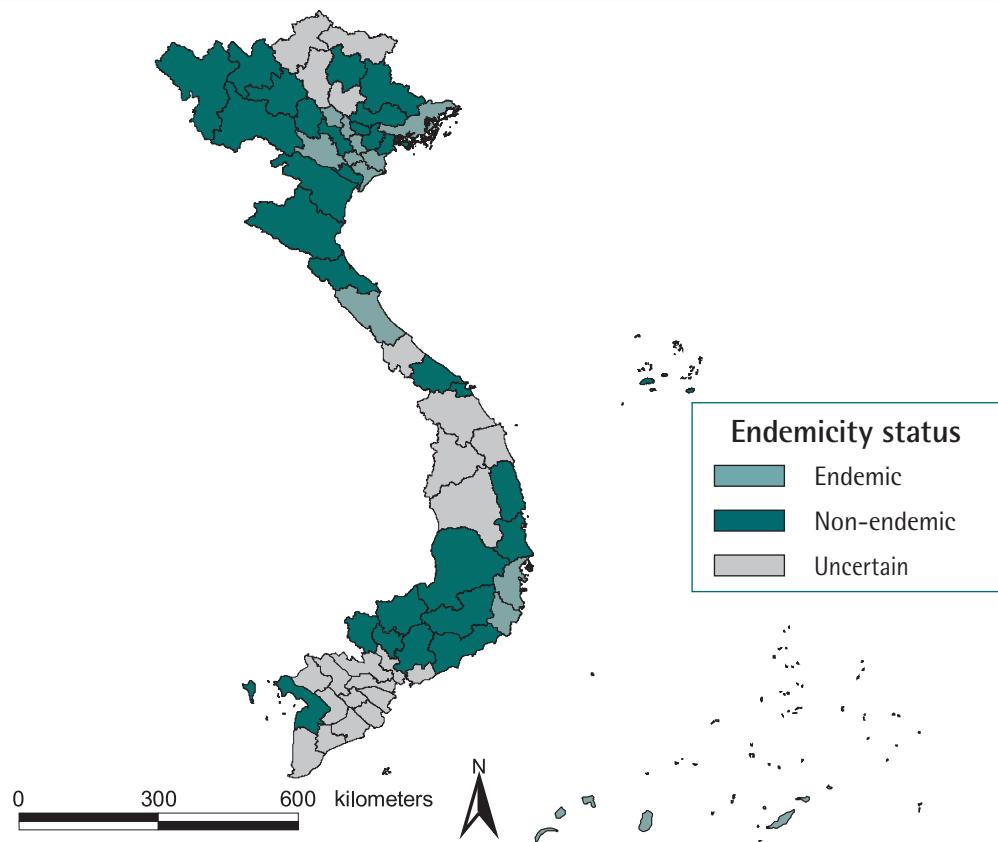
Table 3.26 Goal: to eliminate LF from Thailand by 2006

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt LF transmission To prevent disability associated with LF 	<ul style="list-style-type: none"> Community-wide MDA programmes to treat the entire at-risk population Disability control in lymphoedema sufferers by using intensive but simple, effective hygiene techniques

Figure 3.118 Outcomes and planning 2002-2006**Figure 3.119 LF at-risk population****Figure 3.120 Geographical coverage****Figure 3.121 MDA reported coverage****Figure 3.122 IUs with reported coverage >65%****Figure 3.123 Updated mapping status**

Total: 10307 IUs		
Uncertain	Non-endemic	Endemic
-	9971 IUs	336 IUs

VIET NAM



LF is one of the public health problems for the population of approximately 80 million. More than 1.48 million people are considered to be at risk. The prevalence of LF clinical manifestations evaluated recently in sentinel sites is higher than that of mf in the blood.

The administrative area designated as an IU in the country is the district and not the province. Mapping is being finalized: 12 districts were identified as LF-endemic and six of them qualified for MDA (Binh Luc and Phu Cu in the north and Bac Ai, Dien Khanh, Khanh Vin and Ninh Hoa in the centre). Based on current mapping, the at-risk population was estimated at 1.48 million.

The first round of MDA under the national PELF, using albendazole and DEC, began in 2003 in two IUs with a

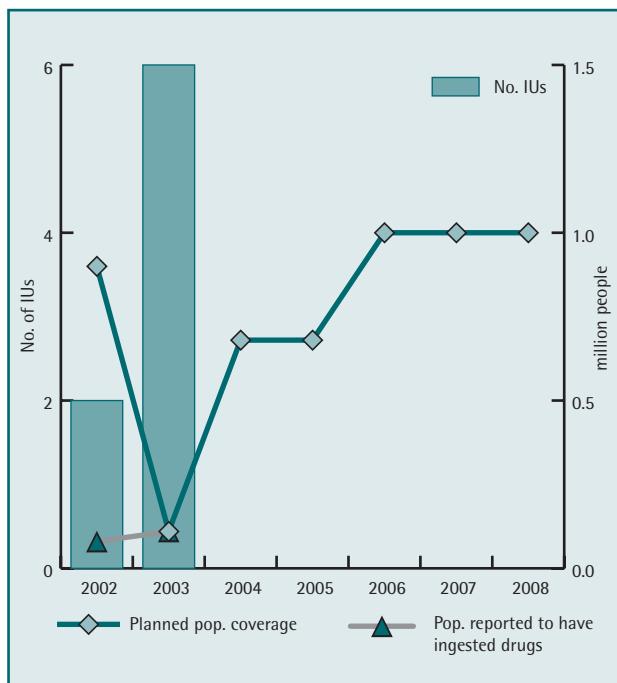
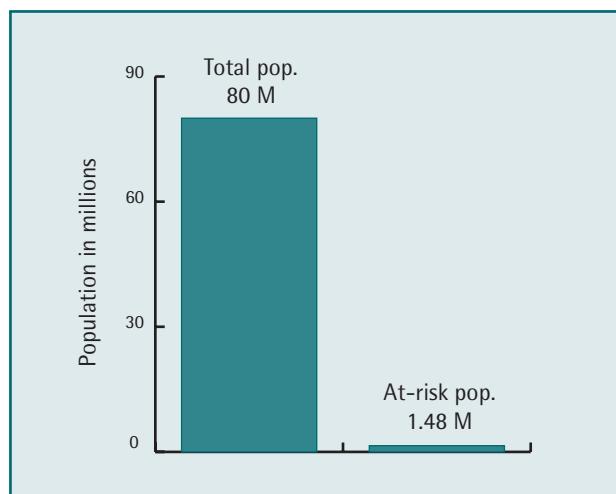
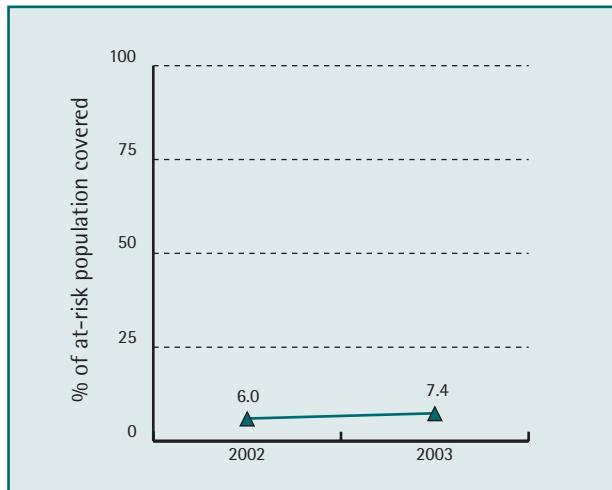
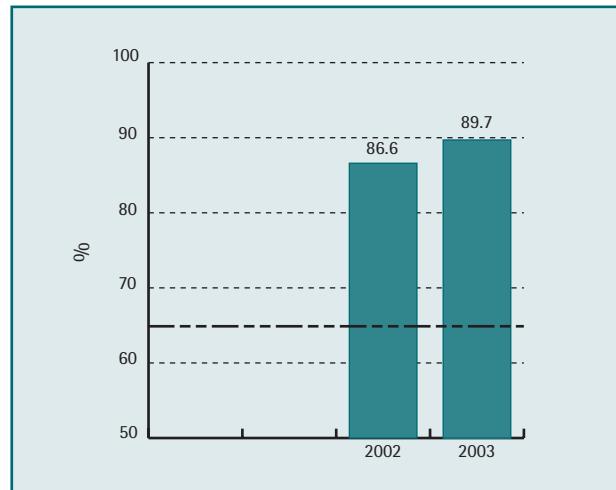
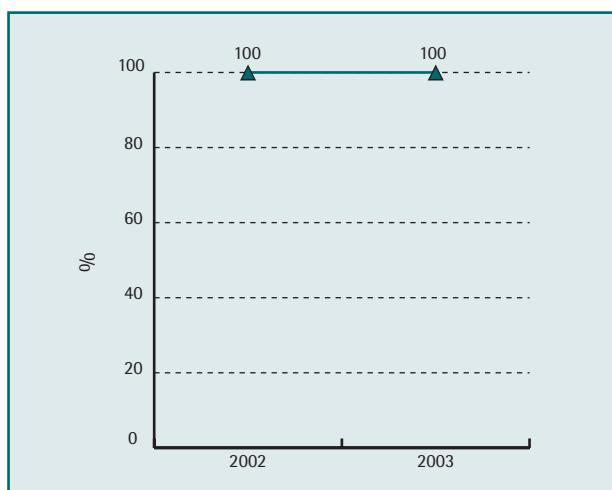
reported coverage of 89.7% (range: 93.2% to 93.8%). The second round will be in 2004, targeting around 680 000 people.

Between 2002 and 2003, 1290 drug distributors were trained, and approximately half of them participated in training in disability prevention and control.

The national PELF is managed overall by the ministry of health and technically by the National Institute of Malaria, Parasitology and Entomology (NIMPE). WHO provided technical support and facilitated funding: the national PELF is fully funded by the Bill and Melinda Gates Foundation. GSK donates albendazole to treat the whole endemic population.

Table 3.27 Goal: to eliminate LF from Viet Nam by 2010

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt LF transmission To prevent LF-associated disability 	<ul style="list-style-type: none"> To complete all five rounds of MDA by 2008 To carry out training in disability prevention and control for health staff and the affected community

Figure 3.124 Outcomes and planning 2002-2008**Figure 3.125 LF at-risk population****Figure 3.126 Geographical coverage****Figure 3.127 MDA reported coverage****Figure 3.128 IUs with reported coverage >65%****Figure 3.129 Updated mapping status**

Total: 610 IUs		
Uncertain	Non-endemic	Endemic
450 IUs	148 IUs	12 IUs

PacCARE PROGRAMME REVIEW GROUP

The Pacific Initiative for the Elimination of Lymphatic Filariasis (PacELF) covers an estimated at 4134 million people at risk of LF in the participating countries and territories (referred to as countries for convenience). This at-risk population is distributed among 17 endemic countries (American Samoa, Cook Islands, Fiji, French Polynesia, Kiribati, the Federated States of Micronesia, Marshall Islands, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna). Papua New Guinea has the highest estimated at-risk population, around 2 million, which equals 50% of the total at-risk population in the region.

At present, all 17 endemic countries have started LF elimination activities in accordance with the strategy in Table 3.28. In 2003, 0.014 million people were covered by MDA. The geographical coverage of the PacCARE PRG can be seen in Figure 3.128.

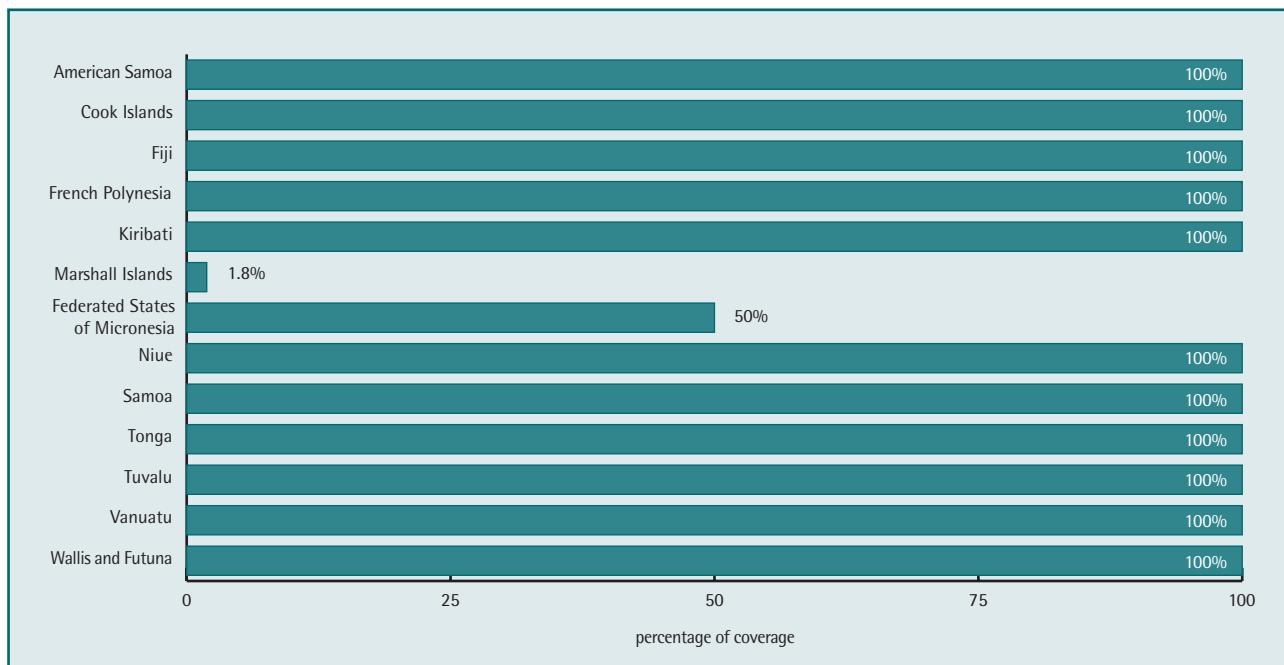
PacELF partnerships

Currently, the main partners of PacELF are: the Ministry of Foreign Affairs of the Government of Japan through the Japan International Cooperation Agency (JICA); the Japanese Ministry of Health, Labour and Welfare; and GSK. A task force has been established in the WHO Regional Office for the Western Pacific, which supports PacELF in terms of integrating the other programmes at the regional level. It provides back-up support in statistics, logistics and methodology. In the areas of the partnership for the PacELF country programmes, 14 countries in the Pacific were being supported by the JICA in providing DEC tablets and ICT tests. Collaboration includes CDC for American Samoa and the Federated States of Micronesia; Voluntary Service Overseas (VSO) for Vanuatu; and Japan Overseas Cooperation Volunteers (JOCV) for Fiji, Vanuatu, Samoa and Tonga. On the local side, Mataika House in Fiji and the Louis Malardé Institute in French Polynesia are facilitating PacELF activities. The Liverpool LF Support Centre and a number of consultants provided PacELF with adequate resources for its activities.

Table 3.28 Strategic components of the PacCARE Programme Review Group

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt transmission of LF • To prevent and control LF-associated disability 	<ul style="list-style-type: none"> • Coverage of the entire at-risk population by MDA for at least 5 years • Implementation of simple hygiene measures through a home-based approach • Promoting increased access to surgery for sufferers with one or more urogenital manifestations

Figure 3.130 PacCARE Programme Review Group: geographical coverage^a by country and territory in 2003



^a Geographical coverage = total population in IUs where MDA is taking place x 100/total population of all endemic IUs.

AMERICAN SAMOA

The pre-MDA baseline survey in 1999 showed an mf prevalence of 2.6% with a CFA prevalence of 11.5–16.5%. Mapping revealed that 73 villages (64 100 people) are LF-endemic. There have been no recent data on clinical manifestations, but previous evaluations done in 1943 showed a prevalence of hydrocele and lymphoedema of 6.3% and 2.6%, respectively. MDA was carried out in 1962 and 1966 using DEC (72 mg/kg). The first MDA with the co-administration of DEC plus albendazole was

started in 2000 with a reported coverage of 23.7% of the total population; the second MDA round, in 2001, had a reported coverage of 52%. In 2002, the third round covered 28 400 people with a reported coverage of 49.7%. In 2003, the fourth MDA covered 57 291 people with a reported coverage of 70.2%. Technical support was provided by WHO and CDC and additional financial support was provided by the Research Corporation of the University of Hawaii, USA.

Figure 3.131 LF at-risk population

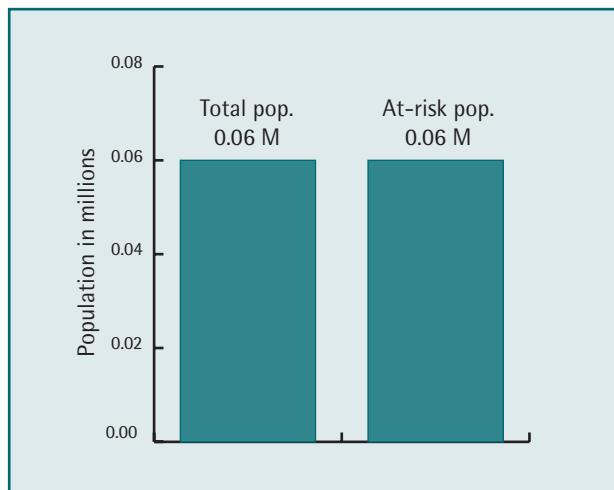


Figure 3.132 Geographical coverage

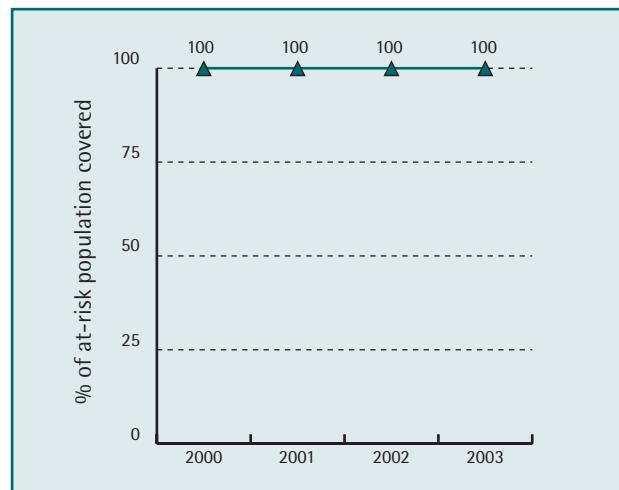


Figure 3.133 MDA reported coverage

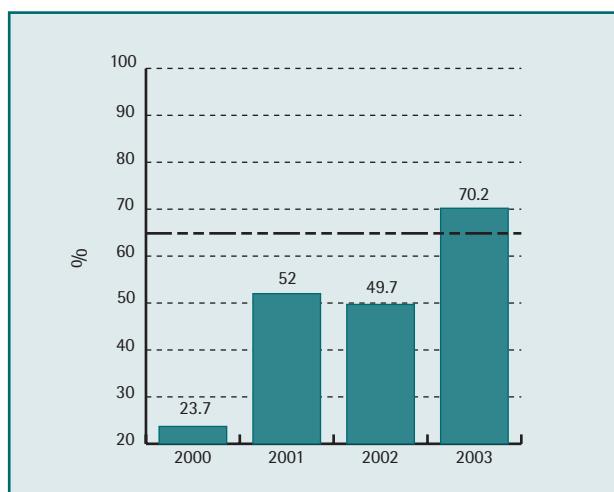
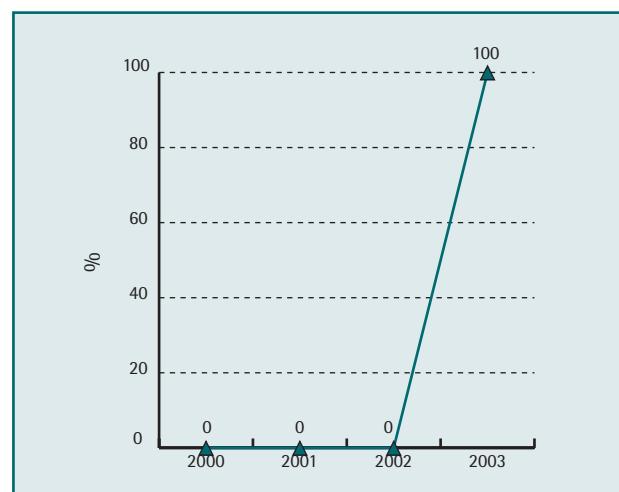


Figure 3.134 IUs with reported coverage >65%



COOK ISLANDS

The entire country is LF-endemic. The pre-MDA survey in 1999 showed a CFA prevalence of 8.6%. In 1965, a survey in Pukapuka showed 3.8% prevalence of lymphoedema. An MDA started on Aitukaki island in 1968 reduced microfilaraemia from 30% to 0.8%.

The first round of MDA started in 2000 with a reported coverage of 62.4%. In the second round in 2001, the

reported coverage was 64.1%; for the third round it was 98%. In 2003, the fourth MDA covered 18 700 people with a reported coverage of 69.8%. Two drug distribution strategies were chosen: door-to-door and booth distribution.

Technical support was provided by WHO and additional support for DEC and ICT cards was provided by the JICA.

Figure 3.135 LF at-risk population

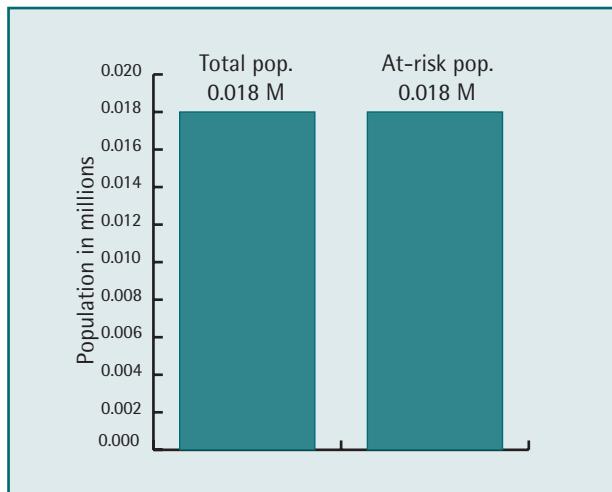


Figure 3.136 Geographical coverage

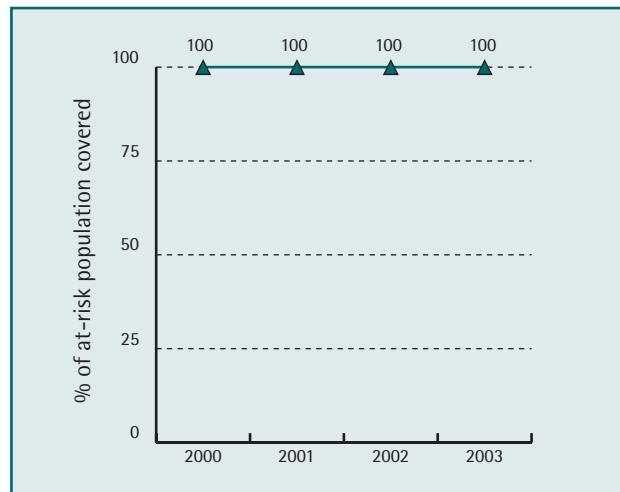


Figure 3.137 MDA reported coverage

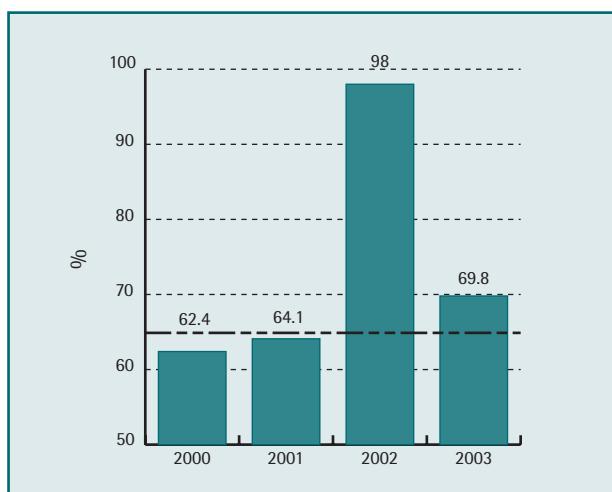
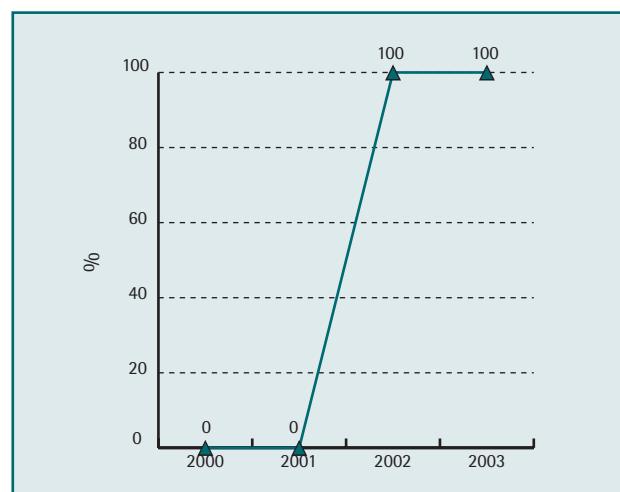


Figure 3.138 IUs with reported coverage >65%



FEDERATED STATES OF MICRONESIA

Some parts of the country are LF-endemic. The pre-MDA survey in 2000 showed a CFA prevalence of 0.2%. A study of clinical manifestations in 1992 showed a hydrocele and lymphoedema prevalence of 3.4% and 0.4%, respectively. The first MDA round with the co-

administration of albendazole plus DEC started in 2003; three islands were targeted with a reported coverage of 49.7%. Technical support was provided by WHO and additional support for DEC and ICT cards was provided by the JICA.

Figure 3.139 LF at-risk population

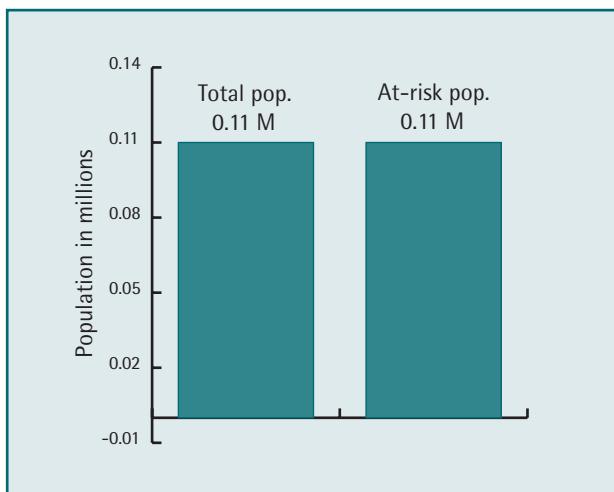


Figure 3.140 Geographical coverage

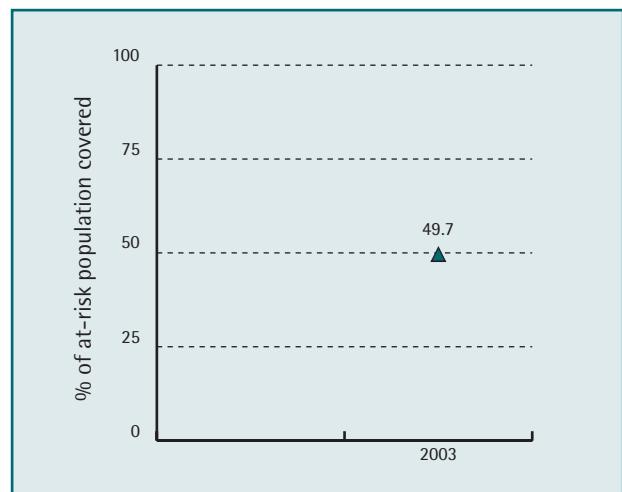


Figure 3.141 MDA reported coverage

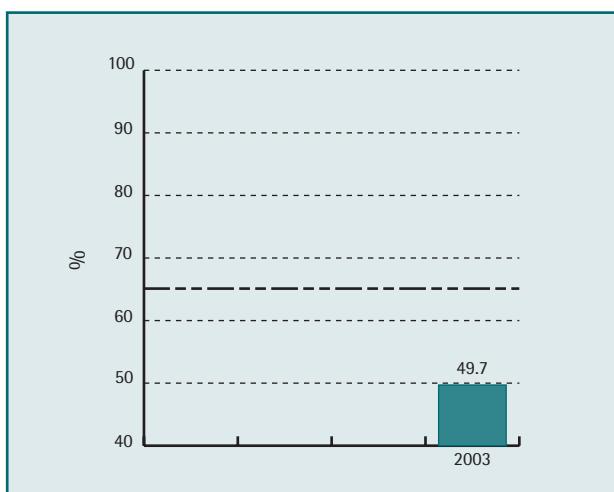
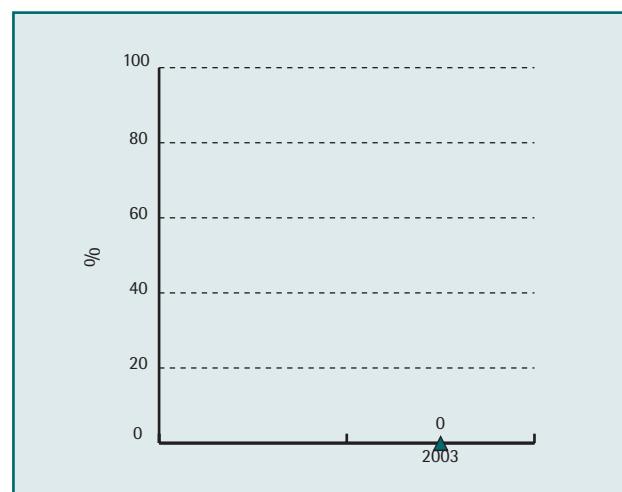


Figure 3.142 IUs with reported coverage >65%



FIJI

The entire population of 824 700 is considered to be LF-endemic, and the CFA prevalence in 2002 was 16.6%. The evaluation of the prevalence of lymphoedema in 1995 was 0.2%. In 2002, Fiji started the first MDA round with a reported coverage of 70.4%. In 2003, the second MDA targeted 483 983 people from a population of 776 173, with a reported coverage of 62.4%.

Two drug distribution strategies were chosen: door-to-door and booth distribution. Technical support was provided by WHO and CDC with additional support for DEC and ICT cards being provided by the JICA.

Figure 3.143 LF at-risk population

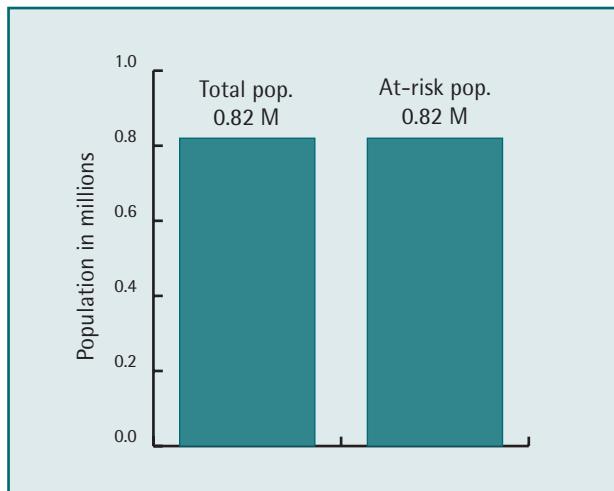


Figure 3.144 Geographical coverage

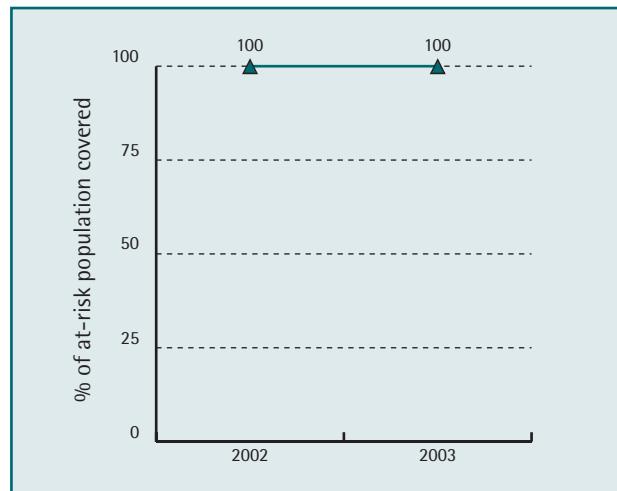


Figure 3.145 MDA reported coverage

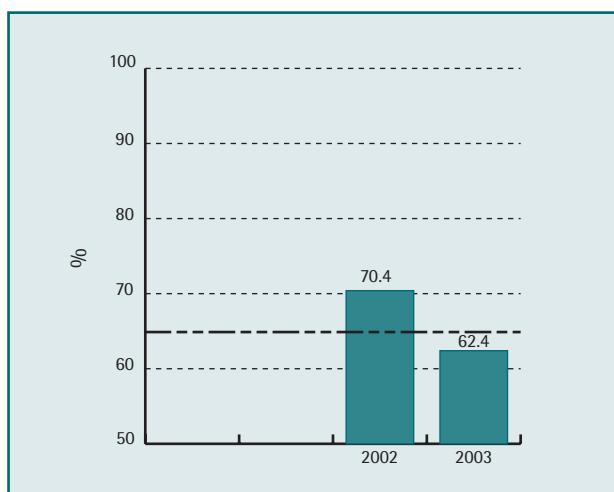
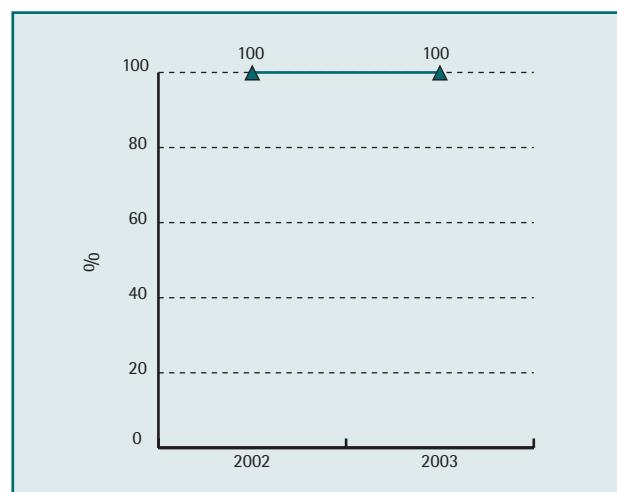


Figure 3.146 IUs with reported coverage >65%



FRENCH POLYNESIA

The entire country is considered LF-endemic. The prevalence of lymphoedema evaluated in the Leeward Islands in 1974 is 1.3%. A CFA prevalence survey carried out between 1997 and 2000 showed levels ranging from 2.4% to 17.7%. The first MDA round, in 2000, had a reported coverage of 93.2%. In 2001, the second MDA had a reported coverage of 95.1% and the third round, in

2002, 93.3%. In 2003, the fourth MDA targeted 245 516 people, with a reported coverage of 90.1%. Two drug distribution strategies were chosen: door-to-door and booth distribution.

Technical support was provided by WHO and the Louis Malardé Institute.

Figure 3.147 LF at-risk population

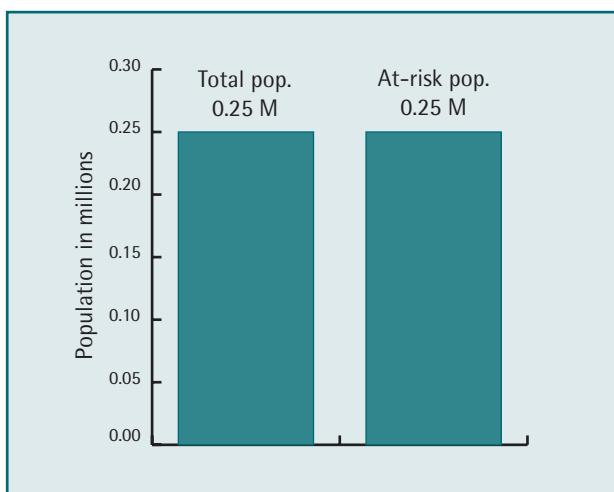


Figure 3.148 Geographical coverage

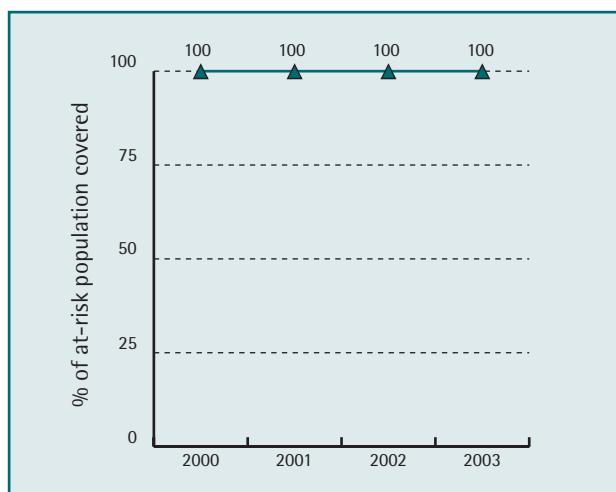


Figure 3.149 MDA reported coverage

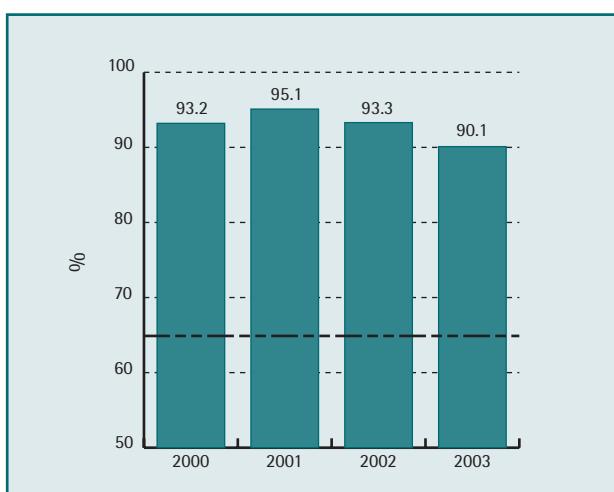
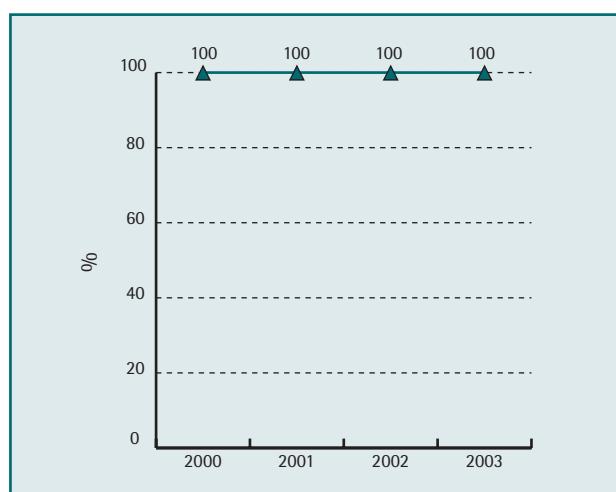


Figure 3.150 IUs with reported coverage >65%



KIRIBATI

Kiribati is LF-endemic, with an estimated population of about 90 700. The CFA prevalence was estimated at 6.8%. There are no recent data on the prevalence of clinical manifestations. MDA started in 2001 and continued with the second MDA round in 2002, with a reported

coverage of 45.9%; the third MDA round in 2003 covered 90 700 people, with a reported coverage of 40.5%. Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by the JICA.

Figure 3.151 LF at-risk population

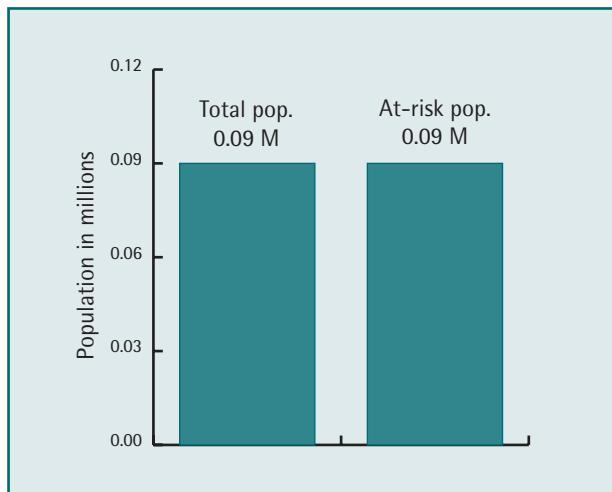


Figure 3.152 Geographical coverage

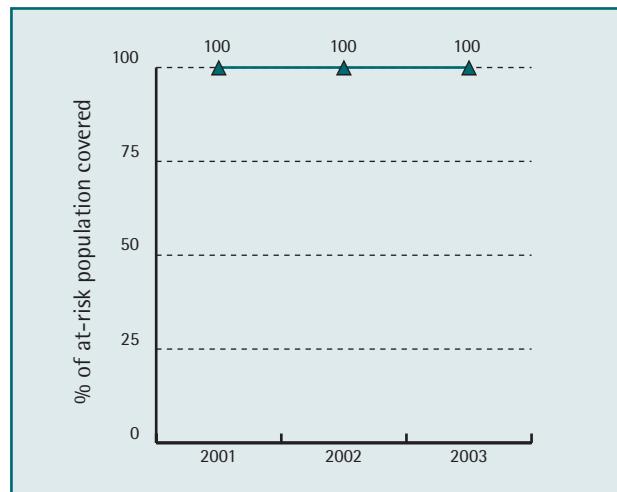


Figure 3.153 MDA reported coverage

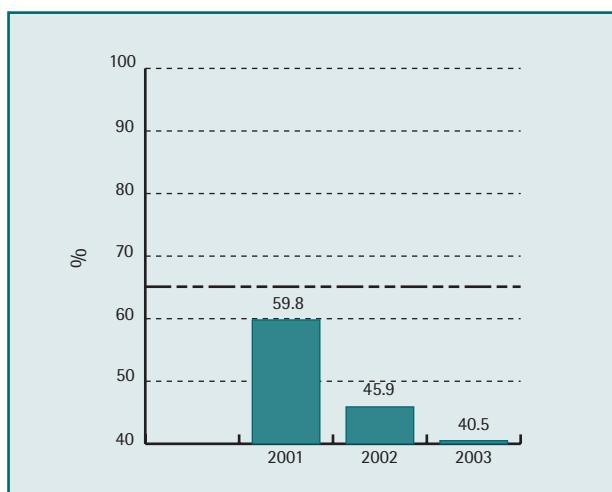
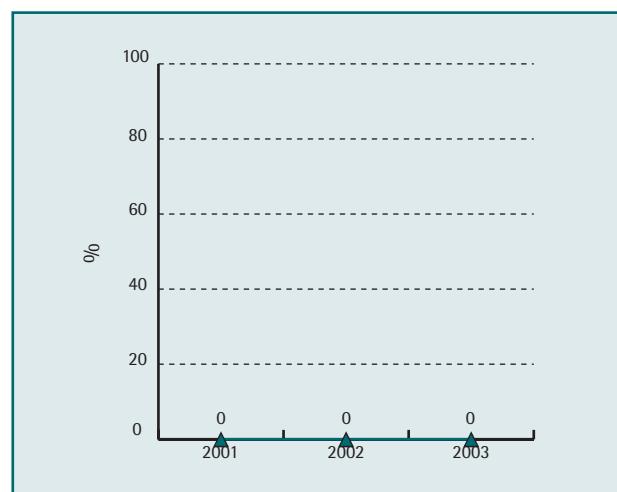


Figure 3.154 IUs with reported coverage >65%



MARSHALL ISLANDS

In 1944, the prevalence of LF on Majuro was found to be 1% and in 1953 it was 3.6% on Namorik (Pipkin, 1953; quoted by Sasa, 1976). In 1999, Marshall Islands participated in PacELF. In 2001, a countrywide antigen prevalence survey was carried out and two positive cases were found out of 2004 people examined (0.1%). The two cases were originally from Mejit Island. Marshall Islands was categorized as partially endemic based on this survey.

During 2002 and 2003, a sentinel survey was carried out on two islands: 294 people were examined with ICT in Mejit and 130 positive cases were found (44.2%); 244 people were examined in Ailuk and 71 positive cases were found (29%). There were no positive cases on Wotje or on Ebon. The first round of MDA with DEC (6 mg/kg) plus albendazole (400 mg) was conducted on Mejit and Ailuk in 2003. No coverage data are available.

Figure 3.155 LF at-risk population

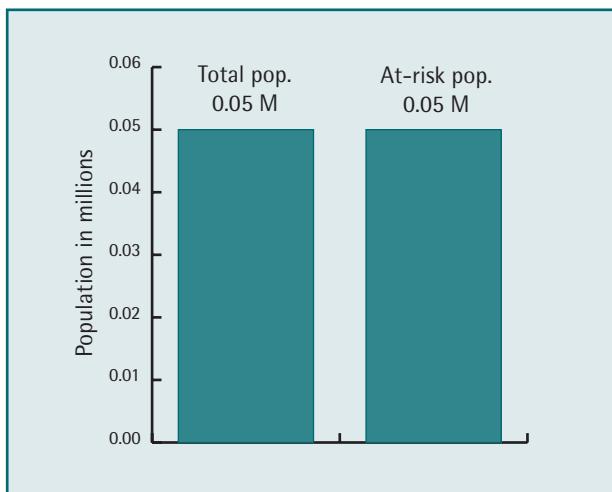


Figure 3.156 Geographical coverage

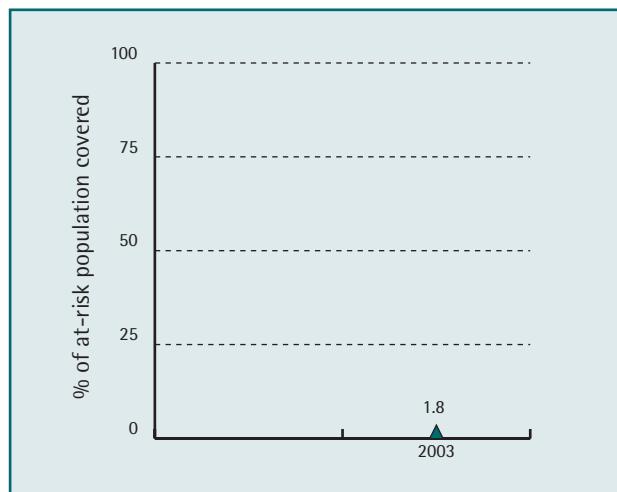


Figure 3.157 MDA reported coverage

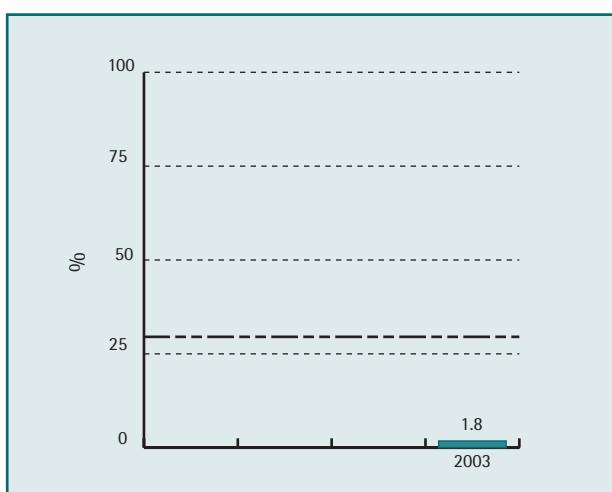
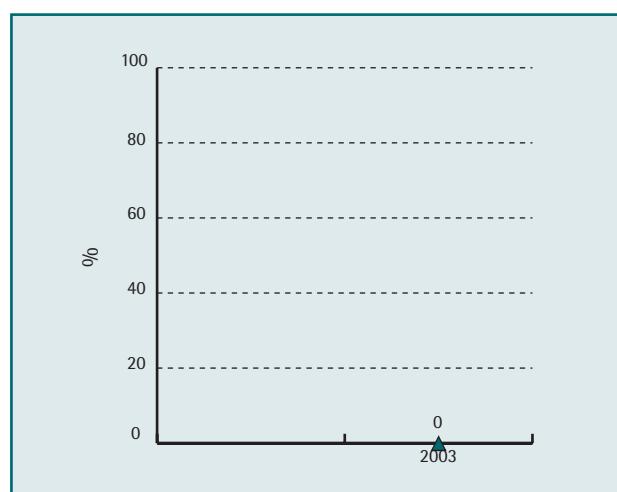


Figure 3.158 IUs with reported coverage >65%



NEW CALEDONIA

In 1997, a survey of 382 adults on Ouvéa Island found the mf rate to be 3.6% and the filarial antibody positive rate 32.5% but no clinical cases of filariasis were found.

In 1999, New Caledonia participated in PacELF. A blood survey was carried out in 2001 for schoolchildren in Ouvéa: two antigen-positive cases were found out of 136 children examined (1.47%). No MDA took place in 2003.

NIUE

Niue is LF-endemic, with a total population estimated at around 1900. The CFA prevalence in 1999 was 3.1%.

The evaluation of lymphoedema prevalence in a sentinel site was 0.06%; there are no recent data of hydrocele prevalence. Prior to PELF, two MDA campaigns were carried out: in 1972 with DEC alone and in 1977 with DEC plus ivermectin. Niue began co-administration of DEC plus albendazole in 2000 with a reported coverage of 94%; for the second MDA round, the coverage was 99%; and for the third, in 2002, the reported coverage was 82.2%. The fourth round, in 2003, targeted 1788 people with a reported coverage of 77.5%. The drug distribution strategy used was door-to-door. Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by the JICA.

Figure 3.159 LF at-risk population

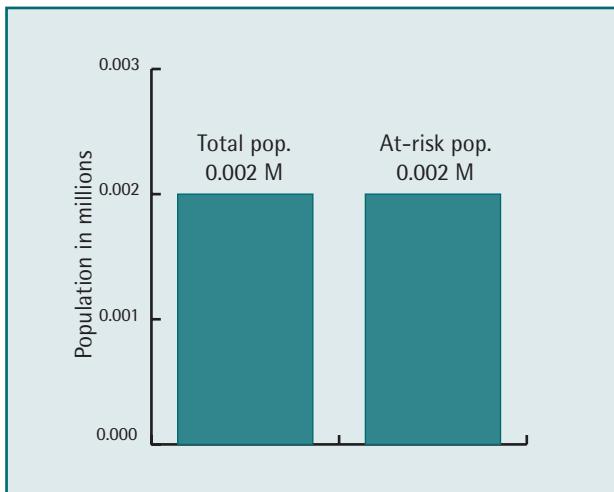


Figure 3.160 Geographical coverage

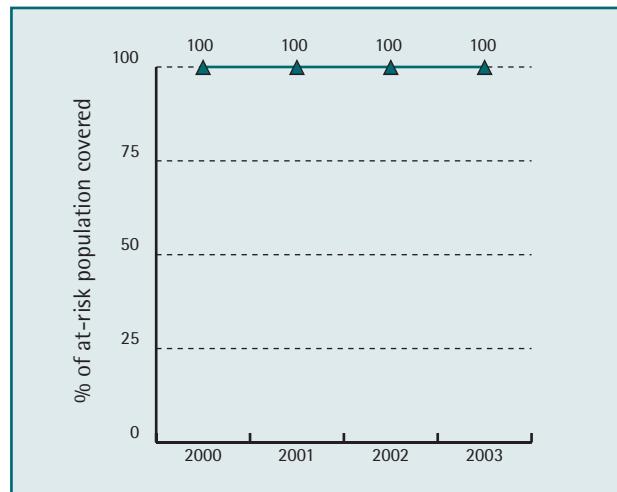


Figure 3.161 MDA reported coverage

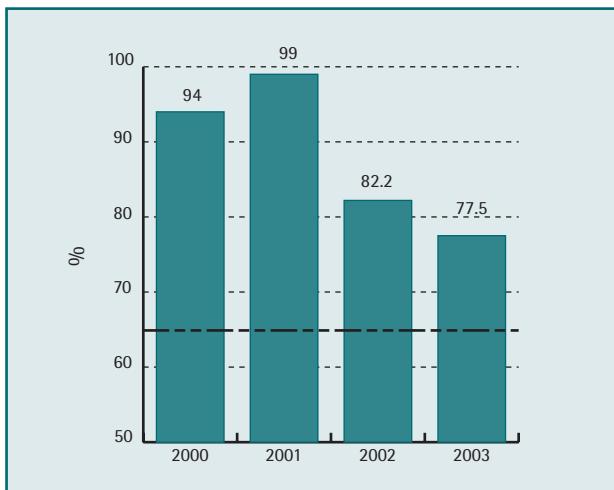
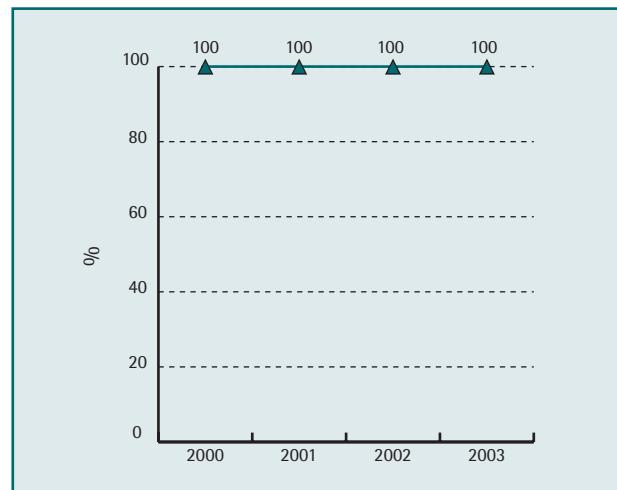


Figure 3.162 IUs with reported coverage >65%



PAPUA NEW GUINEA

Papua New Guinea is LF-endemic, with an estimated at-risk population of 2 million. Mapping of the country is in progress. In Samarai province, 42 districts were found to be LF-endemic. Five MDAs have been carried out in this province since 1987 but not with the aim of eliminating disease transmission; the last one took place in 2002. There are no recent data on hydrocele and lymphoedema prevalence in the country. MDA with the co-administration of DEC plus albendazole was planned for 2003 but did not take place.

Technical support was provided by WHO, financial and technical support were provided by James Cook University, and additional support for DEC and ICT cards was provided by the JICA.

PALAU

In 1953, the mf rate was found to vary from 0% to 37.3% between villages (Pipkin, quoted in Sasa, 1976). An MDA with DEC at a dosage of 5 mg/kg once every other month for two years was started in 1970, which decreased the mf rate to 0.3% in 1000 persons examined in 1972 (WHO/SPC seminar, 1974, quoted in Sasa, 1976).

In 1999, Palau participated in PacELF. A countrywide antigen prevalence survey was carried out (country report, 2002) and nine positive cases were found in the 2031 people examined (0.4%); eight of them were residents of Ngardmau village and the other one originally came from Ngardmau. Palau was categorized a partially endemic country based on this ICT survey. In 2002, a sentinel survey (country report, 2003) was conducted in Ngardmau and three positive cases were found in the 141 people examined (2.3%). No positive cases were found in Ngchesar. An additional sentinel survey was carried out in Southwest Islands in 2003 and no positive cases were found among the 98 people tested.

SAMOA

The entire country is LF-endemic. The pre-MDA data baseline in 1999 shows a prevalence of CFA of 4.5% and a prevalence of lymphoedema of 2%. Samoa has a long history of MDA control campaigns from 1964 until 1999, the first seven using DEC alone and the others using a combination of DEC plus ivermectin. Details of the drug coverage are not available.

The first MDA round with the co-administration of DEC plus albendazole started under PELF in 1999 with a reported coverage of 90.5%; the second, third and fourth rounds had a reported coverage of 56.8%, 68.4% and 60.3%, respectively. In 2003, the country targeted 176 848 people, with a reported coverage of 79.6%.

Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by JICA.

Figure 3.163 LF at-risk population

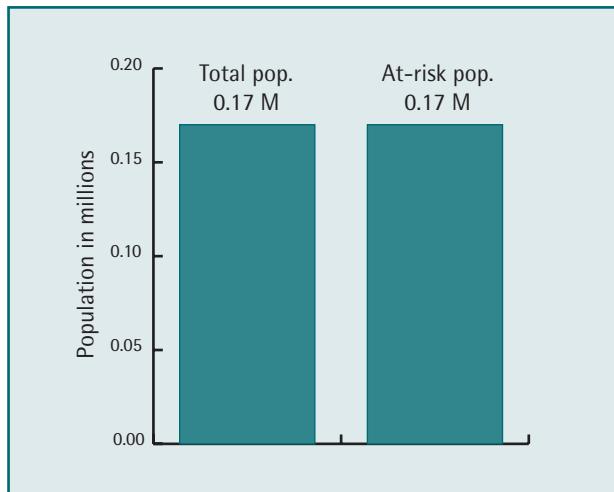


Figure 3.164 Geographical coverage

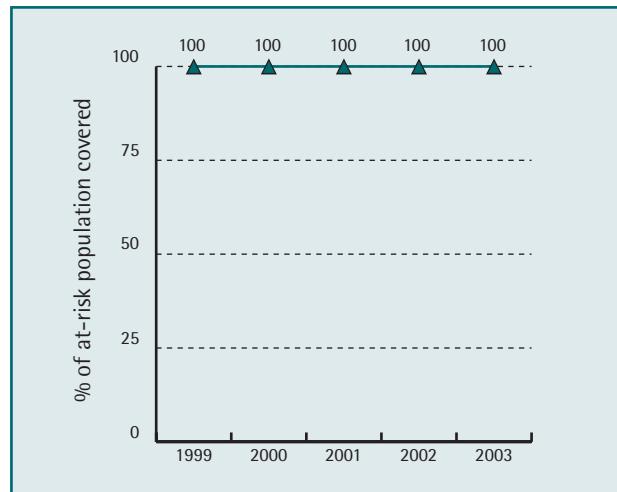


Figure 3.165 MDA reported coverage

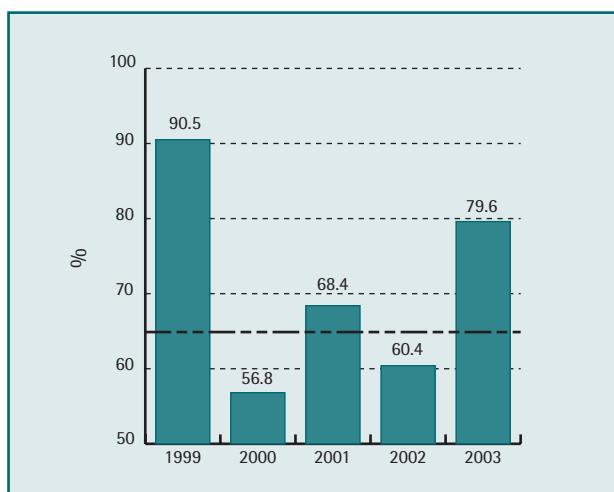
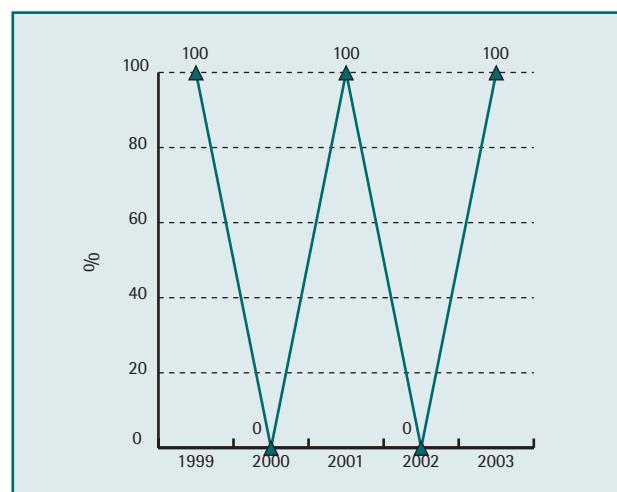


Figure 3.166 IUs with reported coverage >65%



TONGA

The entire country, with an estimated population of 100 200 people, is considered LF-endemic. Reports dating back to 1965 mention the common occurrence of lymphoedema and hydrocele among the local population but there are no prevalence data available. An MDA campaign using DEC was carried out from 1977, which reduced the mf prevalence from 17% to 1%; the pre-MDA CFA prevalence was 2.7%.

The first and second MDA rounds with the co-administration of DEC plus albendazole were in 2001 and 2002, with reported coverage of 79.4% and 83.9%, respectively. In 2003, 97 784 people were targeted with a reported coverage of 90.8%. The distribution strategy chosen was booth distribution through churches.

Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by JICA.

Figure 3.167 LF at-risk population

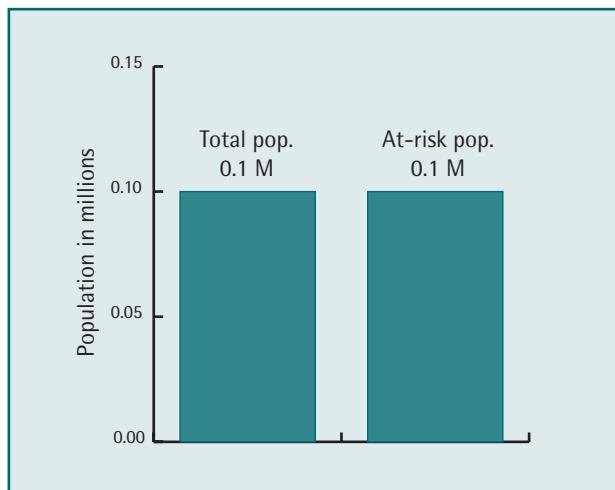


Figure 3.168 Geographical coverage

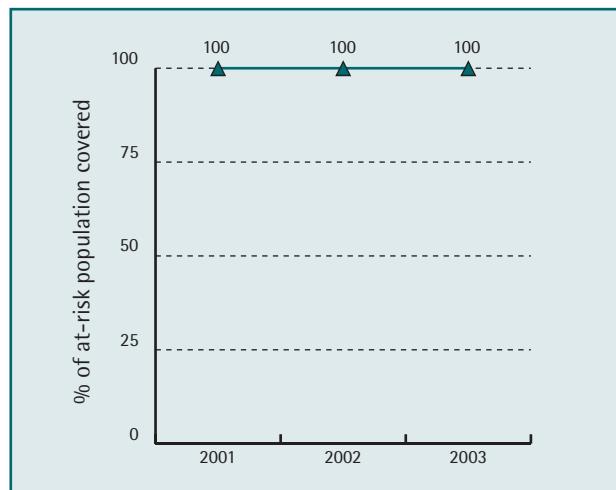


Figure 3.169 MDA reported coverage

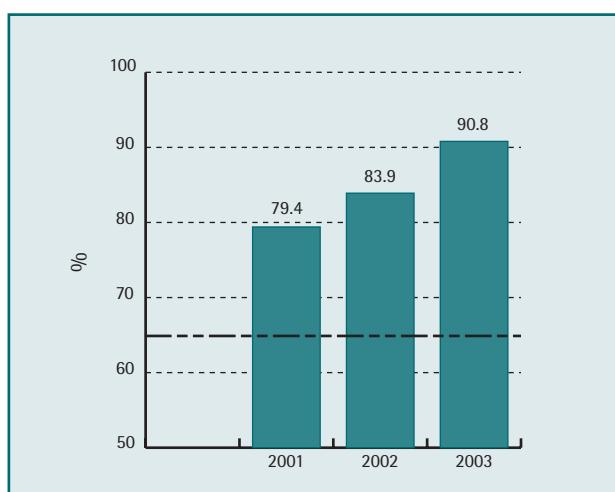
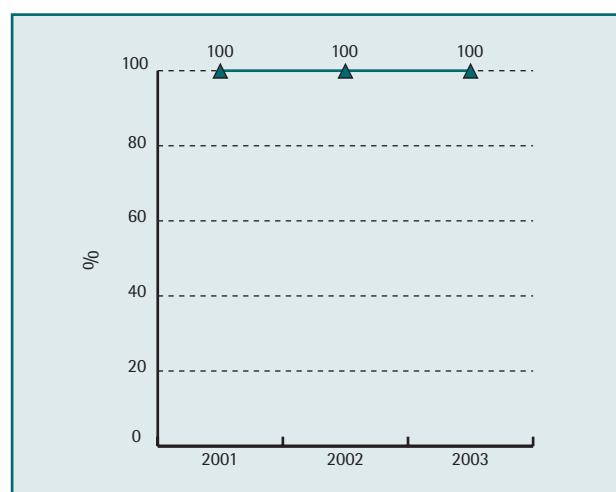


Figure 3.170 IUs with reported coverage >65%



TUVALU

The entire country is considered to be LF-endemic. Two MDA campaigns with DEC alone were conducted in 1972 and 1992. The pre-MDA prevalence of CFA was 22.3%.

The first and second MDA rounds in 2001 and 2002 had reported coverage of 81.2% and 46.7%, respectively. In 2003, 9561 people were targeted, with a reported

coverage of 82.5%. The distribution strategy chosen was booth distribution.

Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by JICA.

Figure 3.171 LF at-risk population

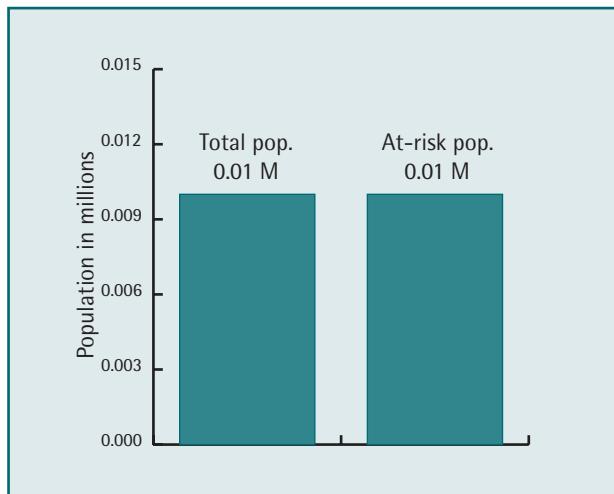


Figure 3.172 Geographical coverage

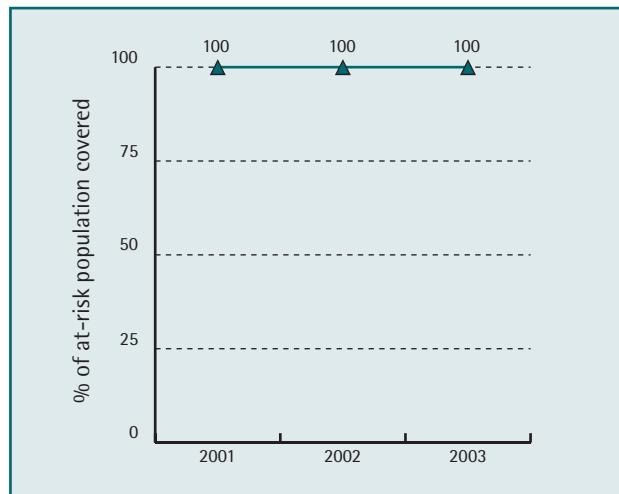


Figure 3.173 MDA reported coverage

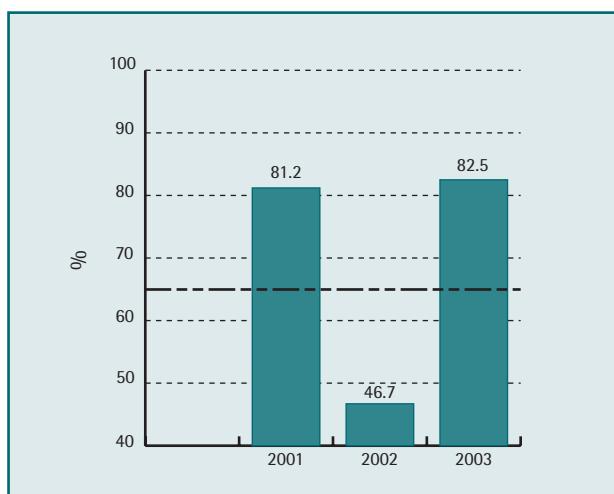
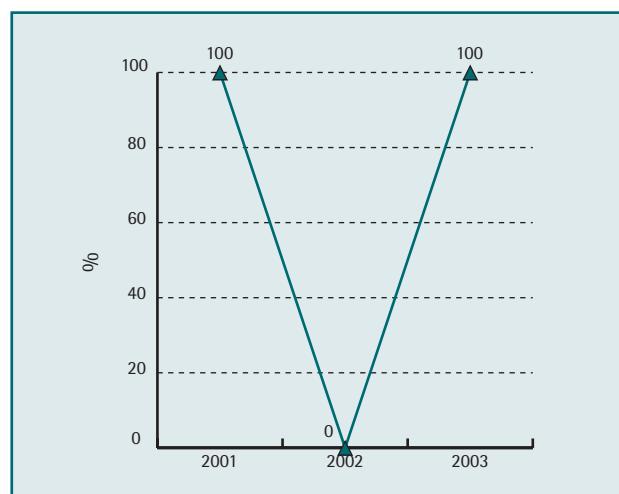


Figure 3.174 IUs with reported coverage >65%



VANUATU

Vanuatu, with a population of 199 800, is considered LF-endemic. There is no history of any MDA campaign. Vanuatu started its first MDA round in 2000 with a coverage of 82.9%; in the second and third rounds in 2001 and 2002, respectively, the reported coverage was 83.8%. The fourth round, in 2003, targeted 186 678 people with a reported coverage of 87%.

Technical support was provided by WHO, with additional support for DEC and ICT cards being provided by JICA, while the Liverpool LF Support Centre supported MDA.

Figure 3.175 LF at-risk population

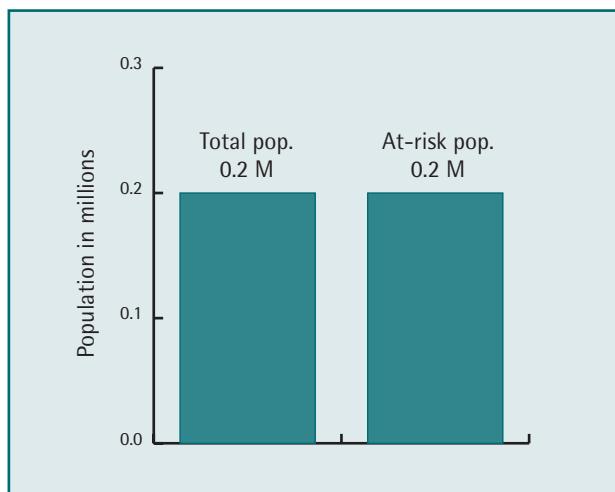


Figure 3.176 Geographical coverage

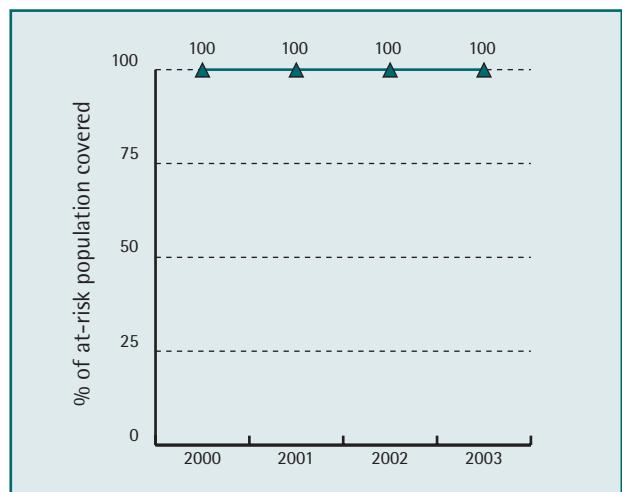


Figure 3.177 MDA reported coverage

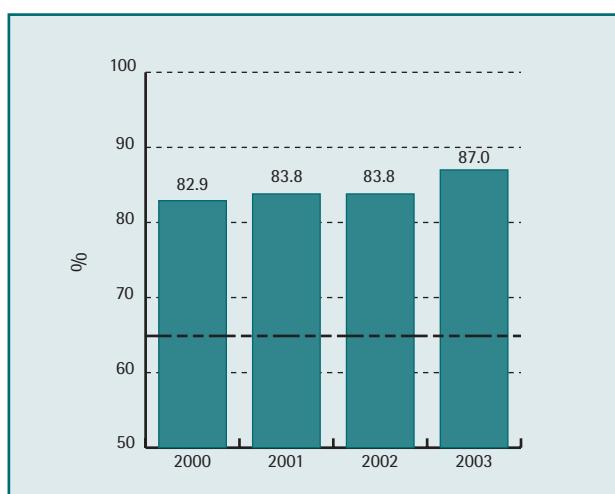
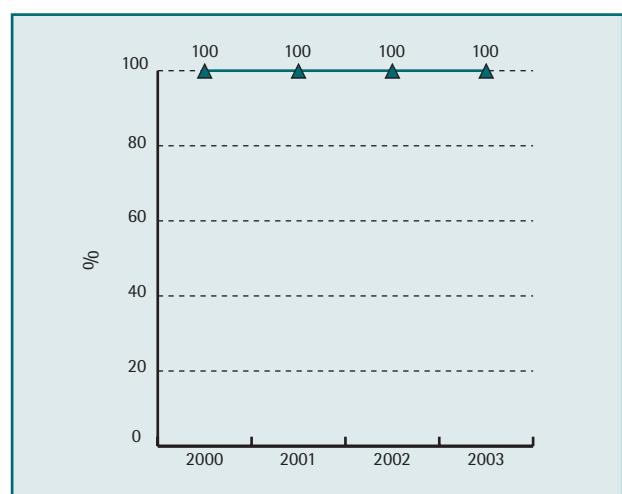


Figure 3.178 IUs with reported coverage >65%



WALLIS AND FUTUNA

Only Wallis Island is LF-endemic. Wallis and Futuna have a long history of vector control and organized annual MDAs using DEC alone from 1978 to 1987. The CFA prevalence before MDA was 1% in Wallis. The first MDA round with the co-administration of DEC plus albendazole started in 2002, with a reported coverage

of 60.2%. In 2003, 14 600 people were targeted with a reported coverage of 63.4%. The distribution strategy chosen was booth distribution through schools, offices, shops and village meeting places. Technical support was provided by WHO and the Louis Malardé Institute.

Figure 3.179 LF at-risk population

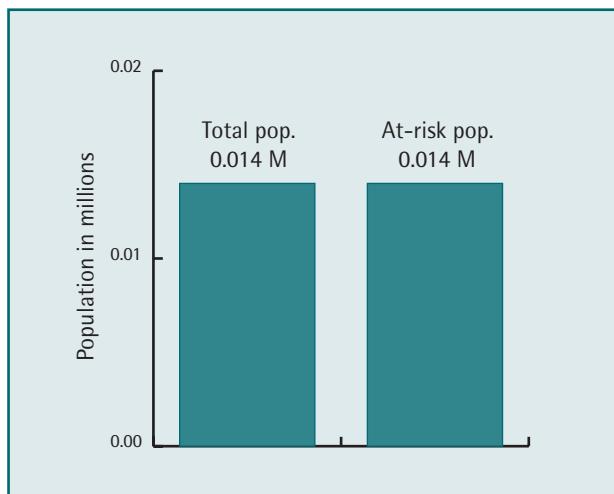


Figure 3.180 Geographical coverage

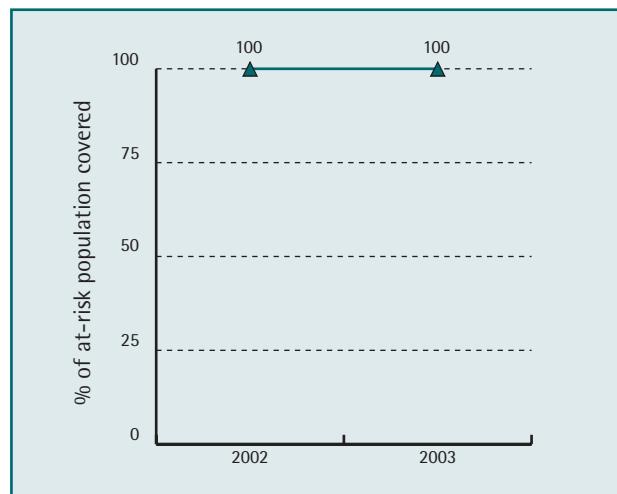


Figure 3.181 MDA reported coverage

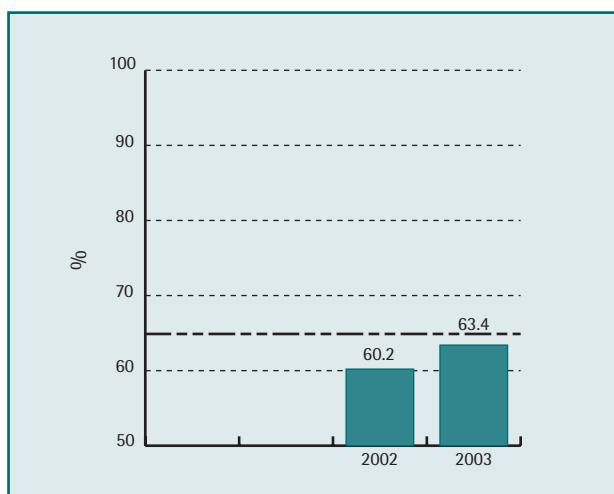
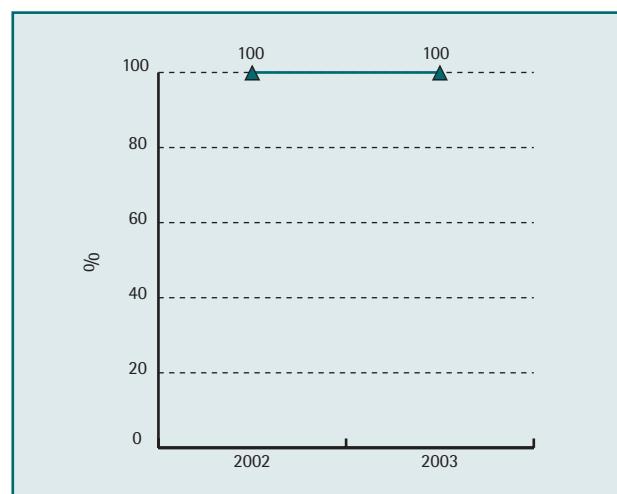


Figure 3.182 IUs with reported coverage >65%



SOUTH ASIA PROGRAMME REVIEW GROUP

(FORMERLY INDIAN SUBCONTINENT PRG)

South Asia PRG consists of five countries — Bangladesh, India, Maldives, Nepal and Sri Lanka — and harbours 60% of the world's LF burden. Both India and Sri Lanka have had filariasis control programmes in place for over 50 years. Transition to an annual, single-dose MDA strategy was relatively easy and put into operation between 1997 and 1998.

Sri Lanka, with its efficient health infrastructure and a formidable 50 000-strong volunteer force, has been able to target its entire endemic population of 9.8 million during the past three years. There was a reported coverage of over 80% in the MDA campaigns of 2002 and 2003. An independent assessment of coverage carried out on 4000 individuals from all eight IUs revealed that 79% of the targeted population received the tablets but that only 71% had taken them. Compliance is thus about 10–15% less than the reported figures.

India has a major problem, with 450 million people at risk. MDA campaigns scaled up to coverage of 59.5 million people in 2002: 23.8 million were given DEC plus albendazole and 35.7 million were given DEC only. India's ongoing research study on the comparative efficacy of DEC plus albendazole versus DEC alone has shown so far that there is no significant difference between the two regimens. However, a final review will determine what strategy India will use in the future. In the meantime, the population under DEC plus albendazole will not increase; scaling up will be effected with DEC alone. Because of financial and other constraints, no scaling up occurred in 2003.

In 2001, Bangladesh began MDA in a district of 800 000 people and has shown a modest scaling up to 4.2 million in 2002 and 6.8 million between 2003 and 2004. The district has a sound primary health care infrastructure which has made it possible to carry out house-to-house treatment and achieve over 80% coverage.

Nepal, after a few teething problems, started its MDA programme in one district with a 500 000 population

and achieved a coverage of 83%. Nepal plans to scale up to 4.2 million in 2004.

In the Maldives, only eight of the 200 islands are LF-endemic and the mf prevalence has been below 1%. As these surveys were carried out in 1995, the ministry of health has planned to carry out another survey of all the endemic islands in 2004 and to implement MDA if mf prevalence is over 1% in any of the islands.

Bangladesh, Nepal and Sri Lanka have attributed their achievement of over 80% coverage to two key factors: a good health infrastructure and vigorous social mobilization. All three countries carried out a comprehensive COMBI programme in the weeks prior to MDA. A great deal of effort was put into the COMBI exercise, including appropriate training and orientation programmes for health staff at all levels and for volunteers. Of course, the COMBI programme has been costly; it has been funded by the Liverpool LF Support Centre, WHO, USAID and others. Sustainability of the programme as MDA is scaled up is bound to be difficult. The country teams have realized that some of the COMBI components have shown very promising results while others are probably not reaching enough people. For example, use of microphones to address the community is ranked as one of the best tools for social mobilization; in contrast, messages on television are probably ineffective. It should therefore be possible to cut costs by retaining only the components that each country feels are worth using. Country teams must be cautioned, however, that reducing COMBI components should only be done in consultation with social scientists.

One of the major constraints to scaling up MDA is inadequate financial resources. In spite of substantial contributions by the various ministries of health, the Liverpool LF Support Centre, WHO, the World Bank, USAID, AusAID and others, countries such as Bangladesh and Nepal are finding it very difficult to expand their programmes. Unless some sustainable solution is found it will be impossible to attain the targets that have been set.

Although much attention has been paid to MDA, the same concern has not been shown to the prevention and control of LF-associated disability. So far, filariasis clinics have been used on an ad hoc basis to treat clinical filariasis and to impart health education on prevention

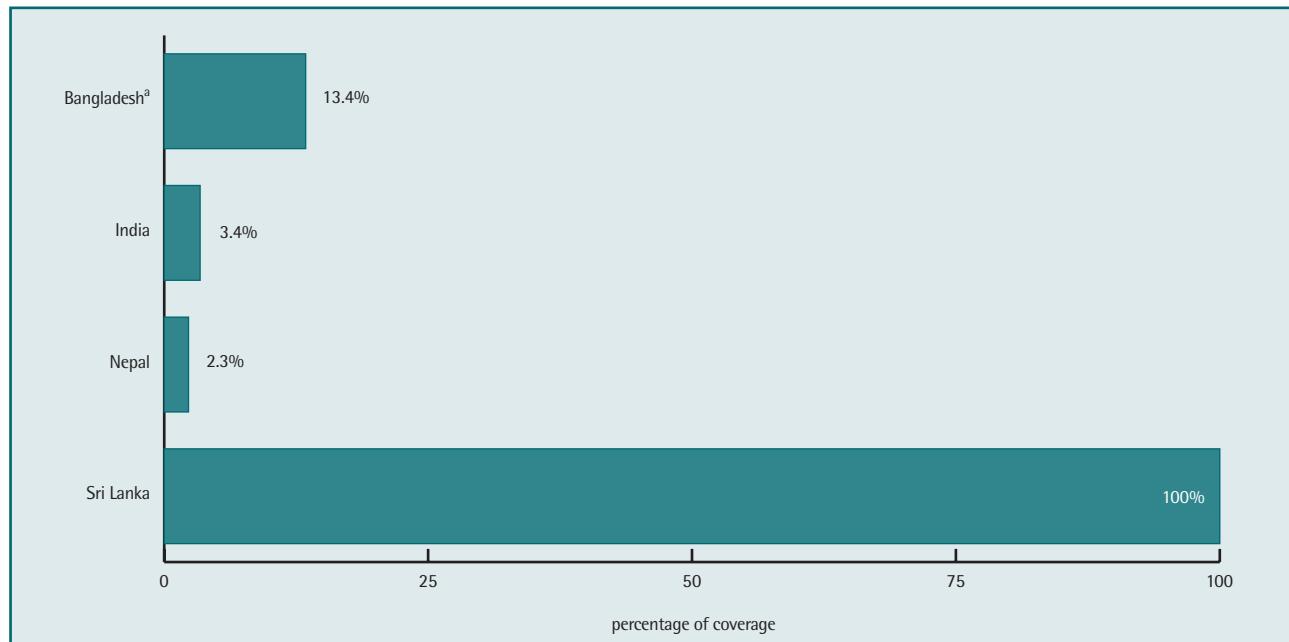
of secondary infection. Training programmes on hydrocelectomy have been held in some countries to deal with this aspect of filarial disability. Bangladesh, through the initiative of its programme manager and with the assistance of the Government of Japan, has set up a Filaria Hospital — probably the only one of its kind in the world. It is an active centre for the treatment of lymphoedema and hydrocele.

WHO/TDR organized a Workshop on Prevention of Disability Associated with Lymphatic Filariasis, held in

Colombo, Sri Lanka, on 18–21 November 2003 for the South Asia and Mekong-Plus countries. Model implementation plans were drawn up by the country teams to set up pilot projects in their respective countries for community home-based health care for LF disability.

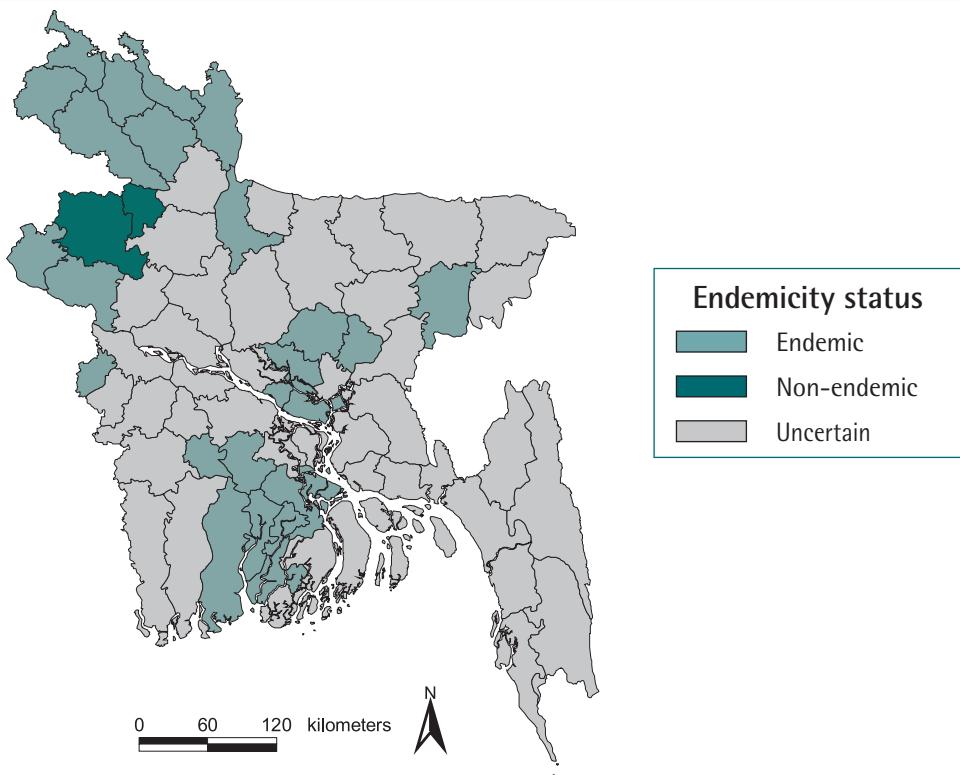
At present, all five endemic countries have started LF elimination activities. In 2003, nearly 32.5 million people were covered by MDA. The geographical coverage of the South Asia PRG can be seen in Figure 3.183 below.

Figure 3.183 South Asia Programme Review Group: geographical coverage^a by country in 2003



^a Geographical coverage = total population in IUs where MDA is taking place x 100/total population of all endemic IUs.

BANGLADESH



The administrative division designated as an IU is the district. The total number of IUs in Bangladesh is 64. The mapping of LF is in progress; 23 of the 25 mapped IUs were endemic with an estimated at-risk population of 49.9 million.

MDA was implemented in 2001 in Panchagar district, covering 896 000 people with albendazole plus DEC, and achieved a coverage of 95.5%. The programme then scaled up and covered 4.9 million people in four districts in 2002, with a coverage of 93.6%. The reported coverage has been validated by independent assessments. For the third round of MDA, in 2003, 6.7 million people were targeted, with a reported coverage of 92.2% (range: 89% to 93.7%).

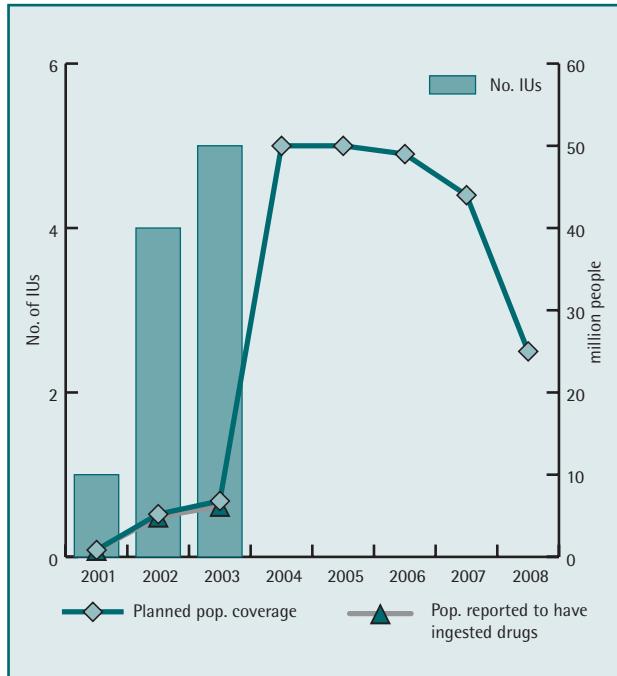
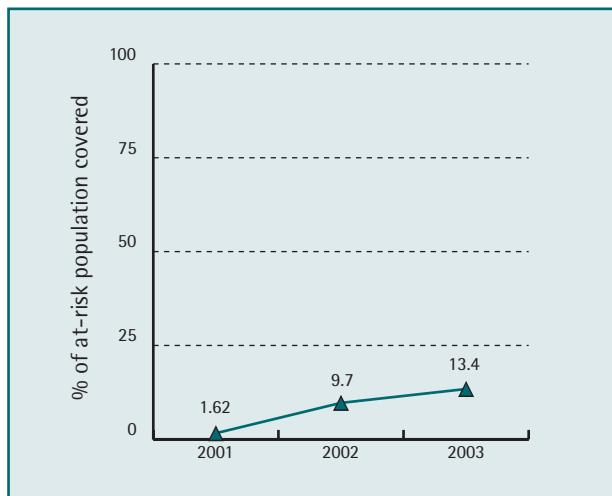
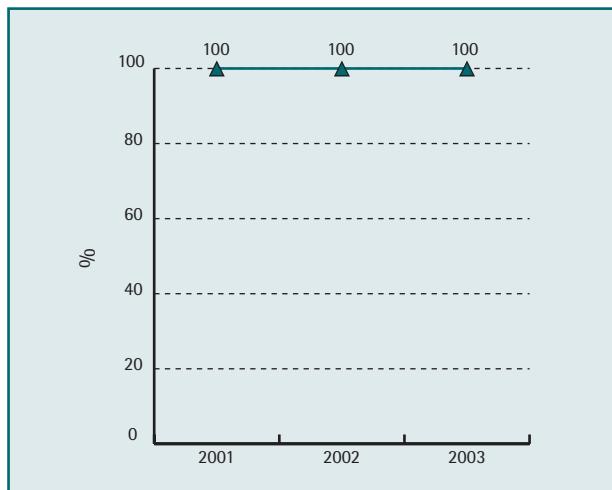
The strategy for MDA is door-to-door drug distribution by health and family planning field staff and volunteers. Drugs are also distributed in schools, mosques, cinemas,

shopping complexes and bus stations, using volunteers, boy scouts and girl guides. These volunteers are coordinated by officials of the local health system. The MDA is conducted over a 10-day period in all districts in October each year; future plans are to reduce the duration by increasing the number of volunteers. Information about the MDA is communicated to the population by an extensive social mobilization programme using films, billboards, leaflets, audio cassettes, posters and banners.

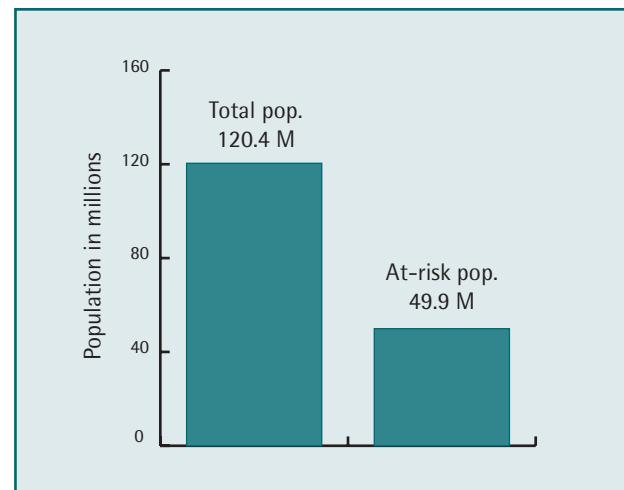
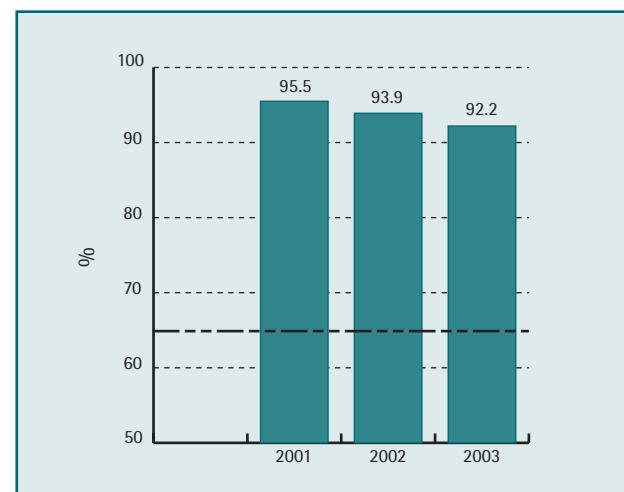
A programme of training in disability prevention and control was launched in Panchagar district in 2001 and was extended to Nilphamari district in 2002: 43 doctors were trained. In addition, 60 doctors were trained in hydrocelectomy in January 2003. A filaria hospital was constructed in Nilphamari district in 2002 by a non-governmental organization with a grant from JICA.

Table 3.29 Goal: to eliminate LF from Bangladesh by 2015

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent and control LF-associated disability 	<ul style="list-style-type: none"> Coverage of the entire at-risk population by MDA for at least 5 years Implementation of simple hygiene measures through a community home-based care approach Promoting increased access to surgery for sufferers with one or more urogenital manifestations

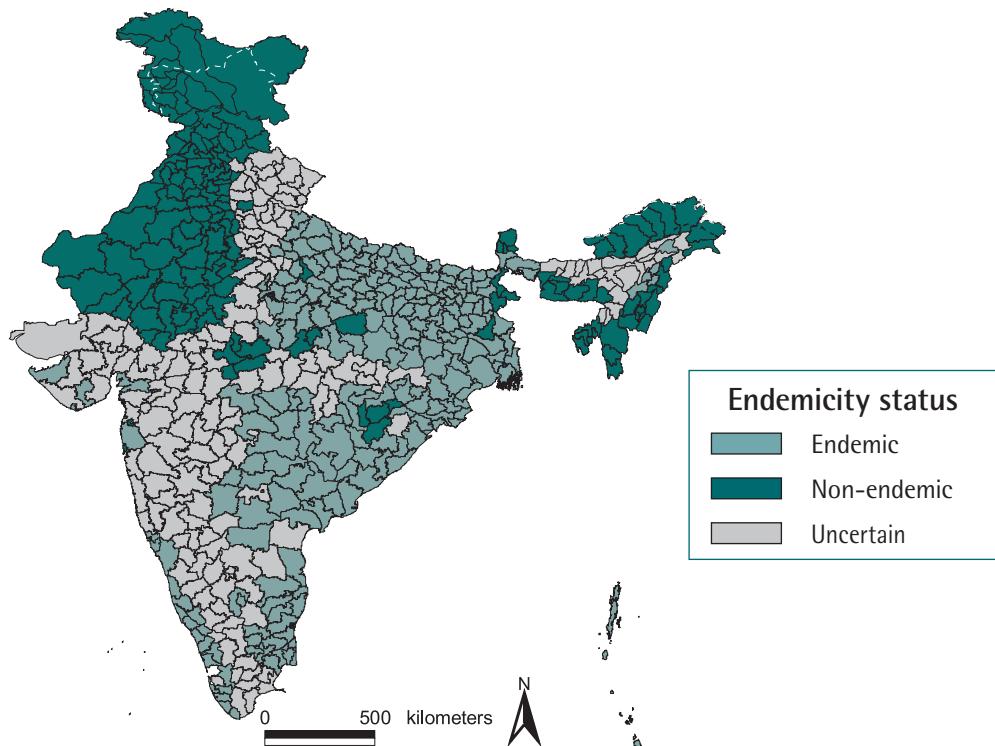
Figure 3.184 Outcomes and planning 2001–2008**Figure 3.186 Geographical coverage****Figure 3.188 IUs with reported coverage >65%**

The Ministry of Health initiated the LF elimination programme in 2001 with assistance from AusAID and WHO and scaled up to cover four districts in 2002 with funding assistance from the Liverpool LF Support Centre and WHO, plus albendazole donated by GSK. The supplies of DEC were provided by WHO through a grant from the Bill and Melinda Gates Foundation.

Figure 3.185 LF at-risk population**Figure 3.187 MDA reported coverage****Figure 3.189 Updated mapping status**

Total: 64 IUs		
Uncertain	Non-endemic	Endemic
41 IUs	-	23 IUs

INDIA



LF represents a major vector-borne public health problem to India's population of approximately 1049 million: more than 454 million are now considered to be at risk. The disease has been known in the country for millennia, the earliest-known description of symptoms dating back to 600 BC. The largest at-risk population is situated in Uttar Pradesh, followed by Bihar and Andhra Pradesh. The number of LF clinical manifestations is estimated at more than 20.8 million cases.

The administrative division designated as an IU is the district. The mapping of LF is based on extensive historical data which showed that 261 out of 616 districts are considered LF-endemic.

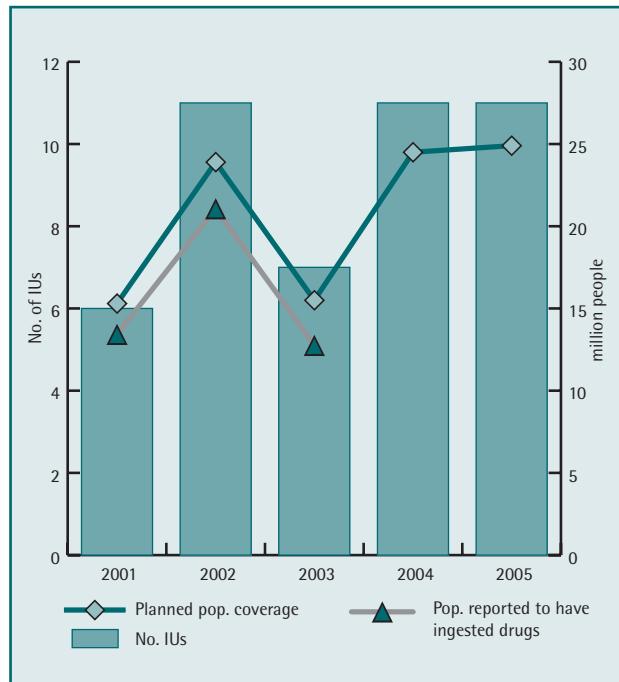
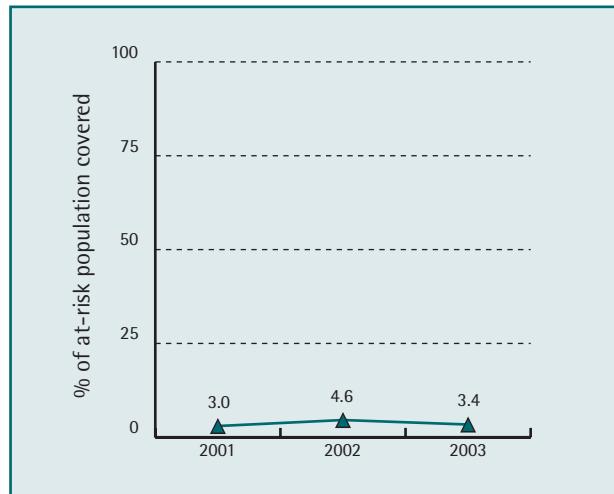
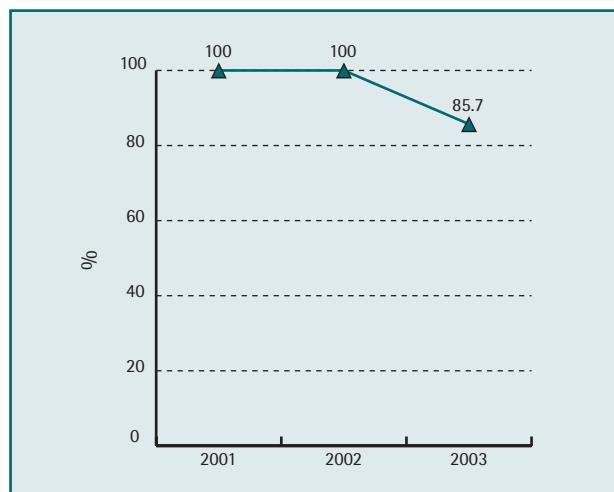
The National Filariasis Control Programme was launched in 1955 to determine the degree of endemicity, to carry out pilot studies and to train the personnel required for

the programme. Initially, control measures for filariasis were restricted to urban areas. In 1997, the National Filariasis Control Programme piloted a revised strategy based on a single annual dose of DEC that targeted an at-risk population of 40 million in 13 IUs. The first round of MDA using albendazole plus DEC began in 2001 in nine IUs (six in Tamil Nadu, two in Orissa and one in Kerala). In 2002, 23.8 million in 11 IUs (six in Tamil Nadu, four in Orissa and one in Kerala) were targeted, with a reported coverage of 88.2% (range 67.3% to 97.3%). In 2003, seven IUs and 15.5 million people were targeted with drug co-administration, with a reported coverage of 82.5% (54.8% to 94.3%). In addition, 35.7 and 52 million people were covered with DEC alone in 2002 and 2003, respectively.

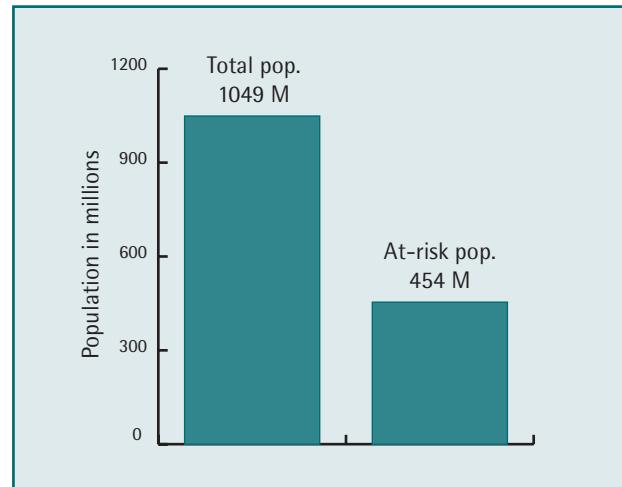
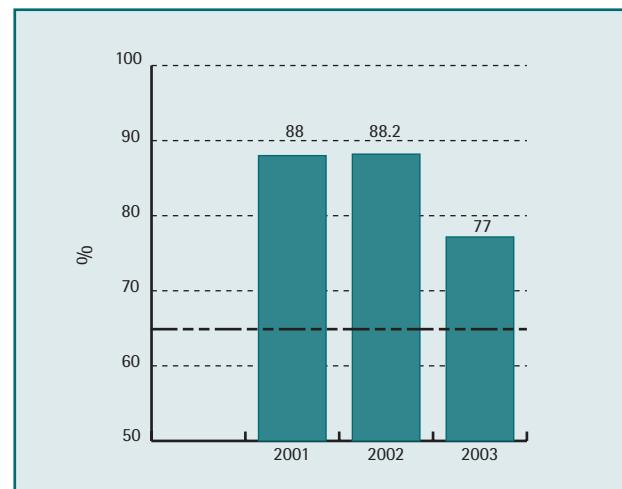
In 2003, a total of about 95 500 drug distributors were trained and about 1700 people participated in training in disability prevention and control.

Table 3.30 Goal: to eliminate LF from India by 2015

Objectives	Strategies
<ul style="list-style-type: none"> To interrupt transmission of LF To prevent LF-associated disability 	<ul style="list-style-type: none"> MDA with DEC alone or co-administration of DEC plus albendazole once a year for a minimum of six years Foot hygiene through community home-based care by the sufferers or their relatives in accordance with WHO guidelines

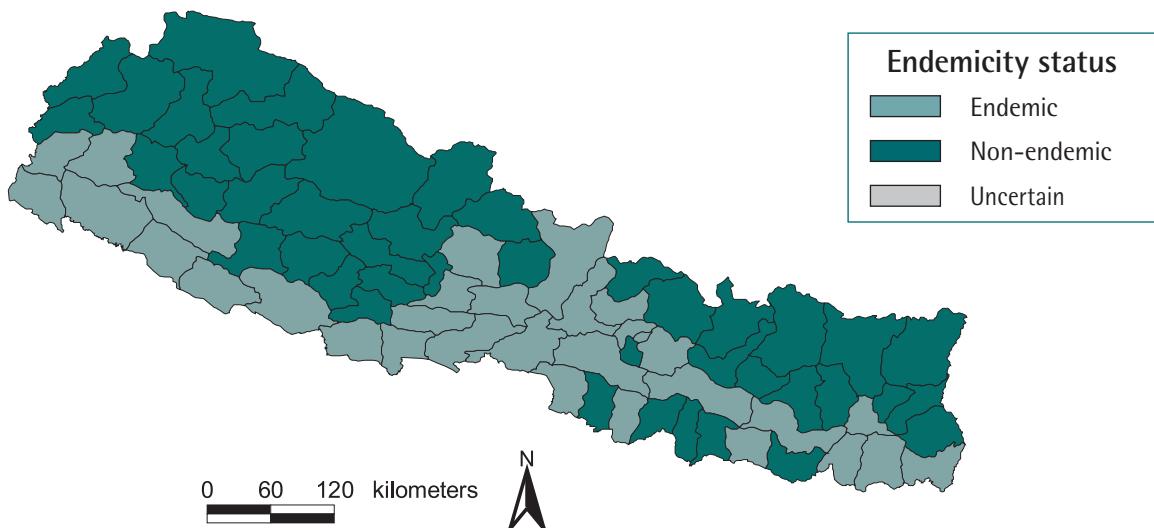
Figure 3.190 Outcomes and planning 2001-2005**Figure 3.192 Geographical coverage****Figure 3.194 IUs with reported coverage >65%**

The LF Elimination Programme is implemented by the Ministry of Health and Family Welfare. WHO provided financial support for social mobilization as well as technical support. GSK donates albendazole to cover the at-risk population. Future partnership initiatives envisaged are with nongovernmental organizations and others in social mobilization, disability management and capacity-building.

Figure 3.191 LF at-risk population**Figure 3.193 MDA reported coverage****Figure 3.195 Updated mapping status**

Total: 616 IUs		
Uncertain	Non-endemic	Endemic
44 IUs	311 IUs	261 IUs

NEPAL



LF presents a health problem for the total population of 25 million, of whom more than 22 million people are considered to be at risk. No national study of the prevalence and distribution of LF has been previously attempted, apart from a limited epidemiological survey in semi-urban areas of the central regions of Nepal. An evaluation of clinical manifestations of LF in sentinel sites shows a hydrocele and lymphoedema prevalence of 11% and 9%, respectively.

The administrative division designated as an IU is the district. Mapping of LF was completed only in 43 of the total of 75 districts. Of 37 districts, it was revealed that 33 were LF-endemic. The ICT estimated prevalence in endemic areas ranges from 1% to 39.8%. The remaining 32 districts still need to be epidemiologically mapped.

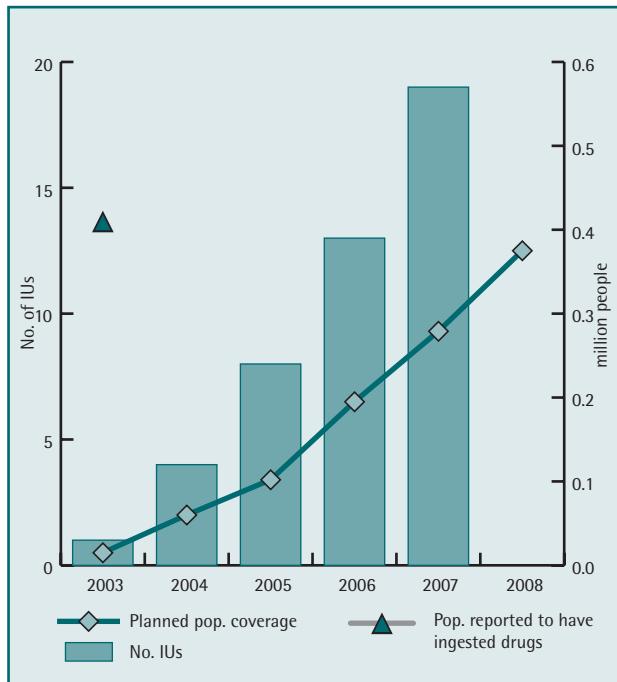
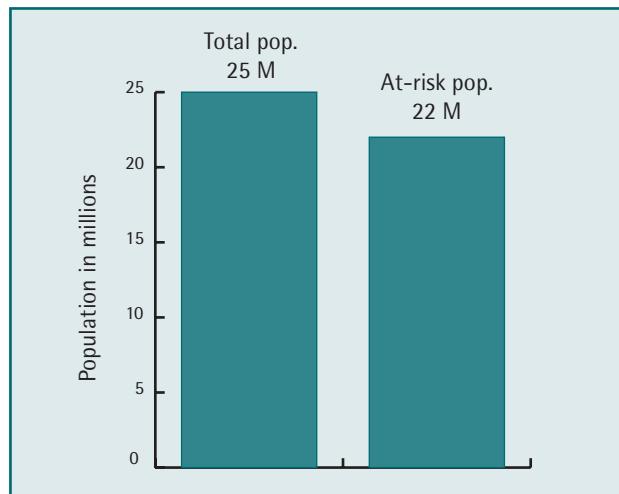
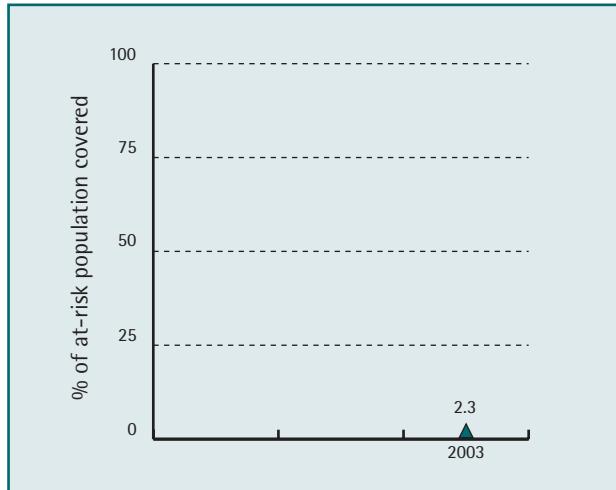
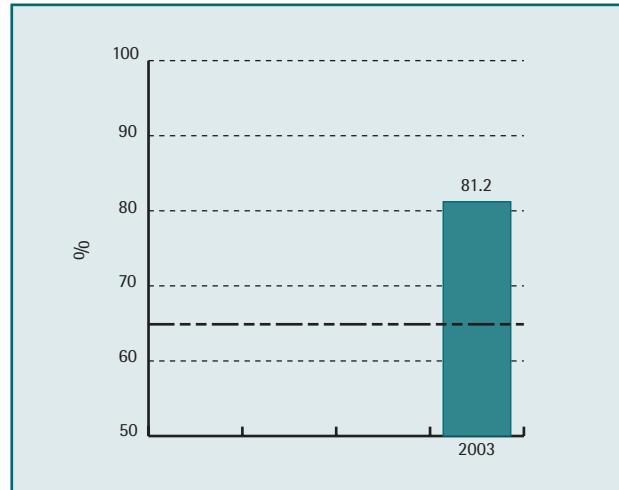
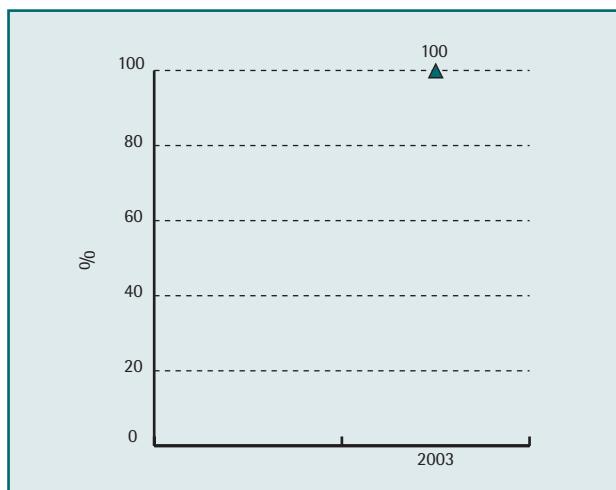
The first round of MDA using albendazole plus DEC began in 2003 in one IU, Parsa district: 508 534 people were targeted with a reported coverage of 81.2%.

In 2003, 3200 drug distributors were trained and 160 people participated in training in disability alleviation.

The LF elimination programme is implemented by the ministry of health. WHO provided financial support to cover the operational costs in the district of Parsa only. No financial and technical support was provided for other districts. GSK donates albendazole to cover the full at-risk population. Future partnership initiatives are yet to be identified, such as with USAID.

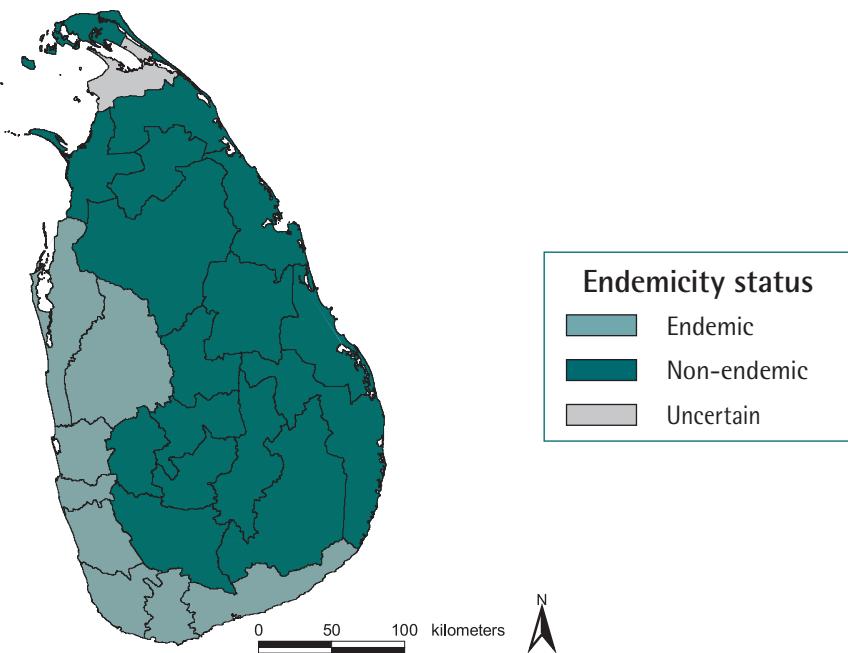
Table 3.31 Goal: to eliminate LF from Nepal by 2008

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt LF transmission • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Treating the entire at-risk population with a single administration of two drugs – albendazole plus DEC – given together once a year for five years • New, simple techniques that are easily carried out at home: regular washing with soap and water, regular exercising of the limbs, and other simple activities

Figure 3.196 Outcomes and planning 2003–2008**Figure 3.197 LF at-risk population****Figure 3.198 Geographical coverage****Figure 3.199 MDA reported coverage****Figure 3.200 IUs with reported coverage >65%****Figure 3.201 Updated mapping status**

Total: 75 IUs		
Uncertain	Non-endemic	Endemic
32 IUs	10 IUs	33 IUs

SRI LANKA



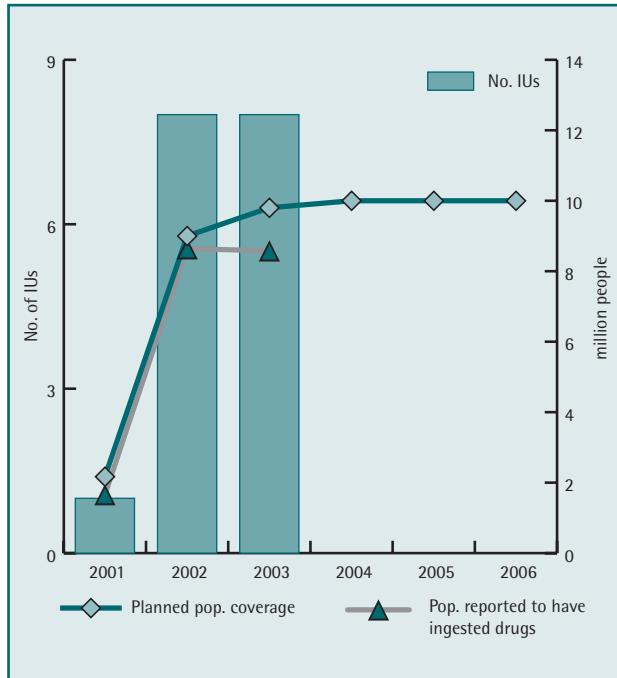
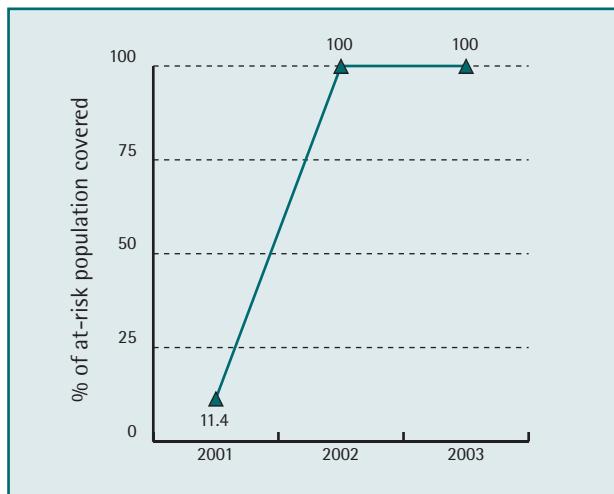
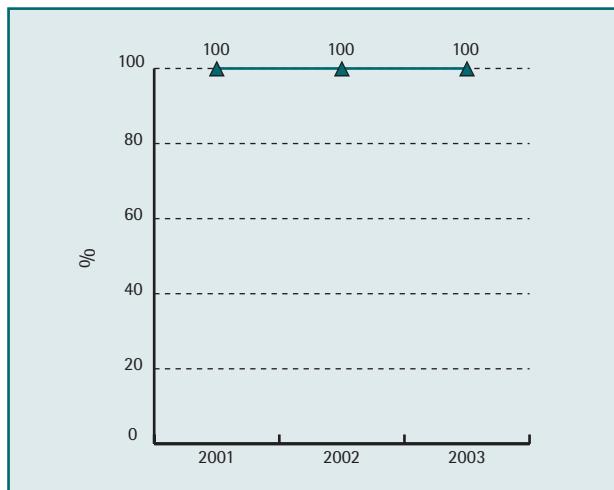
LF is a public health problem for Sri Lanka's population of more than 18 million. More than 55% of the population is estimated to be at risk. Although there has been a significant reduction in the disease since the initiation of the control programme by the anti-filariasis campaign in 1947, it has remained static at a lower level of transmission. There are no recent data on clinical manifestations evaluated in all the IUs (sentinel sites). The main activities of the campaign are annual, single-dose MDA using DEC plus albendazole, detection of microfilaraemia in the sentinel sites and selective treatment of mf positives with multi-dose DEC, management of lymphoedema patients to prevent disability, entomological investigation for transmission in the sentinel sites, vector control and health education.

The administrative division designated as an IU is the district. The mapping of LF showed that out of 25 districts, eight in the western, southern and north-western provinces, with an estimated 9.8 million population, are considered at risk. The national PELF began in 1999 with drug distribution of a twice-yearly single dose of DEC alone, covering the total population of the eight IUs.

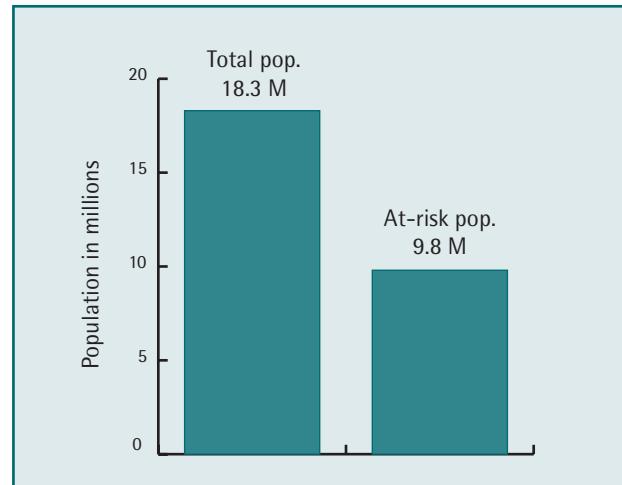
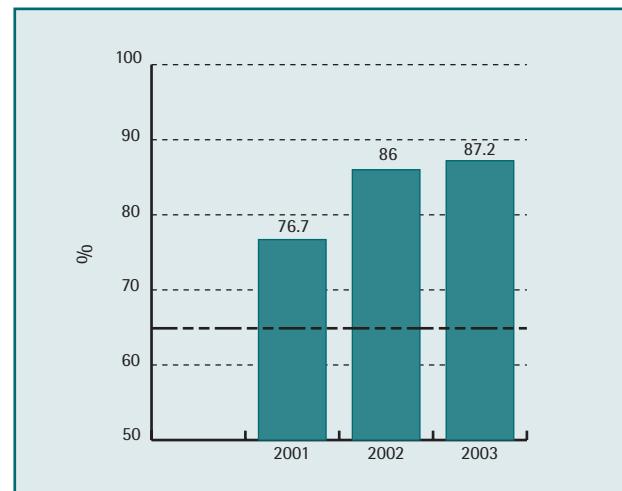
In 2001, the first round of MDA with the co-administration of DEC plus albendazole was started in the Colombo district with a population of 2.1 million. In 2002, all eight IUs were targeted with a reported coverage of 85.99% (range 67% to 92.4%). In the third round, in 2003, 9.8 million were targeted with a reported coverage of 87.2% (range: 80.4% to 108%). The door-to-door drug distribution strategy was used. In addition, special population groups were covered using a booth approach.

Table 3.32 Goal: to eliminate LF from Sri Lanka by 2007

Objectives	Strategies
<ul style="list-style-type: none"> • To interrupt LF transmission • To prevent LF-associated disability 	<ul style="list-style-type: none"> • Annual single-dose MDA of the endemic population using DEC plus albendazole • Selective treatment of microfilaria positives with multi-dose DEC • Management of lymphoedema sufferers to prevent disability • Introducing the community home-based disability management programme in the LF-endemic areas in a phased manner • Strengthening the available facilities for surgical treatment of hydrocele

Figure 3.202 Outcomes and planning 2001–2006**Figure 3.204 Geographical coverage****Figure 3.206 IUs with reported coverage >65%**

Technical and financial support was provided by WHO. The Liverpool LF Support Centre and GSK also gave support for the MDA. Future partnership initiatives envisaged are with Emory LF Support Center for MDA coverage validation and strengthening of the vector indicators.

Figure 3.203 LF at-risk population**Figure 3.205 MDA reported coverage****Figure 3.207 Updated mapping status**

Total: 25 IUs		
Uncertain	Non-endemic	Endemic
8 IUs	9 IUs	8 IUs

CHAPTER 4

FINANCIAL ASPECTS

FINANCIAL RESOURCES AND EXPENDITURES

WHO's official financial budgeting and reporting is done on a biennial basis. During the biennium 2002–2003, specified contributions amounting to US\$ 5 942 816 were received by WHO for GPELF. The total carry-over from 2001 was US\$ 2 403 824. Funds in the amount of US\$ 4 014 052 were obligated from the grant from the Bill and Melinda Gates Foundation. A total of US\$ 1 019 180 was obligated from the grant made by the Department for International Development of the United Kingdom. Funds in the amount of US\$ 70 034 were obligated from the Australian Agency for International Development.

A total of US\$ 335 033 was obligated from the grant from the Arab Fund for Economic and Social Development. Funds to the amount of US\$ 90 424 were obligated from GSK's contribution of US\$ 176 610 during the biennium of 2002–2003. Merck & Co., Inc. contributed a total of US\$ 122 000 of which US\$ 110 621 was obligated.

All figures are provisional and WHO will release audited financial figures for the 2002–2003 biennium.

The estimated cost to protect an at-risk individual varies between US\$ 0.07 and US\$ 0.15. The estimated cost of GPELF is US\$ 1 billion over the next 15 years. For the biennium 2004–2005 an estimated US\$ 70 million is required to protect 350 million people by the end of 2005.

WAYS AND MEANS OF ACHIEVING TARGETS

GAELF must continue to generate political commitment at national, regional and local levels and must strengthen awareness of the importance of supporting the vital efforts being made to cover all at-risk populations in endemic countries. To accomplish this, national and local authorities in the endemic countries must assume direct responsibility for their own LF elimination programmes.

GPELF benefits from the support of the partners of GAELF. GSK has made a commitment to make albendazole available free of charge until LF is eliminated. Merck & Co.,

Inc. expanded the MDP for onchocerciasis to cover the countries co-endemic with LF and targeted for MDA in all of the African countries where the diseases coexist. Partners from the public sector (such as the Department for International Development of the United Kingdom and the Ministry of Health and Social Welfare of Japan), from the private sector (such as the Bill and Melinda Gates Foundation), and from academia (such as the Liverpool LF Support Centre) have provided funds to initiate and continue both global and national programmes.

Members of GAELF will seek the necessary additional funding from bilateral agencies and private sources even while making special efforts to access available International Financial Institutions/World Bank funds that could be quickly applied to GPELF activities.

DEPARTMENT FOR INTERNATIONAL DEVELOPMENT OF THE UNITED KINGDOM

DFID is responsible for promoting development and reducing poverty worldwide. The current goal of DFID is to assist the effort to reduce by half the proportion of people living in extreme poverty by 2015. Parallel objectives are providing basic health care and access to primary education for all by the same date. DFID seeks to work in partnership with governments, business, civil society and the research community committed to these targets. It also works with multilateral institutions such as the World Bank, United Nations specialized agencies including WHO, and the European Community.

In August 1999, DFID made its first contribution to the WHO PELF and has continued to be a generous donor to the programme since that date. In 2003, as a result of funding from DFID, WHO accomplished the following:

- fostering of additional private-public and country partnerships;
- formulation of technical and policy guidelines and assessment of national programmes through TAG-LF and the RPRGs;
- TAG-LF and RPRG meetings;
- technical and financial support to regions and countries;

- initiation of action plans for the elimination of LF in endemic countries;
- production of a training module on home-based prevention of disability;
- support for the implementation of national LF elimination programmes.

BILL AND MELINDA GATES FOUNDATION

In November 2000, the Bill and Melinda Gates Foundation made a generous contribution of US\$ 20 million towards the elimination of LF. Funds are held pending disbursement from a trust fund through the World Bank. The organizations that benefited from the grant are: the Atlanta Group (the Emory LF Support Center, CDC and the Carter Center), the Liverpool LF Support Centre, the nongovernmental development organizations group led by Interchurch Medical Assistance, and WHO. Collectively, this group formed the Gates Grant Review Committee and agreed to the following strategic outline for the application of the grant:

- to develop demonstration projects that show interruption of LF transmission; to move towards national-level MDA coverage; to develop, implement, and evaluate disability prevention strategies; and to evaluate cost-effectiveness of national elimination programmes;
- to ensure national momentum by providing support to countries for mapping and scaling up the implementation of national elimination programmes;

- to ensure global momentum through a development strategy covering regionalization, an increase in the number of partners, and advocacy to bring about additional funding and support;
- to evaluate and monitor demonstration projects, national elimination programmes and partnership development.

AUSTRALIAN AGENCY FOR INTERNATIONAL DEVELOPMENT

The Australian Agency for International Development (AusAID) manages the Australian Government's official overseas aid programme. The objective of the programme is to advance Australia's national interest by helping developing countries to reduce poverty and achieve sustainable development.

In 2003, as a result of funding from AusAID for GPELF, WHO accomplished the following:

- purchased 24.2 million DEC tablets of 100 mg for Bangladesh;
- partnered James Cook University, Australia, to develop a rapid diagnostic kit;
- conducted monitoring and evaluation in the Philippines;
- participated in the Mekong-Plus PRG to offer technical assistance and conduct a mapping workshop;
- conducted mapping of LF in Cambodia.

CHAPTER 5

THE GLOBAL INITIATIVE – THE WAY FORWARD

By the end of 2003, 70.2 million people were reported to have ingested a two-drug combination of DEC plus albendazole or ivermectin plus albendazole, covering a total population of 98 million in the IUs where MDA was implemented (see Figure 5.1). Though this was a 36%

increase over the achievement of 60 million individuals covered in 2002, it is still only 6% of the global at-risk population. For an overview of the number of people covered by MDA since 1999, see Figure 5.2

Figure 5.1 Global population covered by MDA, 2000–2003

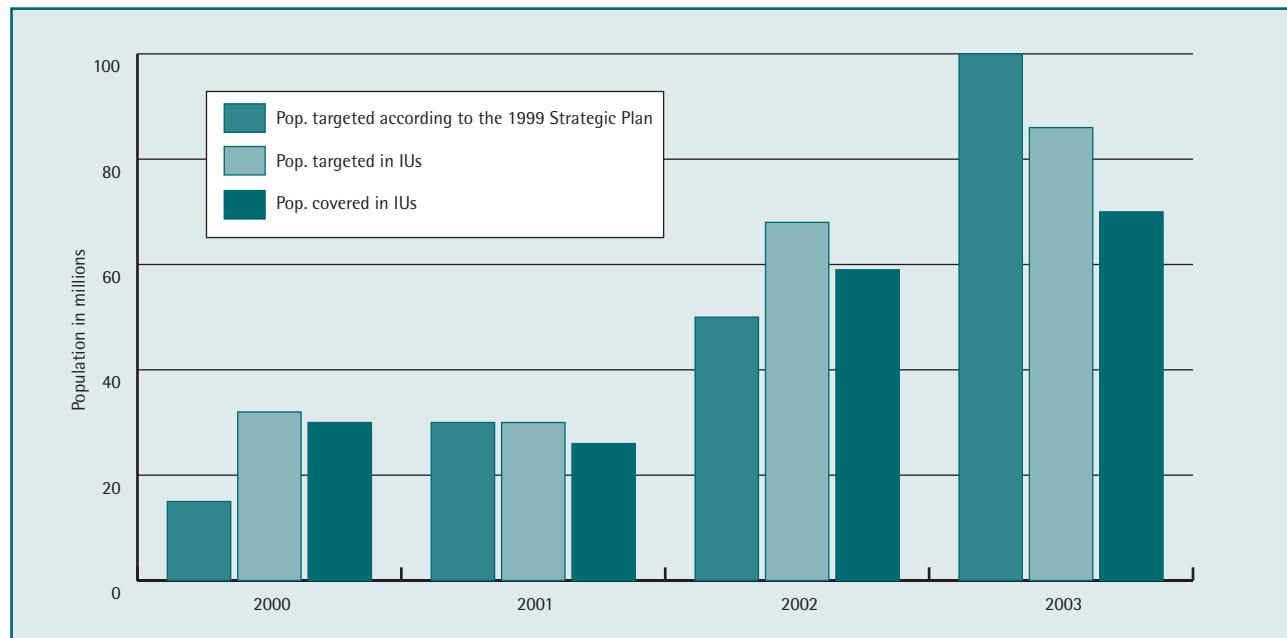
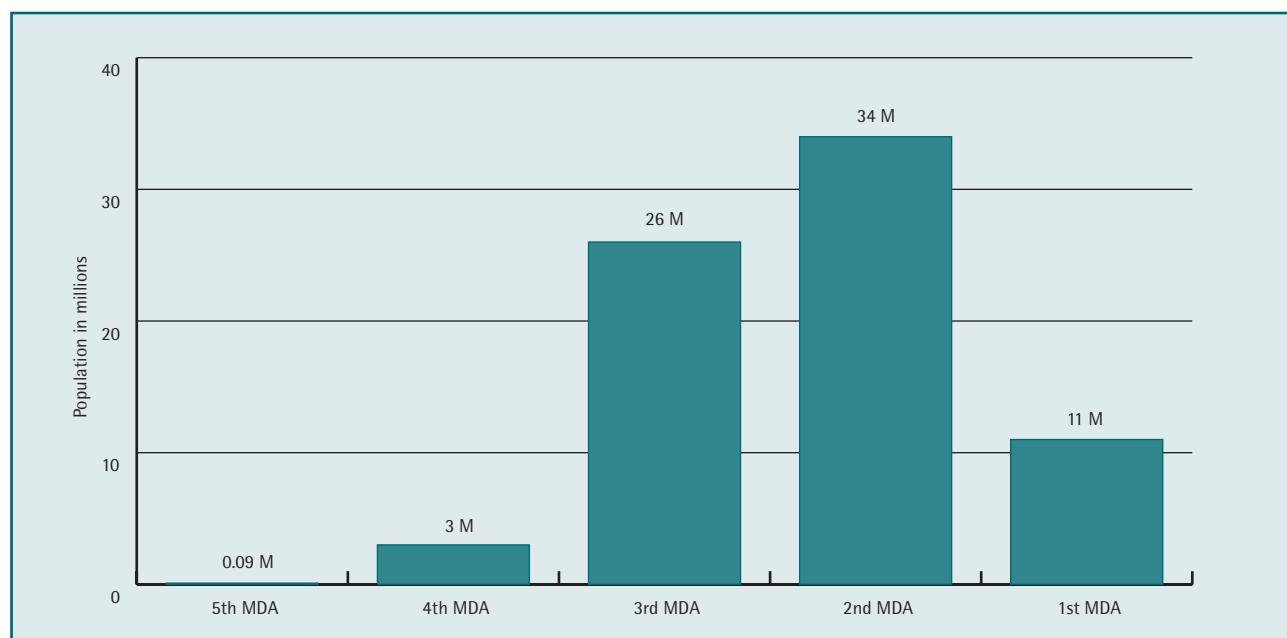


Figure 5.2 Number of people covered by MDA since 1999



Moreover, most of the populations covered belong to the lower-middle and middle income group countries, while the lowest proportion covered is in the least developed

countries where the highest proportion of the population is at risk of LF; these are also the most difficult populations to reach (see Table 5.1).

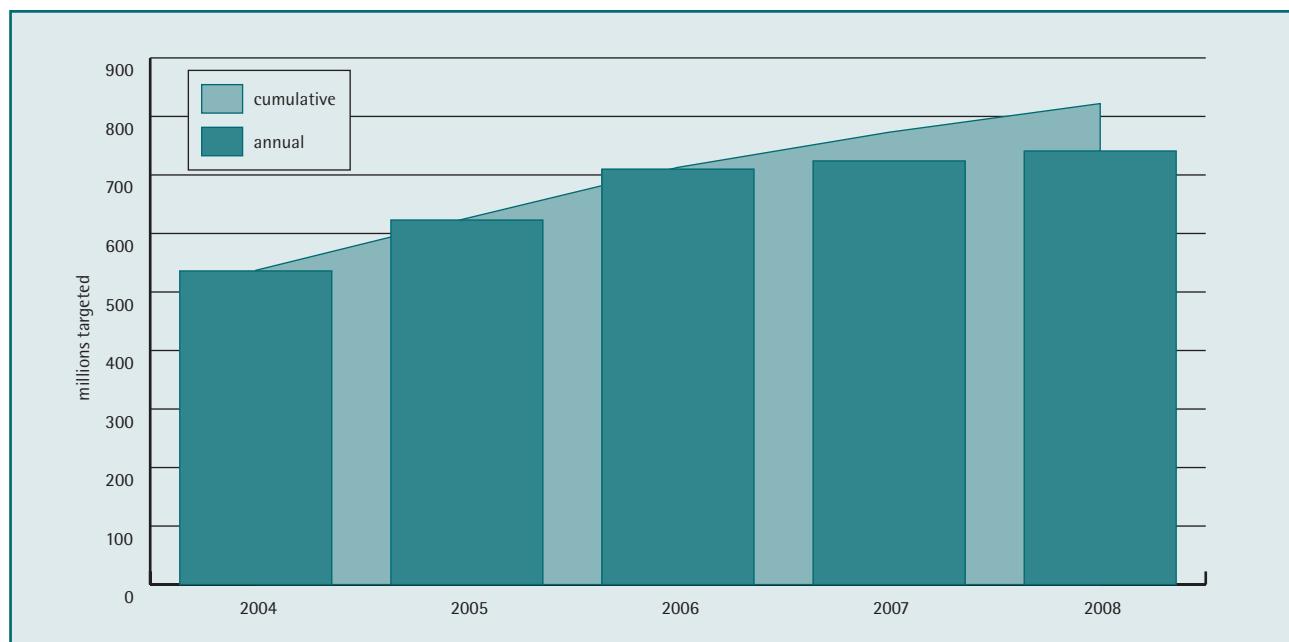
Table 5.1 Distribution of LF at-risk populations and countries by income group and regional PRG

Income group of countries	Total no. of countries	Total population (million)	LF Programme Review Group						Total no. of countries ^a	At-risk population	
			African	American	Eastern Mediterranean	Mekong-plus	South Asia	PacCARE		No. (million)	% of total
Least developed	49	688	28	1	2	3	3	5	42	410	60
Other low income	22	1776	7	0	0	3	1	1	12	794	45
Middle income	81	2578	3	6	1	4	1	6	21	49	2
High income	52	642				2		2	4	0.460	< 0.01

^a Cook Islands, Niue, Réunion and Wallis and Futuna, with a total population of 35 000, are not included in the table.

While countries with higher incomes are able to contribute internal resources towards their efforts to eliminate the public health problem of LF, many of the programmes in the least developed countries or lower-middle income countries are dependent on external funds. In the latter case, this leads to a vicious cycle where the economic

impact of LF has a negative impact on efforts to alleviate poverty and impedes the achievement of the Millennium Development Goals. To correct such an imbalance, greater external funding is required to support health programmes such as the elimination of LF and others that affect the poor and deprived sections of societies.

Figure 5.3 Number of people planned to be covered by MDA from 2004 to 2008^a

^a The scaling up figures are preliminary and are likely to increase after data from remaining countries are received.

The question of how the existing resources are utilized to make the most impact is a critical one. At present, all the countries that have initiated MDA have been able to cover only a fraction of their at-risk population, except those countries where the at-risk population is small. It

is therefore prudent that the countries where MDA has been initiated should scale up quickly in order to cover all the at-risk population, at the same time ensuring high drug coverage. New countries should only be added once nationwide mapping has clearly identified the extent of

the problem, an overall comprehensive national plan has been made, and resources – or pledges of support – are available through innovative national partnerships.

A new public health vision should lead us to consider LF MDA campaigns as routine interventions instead of being perceived as an additional burden for the district medical teams.

New public health strategies and tools now make it possible to attack several diseases through periodic (annual or biannual) mass treatments of the at-risk and/or infected populations. This is the case for control of LF, schistosomiasis, intestinal parasites, onchocerciasis and trachoma. These diseases often occur in different combinations in large populations. Considering mass treatment as a routine part of health service delivery is a necessary new step that needs to be taken. New approaches to create a common platform for delivering

these interventions are very much required, from the technical as well as the political point of view. LF can play a critical role in defining and initiating the implementation of such interventions.

Today, it will be much easier to obtain commitment at international and national levels to tackle the different combinations of these diseases than to try to deal with a plethora of global disease-specific initiatives.

While maintaining a well-defined identity of individual initiatives, at the same time a new momentum clearly needs to be generated to fight several of the so-called "neglected diseases" that are very closely linked to the perpetuation of poverty. The poorest of the poor have limited access to health-care services and live in areas with very weak health systems; for them, new ways of providing preventive and curative interventions are very much needed.

CHAPTER 6

FURTHER DOCUMENTATION

Lymphatic filariasis elimination – the story of Egypt
(WHO/CDS/CPE/2003.1)

Global defence against the infectious disease threat
(WHO/CDS/2003.15)

Four-part training package on community home-based prevention of disability due to lymphatic filariasis
(WHO/CDS/CPE/CEE/2003.35, parts 1–4):

- *Training module on community home-based prevention of disability due to lymphatic filariasis, Part 1 Learner's guide*
- *Training module on community home-based prevention of disability due to lymphatic filariasis, Part 2 Tutor's guide*
- *Flipchart on community home-based prevention of disability due to lymphatic filariasis, Part 3*
- *Poster on community home-based prevention of disability due to lymphatic filariasis, Part 4*

Report of the Fourth Meeting of the Technical Advisory Group on the Global Elimination of Lymphatic Filariasis
(CDC/CPE/CEE/2003.39). Restricted distribution.

The elimination of lymphatic filariasis – an interactive guide for programme managers (CD-ROM produced in collaboration with the Wellcome Trust)

Weekly Epidemiological Record, 2003, 78(20): 171–179

Weekly Epidemiological Record, 2003, 78(36): 313–320

ANNEXES

ANNEX 1: REPORTS OF MAJOR INTERNATIONAL SUPPORTS AND PARTNERS

THE ATLANTA GROUP

The Atlanta Group consists of the Emory LF Support Center, the Carter Center and CDC. Its principal mission is to ensure the success and to document the impact of GPELF by providing necessary expertise, technical tools and support for appropriate and cost-effective programming, including the following:

- programme implementation in selected "model" or "demonstration" countries;
- programme monitoring and evaluation strategies for all endemic countries;
- programme impact assessment (health, social and economic) throughout GPELF.

Programme implementation in selected countries

The Atlanta Group supports "model programme" activities in the Dominican Republic, Guyana and Nigeria (two states). In addition, CDC supports the Government of American Samoa in its LF elimination efforts; it also supports both programmatic and implementation research activities in collaboration with the Haiti Ministry of Health and the University of Notre Dame.

The **Dominican Republic** employs the strategy of MDA with albendazole and DEC to eliminate LF. At the same time, it is developing a national programme of LF disability treatment and prevention for both lymphoedema and hydrocele. The national programme is closely integrated with other existing public health activities such as leprosy control, primary health care and child health care, including de-worming activities. Ongoing efforts to develop a quantifiable method to document the social and economic impact of the programme should be completed in 2004.

During 2003, the second MDA targeted all persons (330 000) in the Southwest focus, more than twice the number targeted in 2002. Reported coverage was 85%, despite a hurricane, large-scale devaluation of the peso and workers' salaries, civil unrest, and an unexpected change in programme leadership. Disability control expanded throughout the Southwest region, with training in lymphoedema self-management for 561 persons and hydrocele surgery for 47 men. Plans for 2004

include completion of mapping, implementation of the third MDA in the Southwest focus and the first MDA in urban areas, and mid-term impact assessment in Southwest sentinel sites.

Guyana has opted to base its LF elimination programme on the use of DEC-fortified salt, a decision unique among the 44 countries currently undertaking such programmes, and therefore making Guyana a model for others to learn from.

DEC-fortified salt was launched in July 2003, after more than two years of preparation. The social mobilization effort leading up to the launch consisted of the development of a logo, a jingle, posters and media advertisements, as well as meetings with shopkeepers, health workers and community leaders. More than 200 tons of DEC-fortified salt were imported in 2003 to a wide distribution area; consumers were protected from price increases as the programme subsidized the costs of packaging. Household consumption will be measured in 2004. The programme continued to build strong partnerships with the salt producers and importers to improve the availability and quality of DEC-fortified salt.

Nigeria's model programme activities take place in Plateau and Nasawara States as a collaborative effort between the Nigerian Ministry of Health, the state ministries of health and the Carter Center. The programme's goal is to interrupt LF transmission through annual MDAs using albendazole and ivermectin, but to do so through cost-effective integration with onchocerciasis, schistosomiasis and intestinal helminth programme activities. Administrative and drug delivery resources have been shared between the LF and onchocerciasis programmes, helping to reduce costs for both. The schistosomiasis programme has grown in parallel with the LF programme and treated approximately 190 000 people in 2003.

In 2003 the LF MDA reached 3.1 million people in 29 of the 30 endemic areas in the two states; it could not be implemented in the remaining area because of civil unrest. In late 2003, MDA campaigns began in two cities, providing important lessons for eliminating urban LF in Africa. As part of a pilot project to provide LF disability treatment, two disability surveys were conducted and 170 men received hydrocele surgery.

Haiti, through its long-standing collaborations in LF research and control with CDC and the University of Notre Dame, was among the first countries to initiate a model MDA programme and to follow its very positive impact yearly at sentinel sites. One million people were targeted in 2003, with a coverage rate of 77%. Operational research in Haiti continues to make substantial contributions to the global programme: for example, investigators have shown that hookworm prevalence is decreased by 85% after only two cycles of MDA.

American Samoa initiated LF elimination activities in 2000, but lack of resources prevented the programme from achieving desired coverage levels. CDC supported the department of health by assigning a staff member to assist with the development of enhanced social mobilization activities and new mass treatment strategies in schools and churches. As a result of this increased effort, antifilarial drug coverage in American Samoa exceeded 70% in 2003.

Monitoring and evaluation

Conceptual tasks

The Atlanta Group developed various documents on urgent aspects of monitoring and evaluation for GPELF, including a paper on indicators for monitoring disability and disability programmes, a technical working paper on surveillance after stopping MDA, guidelines for external evaluators for verifying absence of transmission, and a DEC-fortified salt programme manual.

Field activities

The following tasks were supported by the Atlanta Group to further the development of quality monitoring and evaluation data for GPELF. Funds and technical assistance were given to five countries for collecting data. The group supported the testing of new coverage assessment methods in Nigeria and Sri Lanka. It also assisted the development and standardization of a field-friendly kit for PCR-based⁹ DNA detection of LF in mosquitoes, supported field studies to use these kits to verify absence of transmission, and aided research to define an antibody test indicating exposure of individuals to filarial infection.

Didactic activities

The profile developed by the Atlanta Group for capturing data for monitoring and evaluation was used in eight coun-

tries. Members of the group also addressed programme managers in all regions on the new technical monitoring and evaluation recommendations from GPELF.

Socioeconomic studies of LF elimination programmes

Programme costs. In 2003, five countries (Burkina Faso, the Dominican Republic, Egypt, Ghana and Haiti) finished collecting programme cost data and four new countries (Guyana, India, the Philippines and the United Republic of Tanzania) began collecting data. Costs of disability management were also collected in the Dominican Republic and Haiti. These studies will supply the data essential for estimating total GPELF costs for LF elimination. In addition, cost-effectiveness analyses of MDA and lymphoedema management programmes in the Dominican Republic and Haiti will be completed in 2004.

Quality-of-life impact studies. The quality-of-life studies begun in the Dominican Republic, Ghana and Haiti continued to make progress in 2003. These studies are measuring the impact of LF-related disability at the individual, household and community levels. Results will be submitted for publication in 2004.

Fundraising and advocacy efforts. The Atlanta Group assisted the GAEFL Task Force on Advocacy and Fundraising in the design of a fundraising tool kit and training course. The course, given twice in 2003, is intended to assist LF programmes to raise funds from donors within their countries and regions. The tool kit is available at www.filariasis.us in English and French.

GLAXOSMITHKLINE

GSK's commitment to GPELF is to donate albendazole for as long as necessary until LF is eliminated. In 2003 the company donated 94 million treatments of albendazole to 34 countries, bringing the cumulative total to date to 240 million treatments shipped since 1999. In addition to supplying albendazole, in 2003 more than US\$ 1 million in grants were made to support safety and research activities, Global Alliance communications and advocacy, monitoring and evaluation initiatives, regional coordination, social mobilization training, disability prevention

⁹ polymerase chain reaction.

efforts of nongovernmental organizations, mapping, and LF support centres.

With Dr Brian Bagnall serving as the chair of the GAELF Task Force on Advocacy and Fundraising, GSK actively supported resource mobilization efforts for GPELF. The task force developed a strategic framework and fund-raising materials for use by the regions, countries and partners. Display panels were produced and exhibited at numerous venues including the World Health Assembly and the American Society of Tropical Medicine and Hygiene conference. In collaboration with Emory University, GSK participated in the creation of the advocacy tool kit for LF partners.

In July 2003, GSK sent a production crew to Sri Lanka to film the ministry of health's massive effort to mobilize over 50 000 community health workers and volunteers to distribute albendazole and DEC to almost 10 million people in a single day. As a result, a corporate film was produced to help increase awareness and enthusiasm for the LF programme among GSK's over 100 000 employees.

In partnership with the National Geographic Society, GSK sponsored the publication of a book that surveys the state of health around the world and features the work of the Haiti national LF elimination programme.

Over the anticipated 20-year life of the programme, GSK's donations will build to an estimated 6000 million treatments, valued at US\$ 1 billion². GSK is committed to be an active and engaged partner in the global effort to eliminate LF.

HANDICAP INTERNATIONAL

In 2002, in partnership with WHO and the Burkina Faso Ministry of Health, Handicap International initiated a project to prevent or reduce the incapacities caused by LF. This involvement adheres strongly to the principles of offering support to the existing care system and of using local resources. The approach is community-based and tackles the multiple factors (individual and environmental) leading to "a situation of handicap" attributable to LF.

Handicap International began implementation in two pilot districts in Burkina Faso where MDA was already

under way, using the publicity and public awareness as a springboard for community action. In 2003 the project broadened its scope, with immense growth across a spectrum of activities: training of health-care professionals, subsidizing hydrocele surgeries, improving patient self-care, and community awareness. New partnerships were formed to reinforce links between the health system and the community at large. In particular, the community-based organization Réadaptation à Base Communautaire des Aveugles et autres Handicapés à Ouargaye (RBCAHO) served as a pioneer for the education and follow-up of patients affected by LF in their homes and added the community's voice to health district strategic planning in favour of people with symptomatic LF. As well as diversifying, the project extended its borders well beyond the two districts initially targeted. With strong commitment from health authorities in the planning phase, the geographical area of intervention was expanded to include all eight of the health districts in the East-Central and South-West regions. This approach allowed for optimal use of skills and resources in each region, resulting in more patients reached and improved stakeholder relations. Finally, 2003 marked the turning point for Handicap International to become fully committed to the vision and goals of GAELF. The funding sources of Handicap International are: WHO, Liverpool School of Tropical Medicine, GSK and the Ministry of Foreign Affairs of Luxembourg.

LYMPHATIC FILARIASIS SUPPORT CENTRE, LIVERPOOL SCHOOL OF TROPICAL MEDICINE, UNITED KINGDOM

The Liverpool LF Support Centre has been active in encouraging country programmes to integrate with other control programmes, increase the level of advocacy, engage new nongovernmental development organizations and make progress in monitoring and evaluation. The Centre is pleased with the progress already made in all areas, and the commitment and collaboration from all partners to these plans are to be applauded.

Following on from the second meeting of GAELF, held in Delhi, the Liverpool Centre hosted an ad hoc meeting in December 2002. Representatives of the six regional

programme areas and other partners met to take forward decisions of the Delhi working groups, with the outcome of a more structured Global Alliance: a secretariat and two task forces were established. The Task Force on Communications is based in Liverpool, with Professor David Molyneux as Chair. Its brief is primarily to enhance communications between existing partners, encourage the involvement in GAELF of new partners and of the wider health and development community, including the non-technical media. Additionally the task force has been charged with organizing the next GAELF meeting in Cairo in March 2004, where it is expected that up to 200 partners from the six global regions will meet. Professor Molyneux is a member of the Secretariat. The Centre is also actively involved with the Task Force on Advocacy and Fundraising, being responsible for European private sector funding, and Mrs Joan Fahy is a member of the task force.

With DFID operational funds, the Centre continues to support country activities. Now active in 20 countries, the funds provided by DFID are indispensable in ensuring the success and expansion of the annual MDA campaigns.

With funding from the Bill and Melinda Gates Foundation, the Centre:

- has 11 students registered for PhD or MPhil degrees, either in Liverpool or in their home countries, and one student who recently completed the MCommH;
- has launched an interactive training CD-ROM, in collaboration with the Wellcome Trust and WHO;
- edits *Filaria Journal* (<http://www.filariajournal.com/>), the open access electronic journal providing updated information on all aspects of filarial diseases;
- has launched filariasis.net knowledge base (<http://www.filariasis.net/>), an open access web-based portal on lymphatic filariasis.

MERCK & CO., INC.

Merck & Co., Inc. is a global, research-driven pharmaceutical products company that discovers, develops, manufactures and markets a broad range of products to improve human and animal health, directly and through its joint ventures.

Merck & Co., Inc. established the Mectizan® Donation Program (MDP) in 1988 to provide medical and technical support for its worldwide donation of ivermectin (Mectizan®) for the treatment and control of onchocerciasis (river blindness). Merck currently donates ivermectin for river blindness to over 40 million people each year in all 34 countries where mass-treatment programmes are indicated.

In 1998, Merck & Co., Inc. expanded its donation of ivermectin to include mass treatment for the elimination of LF in African countries where onchocerciasis and LF coexist. The co-administration of ivermectin plus albendazole (donated by GSK) on an annual basis for 5–6 years is the recommended drug regimen for LF in communities where onchocerciasis and LF coexist. This treatment approach is expected to prevent the further development of the disease in people already infected and to prevent infection in those not yet infected, thus improving the public health and socioeconomic situations now and for the future generations of affected communities. With the continued administration of ivermectin plus albendazole, Merck hopes that the interruption of LF transmission and the virtual elimination of the disease can be achieved in endemic countries.

In 2003, Merck & Co., Inc. has donated over 65 million ivermectin treatments for LF in the eight countries that currently have treatment programmes, namely: Benin, Burkina Faso, Ghana, Nigeria, Togo, Uganda, the United Republic of Tanzania, and Yemen. It is anticipated that 29 countries with a population of about 350 million people will eventually have LF treatment programmes with ivermectin and albendazole.

Merck & Co., Inc. has made a long-term commitment to donate as much ivermectin as necessary, for as long as necessary, to treat river blindness and to prevent lymphatic filariasis in affected geographical areas. The goal is to eliminate both diseases as public health problems. To date, Merck has donated more than 1 billion ivermectin tablets for onchocerciasis and LF combined, and in 2004 expects to donate an additional 300 million tablets, making the MDP the largest on-going medical donation programme in history.

MECTIZAN® DONATION PROGRAM

The MDP was established in 1988 to provide medical and technical oversight of the donation of Mectizan® by Merck & Co., Inc. for the control of onchocerciasis worldwide. In 1998, the mandate of MDP was expanded to include the elimination of LF in countries where onchocerciasis and LF are co-endemic; this refers to 28 African countries plus Yemen.

MDP serves as the secretariat for the Mectizan® Expert Committee/Albendazole Coordinator (MEC/AC), a group of public health scientists and practitioners which is responsible for determining strategies and policies for the safe use of Mectizan®, co-administered with albendazole (donated by GSK), for LF elimination in countries where onchocerciasis and LF are co-endemic. By the end of December 2003, the MEC/AC had approved approximately 44 million treatments of Mectizan® and albendazole for LF elimination programmes in Benin, Burkina Faso, Ghana, Nigeria, Togo, Uganda, the United Republic of Tanzania, and Yemen.

During 2003, in addition to overseeing the donation of ivermectin plus albendazole, MDP was involved in the following activities.

Research support for safe mass treatment options in *L. loa* endemic areas

Since 1999, mass treatment with Mectizan® and albendazole for LF elimination in *L. loa* endemic areas has been prohibited, because of concerns about the potential risk of serious adverse events following treatment. Research studies to determine the safety of the two drugs in *L. loa* endemic areas and to investigate possible pre-treatment strategies to reduce the *L. loa* microfilarial load before implementing mass treatment have been supported by

MDP through its collaboration with WHO, TDR and the Centre Pasteur in Cameroon. It is hoped that progress will be made in this field in the near future so that LF elimination can ultimately include the *L. loa* endemic countries in Central and West Africa.

Programme support of LF elimination in Africa

With a grant of US\$ 250 000, MDP provided assistance to several countries in Africa for initiation and scaling up of programmes. Cameroon, Mali and Niger received funds for validation of their LF mapping results, while Ghana and Uganda received funds to assist with scaling up existing programmes.

Development of fundraising strategies for LF elimination programmes in Africa

The Director of MDP was a member of the GAELF Task Force on Advocacy and Fundraising and was responsible for developing part of a fundraising tool kit for national LF programme managers. This tool kit was initially tested in a workshop organized by the Emory LF Support Center in Atlanta, USA, in October 2003, and the kit has since been used in fundraising workshops in African countries.

ANNEXES

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ANNEX 2: REVISED ANNUAL REPORT FORM

ANNUAL REPORT FOR THE NATIONAL PROGRAMME TO ELIMINATE LYMPHATIC FILARIASIS (PELF)

COUNTRY

Reporting Year (by calendar year):	<input type="text"/> / <input type="text"/> / <input type="text"/> to <input type="text"/> / <input type="text"/> / <input type="text"/> dd mm yy dd mm yy (e.g. 31.01.03 to 31.12.03)
Is this the FIRST annual report being submitted to WHO?	<input type="checkbox"/> yes <input type="checkbox"/> no
If NO, give the date of the last report	<input type="text"/> / <input type="text"/> / <input type="text"/> to <input type="text"/> / <input type="text"/> / <input type="text"/> dd mm yy dd mm yy
Date of submission of this annual report	<input type="text"/> / <input type="text"/> / <input type="text"/> dd mm yy

This Annual Report must be completed and sent to the regional PRGs through the WHO country office by 28 February of the following year

Submitted by

The National Programme to Eliminate Lymphatic Filariasis
Ministry of Health
(modify as necessary)

ANNUAL REPORT FOR THE NATIONAL PROGRAMME TO ELIMINATE LYMPHATIC FILARIASIS (PELF)

Please submit one copy of this form to the regional Programme Review Group through the WHO Representative (WR) at the appropriate address below by February of the following year (e.g. annual report for the period 01.01.02 to 31.12.02 to be submitted by 28 February 2003).

American	African	Eastern Mediterranean	Mekong Plus	PacCARE	South Asia
WHO Regional Office for the Americas/Pan American Health Organization 525, 23rd Street, N.W. Washington, DC 20037 U.S.A. Tel: +1 202 974 3894 Fax: +1 202 974 3688 E-mail: ehrenbej@paho.org	WHO Regional Office for Africa Medical School, C Ward, Parirenyatwa Hospital P.O. Box BE 773 Belvedere, Harare Zimbabwe Tel: +1 321 733 9244 Fax: +1 321 733 9005/6 E-mail: roungouj@whoafr.org	WHO Regional Office for the Eastern Mediterranean WHO Post Office Abdul Razzak Al Sanhouri Street, (opposite Children's Library) Nasr City Cairo 11371 Egypt Tel: +202 670 2535 Fax: +202 670 2492/4 E-mail: postmaster@emro.who.int	WHO Regional Office for the Western Pacific P.O. Box 2932 1000 Manila Philippines Tel: +632 528 9725 Fax: +632 521 10 36 E-mail: palmerk@who.org.ph	WHO Regional Office for the Western Pacific PACELF Mataika House, Tawau, Suva Fiji Tel: +679 30 07 27 Fax: +679 30 04 62 E-mail: ichimorik@fij.wpro.who.int	WHO Regional Office for South-East Asia World Health House Indraprastha Estate Mahatma Gandhi Road New Delhi 110002 India Tel: +91 11 233 70804 Ext 26117 Fax: +91 11 233 78412 E-mail: lobod@whosea.org

1. DETAILS CONCERNING THE REPORTING MINISTRY OF HEALTH

1.1 Division of the Ministry of Health responsible for reporting on the National Programme to Eliminate Lymphatic Filariasis:

.....
Reporting official (Programme Manager):

Name:

Title:

Address:

Country

Tel. Fax E-mail

1.2 Programme Manager

Is the above Programme Manager the same one as last year? Yes No

1.3 Have members of the National Task Force changed since last year? Yes No

1.4 If yes, please give details:

.....

2. PROGRAMME RESOURCES

2.1 Please specify if there has been any change (increase/decrease) in financial or other resources to support PELF? Yes No

2.2 If yes, briefly describe the change(s):

2.3 Has additional external financial support been obtained for the PELF? Yes No

2.4 If yes, please provide details in the table below:

3. REPORT ON PELF IMPLEMENTATION

3.1 Which level of the administrative unit has been designated as the mass drug administration (MDA) implementation Unit (IU)?

3.2 Please provide an update on mapping of the distribution of lymphatic filariasis in the table below:

^a Mass drug administration implementation unit: the level of the administrative unit in the country at which the decision to administer anti-filarial drugs to its entire population is taken, if endemic.

3.2.1 Please list the endemic IUs, with population data, in the table below:

Region/province	Name of the endemic IU	Total population	Source of population data	Year of first round of MDA
Total				

3.2.2 Please attach or enclose a map of the country with the updated data of the IUs (showing their status as endemic (red), non-endemic (green) or uncertain (grey)).

3.3 Interruption of transmission

3.3.1 Please select the type of MDA chosen (check whichever is applicable).

In countries where onchocerciasis is co-endemic:

- Single annual dose mass chemotherapy with ivermectin and albendazole

In countries where onchocerciasis is not co-endemic:

- Single annual dose mass chemotherapy with DEC and albendazole
- DEC-fortified salt

3.3.2 Has any change been made in the IUs targeted for MDA since the last request for drugs was submitted?

Yes No

3.3.3 If yes, state the reasons why the change was necessary and attach a map of the revised programme area, providing scale and coordinates.

.....
.....

3.3.4 What is the national geographical coverage of MDA?

(Number of IUs under mass drug administration/total number of endemic IUs in country x 100)

3.3.5 How many IUs reported MDA to the national PELF with coverage data?

3.3.6a Report of MDA coverage by IUs

For calculation of overall coverage use the total population enumerated by Census data or estimates of total population enumerated by drug distributors can be used.

^b In areas where DEC and albendazole are administered, the eligible population = total population minus pregnant women, children under 2 years and the severely ill. In areas where ivermectin and albendazole for calcination or overall coverage, use the local population as denominator. Census data or estimates of total population enumerated by drug distributions can be used.

are administered, the eligible population = total population minus pregnant women, women in the first week of lactation, children under 90 cm or 15 kg, and the severely ill. Data coverage is calculated as a percentage of the total population as well as of the eligible population who ingested the drugs. This coverage is evaluated by year and by MD.

Drug coverage is calculated as percentage of total population as well as of the eligible population who ingested the drugs. This coverage is evaluated by year and by MDA period. It can be calculated for each IU from reports received from reporting units or drug distributors.

No. of people who ingested the drugs/total population in IU x 100.

Country coverage reported (% of variation of coverage): give in brackets the minimal and maximal coverage reported in the III

f No of naevi who initiated the drugs/alcoholic manipulation in III v 100

No. of people who ingested the drugs/eligible population in

No. of villages covered/no. of villages in IU x 100.

No. of urban areas covered/no. of urban areas in IU x 100.

3.3.6b Surveyed coverage^a:

Surveyed coverage is a measure which complements and expands reported coverage by using active, population-based cluster survey methods. It is defined as: total no. of individuals identified by household survey to have ingested a dose of the drugs/total population residing in all the surveyed households from whom information on drug ingestion could be elicited $\times 100$. It should be estimated using the standard *Enclosed Documentation on Immunization cluster survey method* (20 clusters of 10 households per cluster) with modifications to account for cases that there is an advocacy signal, etc.

^b Spanned programme on immunization cluster survey in which there is an adequate sample size for any stratum needed. Population of the households from whom information on the ingestion was available during household interviews either obtained directly or by a reliable proxy. Surveyed coverage should be undertaken and reported for as many IUs as funding will allow.

3.3.7 Surveys in sentinel sites and spot-check sites

Results of survey on microfilaraemia and disease prevalence carried out in the designated sentinel sites and spot-check sites in the programme area should be indicated in the table below:

a Year of MDA is 0 if before first MDA year? if after the second MDA etc

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b Year 100

^a Volume of blood recommended for microfilaria samples is 60 μ l. If a different volume is used, the formula

c Coverage reported in sentinel sites (villages). It is recommended to evaluate around 500 people per site.
d No. of people who say they ingested the drugs/no. of people evaluated on site x 100. Coverage must be checked each year in each site (sentinel or spot-check). Assessment of approximately 500 people per site should be carried out within 21 days after MDA to ascertain the number of people who actually ingested the drugs.

Circulating filarial antigen tested using the immunochromatographic test (IC1) card.

3.3.8 Treatment strategies/approaches

3.3.8.1 What drug distribution strategy was used for MDA to achieve high coverage (e.g. house-to-house, booth distribution, special population groups, areas of community gathering, etc.)? Please refer to the Guide for programme managers.¹

3.3.8.2 Which method was used to determine the dose of DEC (please check the appropriate box)?

- weight
- height
- age

Please complete the table below with the dosage schedule recommended for DEC:

Age	No. of DEC tablets

3.3.9 Please give details in the table below of IUs in which MDA has been discontinued, i.e. those which were covered until the year immediately before this calendar year, but not covered during the year:

Region	Name of MDA IU	Total population of the IU	No. of rounds of MDA before this year	Whether criteria for interruption are met ^a	Other reasons for discontinuation
Total					

^a As described in the guidelines for interruption of transmission, i.e. none of the sampled lot of 3000 children in the age group 1–5 years tested positive by ICT (or night blood smear in Brugian filariasis areas).

¹ Preparing and implementing a national plan to eliminate lymphatic filariasis (in countries where onchocerciasis is not co-endemic) – a guide for programme managers (WHO/CDS/CPE/CEE/2000.15) or Preparing and implementing a national plan to eliminate lymphatic filariasis (in countries where onchocerciasis is co-endemic) – a guide for programme managers (WHO/CDS/CPE/CEE/2000.16).

3.3.10 Please attach a map of the country indicating IUs categorized into:

- IUs with MDA coverage $\geq 80\%$, between 65% and 80% and $< 65\%$;
- IUs that have achieved interruption of transmission.



3.4 Disability management and prevention

Does the national PELF have defined guidelines on preventing disability caused by LF? Yes No

If yes, since when?

How many endemic IUs applied the national guidelines on disability prevention?

Estimation of disability and number of surgical operations carried out

Name of IU	Estimated no. of lymphoedema sufferers	Estimated no. of hydrocele sufferers	No. of hydrocele surgical operations carried out during the reporting year
Total			

3.5 Training of health staff for the National PELF

Administrative level	Training on interruption of transmission		Training on disability prevention and control		Training on both interruption of transmission and disability prevention and control	
	No. of courses organized	No. of staff trained	No. of courses organized	No. of staff trained	No. of courses organized	No. of staff trained
National						
Provincial or regional						
District						
Total						

3.6 Social Mobilization

3.6.1 Was a knowledge attitudes and practice (KAP) survey carried out in the country? Yes No

If yes, briefly mention the results of the survey

3.6.2 Briefly describe the information, education and communication (IEC) campaign and activities carried out to mobilize the different communities towards achieving a high MDA coverage

4. SERIOUS ADVERSE EXPERIENCES (SAEs)

In the event that any SAEs are encountered during treatment, a Severe Adverse Experience Report Form must be completed immediately and returned to WHO and GlaxoSmithKline (GSK). (In areas where albendazole is being used in conjunction with ivermectin [Mectizan®], the Mectizan® Expert Committee's Serious Adverse Experience Form must be completed and returned to that Committee).

Region	No. of individuals who developed SAEs (Attach a copy of each such report)	Type of reactions	Clinical Outcome	Required hospital care	No. of SAEs reported to WHO/GSK/ Mectizan® Expert Committee

5. SUMMARY OF DIAGNOSTICS AND LEFT-OVER DRUGS INVENTORY

Summary	ICT cards	Albendazole tablets (400 mg)	DEC tablets			Ivermectin tablets (3 mg)
			(50 mg)	(100 mg)	Other (specify)	
Available at the start of the reporting period?						
Received during the reporting period						
Balance at the end of the reporting period						
Expiry date(s) of the remaining stock						

5.1 Was any stock destroyed on or before the expiry date? Yes No

6. WAS AN INDEPENDENT EVALUATION CARRIED OUT DURING THE CALENDAR YEAR?

Yes No

6.1 If yes, please give details of:

6.1.1 Who made up the teams that carried out the independent evaluation.....
.....

6.1.2 The programme areas that were evaluated and what the main observations were on:

- interruption of transmission.....
- disability management and prevention.....
- training.....
- social mobilization or IEC campaign.....

7. WHAT PROBLEMS WERE ENCOUNTERED IN REACHING MAXIMAL COVERAGE (ACTUAL INGESTION OF THE DRUGS)?

WERE THEY GENERAL OR SPECIFIC TO ANY AREAS?.....
.....

7.1 How can each of these problems be overcome for the next round of MDA?

Region	Name of IU	Problems/issues	Proposed solutions

Signed:

National PELF Coordinator

ANNEXES

ANNEX 3: LIST OF LF-ENDEMIC COUNTRIES AND TERRITORIES BY PROGRAMME REVIEW GROUP

African Programme Review Group

Angola
Benin
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Equatorial Guinea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Liberia
Madagascar
Malawi
Mali
Mauritius
Mozambique
Niger
Nigeria
Réunion
Rwanda
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Togo
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

American Programme Review Group

Brazil
Costa Rica
Dominican Republic
Guyana

Haiti
Surinam
Trinidad and Tobago

Eastern Mediterranean Programme Review Group

Egypt
Sudan
Yemen

Mekong-Plus Programme Review Group

Brunei Darussalam
Cambodia
China
Indonesia
Lao People's Democratic Republic
Malaysia
Myanmar
Philippines
Republic of Korea
Thailand
Timor-Leste*

Viet Nam

PacCARE Programme Review Group

American Samoa
Cook Islands
Fiji
French Polynesia
Kiribati
Marshall Islands*
Micronesia (Federated States of)
New Caledonia
Niue
Palau*
Papua New Guinea
Samoa
Solomon Islands
Tonga
Tuvalu
Vanuatu
Wallis and Futuna

South Asia Programme Review Group

Bangladesh
India
Maldives
Nepal
Sri Lanka

* Countries recently included as endemic.

ANNEXES

ANNEX 4: ABBREVIATIONS AND DEFINITIONS

ABBREVIATIONS

ADL	adenolymphangitis
AFESD	Arab Fund for Economic and Social Development
AFRO	WHO Regional Office for Africa
AMRO	WHO Regional Office for the Americas
API	active pharmaceutical ingredient
APOC	African Programme for Onchocerciasis Control
AusAID	Australian Agency for International Development
CDC	United States Centers for Disease Control and Prevention
CDD	community drug distributor
CDS	Communicable Diseases Cluster (WHO)
CEE	Strategy Development and Monitoring for Elimination and Eradication Unit (WHO)
CFA	circulating filarial antigen
COMBI	communication for behavioural impact
CPE	Department for Communicable Disease Control Prevention and Eradication (WHO)
DANIDA	Danish International Development Agency
DEC	diethylcarbamazine citrate
DFID	Department for International Development of the United Kingdom
DMO	district medical officer
EMRO	WHO Regional Office for the Eastern Mediterranean
GAEFL	Global Alliance to Eliminate Lymphatic Filariasis
GLP	good laboratory practices
GMP	good manufacturing practices
GPELF	Global Programme to Eliminate Lymphatic Filariasis
GSK	GlaxoSmithKline
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HPLC	high-pressure liquid chromatography
ICF	WHO International Classification of Functioning, Disability and Health
ICT	immuno-chromatographic test
IEC	information, education and communication
IU	implementation unit
JICA	Japan International Cooperation Agency
JOCV	Japanese Overseas Cooperation Volunteers
LF	lymphatic filariasis
LYMFASIM	a mathematical model of the transmission and control of LF
MDA	mass drug administration
MDP	Mectizan® Donation Program
MEC/AC	Mectizan® Expert Committee/Albendazole Coordination
mf	microfilaraemia
NFCP	National Filariasis Control Programme
PacCARE	PacELF Coordinating and Review Group
PacELF	Pacific Initiative for the Elimination of Lymphatic Filariasis
PAHO	Pan American Health Organization
PCR	Polymerase chain reaction
PELF	Programme to Eliminate Lymphatic Filariasis
PRG	Programme Review Group

RAPLOA	a method of rapid assessment of loiasis using a simple questionnaire
RPRG	Regional Programme Review Group
SAE	serious adverse experience
SEARO	WHO Regional Office for South-East Asia
TAG-LF	Technical Advisory Group on the Global Elimination of Lymphatic Filariasis
TDR	UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VSO	Voluntary Service Overseas
WHO	World Health Organization
WHODAS	WHO Disability Assessment Schedule
WPRO	WHO Regional Office for the Western Pacific

DEFINITIONS

serious adverse experience

An event that is fatal, life-threatening, disabling, or incapacitating or that results in hospitalization, prolongs a hospital stay, or is associated with congenital abnormality, cancer or overdose (either accidental or intentional); any experience that the investigator regards as serious or that would suggest any significant hazard, contraindication, side-effect, or precaution that may be associated with the use of the drug should be reported as a serious event.

Case classification

lymphatic filariasis case

An individual currently infected with *Brugia malayi*, *B. timori* or *Wuchereria bancrofti*, whether or not microfilaraemic.

clinical case

An individual with any of the clinical findings of hydrocele, chylocele, lymphoedema, chyluria, haematochyluria, haematuria, hypereosinophilia, or tropical pulmonary eosinophilia syndrome, for which other causes have been excluded in a resident of, or long-term visitor to, an endemic area, plus specific antibody elevations in visitors to endemic regions.

probable case

A case that meets the clinical case definition.

confirmed case

A case confirmed by laboratory or ultrasound examinations. Laboratory criteria for diagnosis of infection are presence of microfilariae or circulating filarial antigen or detection of adult worm(s) by ultrasound or biopsy.

Endemicity

A country is classified into:

implementation unit (IU) for MDA

A designated administrative area in a country; if the area is identified as endemic or having indigenous transmission, the entire population should be treated with recommended antifilarial (AF) drugs.

endemic IU

An IU or any population area (e.g. village or urban area) with an LF infection rate of 1% or more among its native population.

endemic

A country with any IUs known or reported to be endemic since 1980.

never endemic

A country with no history or evidence of endemic filariasis.

post-endemic

A country with a known history of endemic filariasis before 1980, but with no evidence of transmission or new infection since 1980.

uncertain

A country with a history of endemic filariasis before 1980 or with evidence of infection in immigrants but no clear evidence of indigenous transmission.

Drug administration and monitoring

at-risk population

Total population in an endemic implementation unit(s).

[area]

Refers to any geographical region up to the level of the designated IU; for example, if the designated IU is a district that is subdivided into counties/blocks, villages, or urban areas, [area] could refer to a county/block, village, or urban area.

drug coverage for a designated [area]

The proportion of all individuals of the [area] who ingested antifilarial (AF) drug(s) in the adequate dosage is calculated as:

$$\frac{\text{total individuals who ingested adequate dosage of AF drugs} \times 100}{\text{total population of the [area]}}$$

drug coverage for administrative units

For reporting coverage for administrative units above the level of the designated IU(s), the drug coverage is calculated as:

$$\frac{\text{total individuals in the targeted IU(s) who ingested adequate dosage of AF drugs} \times 100}{\text{total population of all targeted IU(s) in the administrative unit}}$$

reported coverage

The coverage based on reports received from reporting units is calculated as:

$$\frac{\text{total no. of individuals reported to have ingested the recommended dosage of AF drugs} \times 100}{\text{total population in the IU(s) where the programme is implemented}}$$

geographical coverage

The proportion of targeted IU(s) covered by MDA during the reporting years is based on reported data and calculated as:

$$\frac{\text{no. of IU(s) in which MDA takes place} \times 100}{\text{total no. of endemic IU(s)}}$$

and

$$\frac{\text{total population in IU(s) where MDA takes place} \times 100}{\text{total population of all endemic IU(s)}}$$

In addition to data on national geographical coverage, it is useful to provide geographical coverage data for each IU. Thus, for a given IU, geographical coverage is calculated as:

$$\frac{\text{no. of communities within the IU(s) in which MDA took place} \times 100}{\text{total no. of communities within the IU}}$$

surveyed coverage

A measure that complements and expands reported coverage by using active, population-based cluster survey methods; calculated as:

$$\frac{\text{no. of individuals identified by household survey to have taken adequate dosage of AF drugs} \times 100}{\text{no. of individuals residing in all households surveyed}}$$

checked drug coverage

The coverage based on actual verification by direct observation of individuals who ingested the drug(s) in the adequate dosage (done on a sample population) is calculated as:

$$\frac{\text{total individuals who ingested adequate dosage of AF drugs} \times 100}{\text{total individuals in the verified households}}$$

microfilaria (mf) prevalence

The proportion of blood slides (60 µl) found positive for microfilariae (*Brugia malayi*, *B. timori*, or *Wuchereria bancrofti*) species is calculated as:

$$\frac{\text{no. of individuals whose slides are positive for mf} \times 100}{\text{total no. of individuals examined for mf}}$$

microfilaria density (mfd)

The average number of microfilariae in slides positive for microfilaria per ml of capillary blood (presuming 60 µl per slide) is calculated as:

$$\frac{\text{total count of microfilariae in the slides found positive} \times 50}{\text{total no. of slides found positive}}$$

antigen prevalence

The proportion of individuals surveyed testing positive for circulating filarial antigen (CFA) is calculated as:

$$\frac{\text{no. of individuals testing positive} \times 100}{\text{total no. of individuals with a valid test result}}$$

Note: When lot quality assurance sampling is undertaken, as in initial assessment and mapping, and the survey is stopped when a positive result is found, it is inappropriate to calculate the prevalence because the result would indicate only that the antigenaemia is above the cut-off percentage.

Grading of lymphoedema***Grade I***

Mostly pitting oedema; spontaneously reversible on elevation.

Grade II

Mostly non-pitting oedema; not spontaneously reversible on elevation.

Grade III

Gross increase in volume in a Grade II lymphoedema with dermatosclerosis and papillomatous lesions.