



Rolling Back Malaria: Rhetoric and Reality in the Fight against a Deadly Killer

By Roger Bate

For the past thirty years, the fight against malaria has been long on rhetoric and short on action. The Roll Back Malaria (RBM) partnership, launched by the World Health Organization (WHO) ten years ago in 1998, continued this trend. But since 2005, primarily due to efforts by the U.S. government to improve performance, malaria control is improving—and RBM with it. While significant problems still remain, for the first time since the 1960s, malaria is being fought effectively on a global scale.

Malaria is a tragic disease. It is preventable and curable at a comparatively low cost, and yet it continues to infect over 500 million people every year, killing over 1 million of them. It also levies a heavy economic toll; in some countries, the disease imposes a “growth penalty” of up to 1.3 percent of GDP per year.¹ This is especially true in sub-Saharan Africa, where it disproportionately affects poor people who cannot afford treatment or who have limited access to health care. In these countries, fragile health systems expend a large portion of their resources on malaria—up to 40 percent of public health expenditures, 30–50 percent of inpatient admissions, and up to 60 percent of outpatient visits per year in some countries.²

As WHO celebrates the inaugural World Malaria Day on April 25 “to inform the general public of the obstacles encountered and progress achieved in controlling malaria,”³ the international health aid community should find a moment for introspection. Indeed, with rare exceptions, WHO campaigns have been exercises in overheated target-setting with little lifesaving delivery.⁴

There is evidence, as WHO points out, that “the fight against malaria can be won if partners

collaborate efficiently on community, local, national, regional, and international levels.”⁵ But strong leadership is needed to design, coordinate, and implement successful, sustainable efforts. The international health community has repeatedly shown a willingness to battle the mosquito-borne parasite that causes malaria, sometimes to a greater degree than affected countries themselves.⁶ Even so, success has been elusive. It is worth tracing these steps to understand why.

Parasite Politics: The First Push for Eradication

Launched in the mid-1950s by WHO, the first major international antimalarial campaigns focused on eradicating the disease in the Americas, Europe, Asia, and Oceania. In most of Africa, only pilot programs were introduced. At the outset, WHO’s eradication campaigns enjoyed enormous success: by 1970, an estimated 1 billion people no longer lived in malaria-endemic areas, and malaria had been eradicated from rich countries.⁷ But just a few years later, the number of malaria infections was again increasing, driven by a resurgence of the disease in Africa and in countries previously declared free of the disease.⁸

Roger Bate (rbate@aei.org) is a resident fellow at AEI.

For countries that lacked health infrastructures adequate for managing treatment regimens and pursuing ongoing disease surveillance, total eradication was impossible. In Africa, for example, frequent wars and growing commercial connections increased migration, and infected migrants took malaria with them. The development of general health services was necessary to ensure that once malaria eradication was achieved, national governments could sustain the progress. Even now, too few affected countries are so equipped.⁹

The problem of poor health infrastructure was exacerbated by a lack of political commitment by donor countries (and insufficient funds in recipient countries) to provide needed financial capital. Donors complained about rising insecticide costs, and, partly because of pressure from environmentalists, they were hesitant to buy DDT (which was then and remains today probably the most cost-effective insecticide). They grumbled about increased parasite resistance to first-generation anti-malarial drugs such as chloroquine.¹⁰ And they were reluctant to invest in alternative, often more expensive preventive measures and treatment therapies. “It had not been possible to pursue a vigorous campaign to eradicate malaria,” WHO admitted in September 1971, because of “deficiencies in planning, management, administrative problems, and *particularly lack of government funds*.”¹¹ Within this context, the international health community retreated; in 1969, the World Health Assembly (WHA) declared that eradication programs should only be continued in areas with “good prospects.” In countries where eradication did “not appear feasible,” less aggressive malaria control operations would be adopted as “transitional” alternatives.¹²

Retrenchment and Its Consequences

In Southeast Asia, early eradication programs had significantly decreased malaria incidence. By WHO estimates, between 1950 and 1969, cases fell from a high of 110 million annually to nearly zero. But in the mid-1970s, coinciding with the abandonment of aggressive eradication campaigns, malaria incidence again spiked sharply. Alarming, the share of cases caused by the deadliest form of the malaria parasite¹³ increased from 19.6 percent of total cases in 1970 to 41.3 percent in 1991.¹⁴

In Africa, pilot programs in the mid-1960s and 1970s had yielded spectacular successes. In Kisumu, Kenya, an eradication project based on indoor residual spraying (IRS)¹⁵ resulted in a 96 percent reduction of malaria

transmission and a 41 percent decrease in infant mortality. In the Pare-Taveta area of Kenya and Tanzania, infant mortality fell by 20 percent.¹⁶ But with only a few exceptions,¹⁷ the disease remained unchecked in most of Africa, primarily because neither national governments nor international organizations were willing to invest the money or effort required.¹⁸

In Southeast Asia in the mid-1970s,
coinciding with the abandonment of
aggressive eradication campaigns,
malaria incidence spiked sharply.

Throughout the 1980s and 1990s, during which the international community did very little on malaria, the problem appeared to be worsening. Demographic surveillance systems in Africa indicated that the number of children dying from malaria rose substantially in eastern and southern Africa during the first half of the 1990s compared with the 1980s (there was little change in western Africa).¹⁹ In 1995, the United Nations (UN) General Assembly chastised the international community for failing to act, noting that it was “deeply concerned by the development of more than three hundred million new cases of malaria annually and by the emergence of a new type of drug resistant malaria.”²⁰

Roll Back Malaria: The Rhetoric

In 1998, three of the world’s largest and most influential public health entities—the United Nations Children’s Fund (UNICEF), the United Nations Development Programme, and the World Bank—joined WHO to launch Roll Back Malaria, an ambitious campaign to catalyze and coordinate country-led initiatives with the ultimate goal of halving malaria rates by 2010. The initiative grew quickly, eventually including more than ninety multilateral, bilateral, nongovernmental, and private-sector organizations.²¹

RBM articulated three core targets:

- That at least 60 percent of those suffering from malaria would have prompt access to affordable and appropriate treatment within twenty-four hours of the onset of symptoms

- That at least 60 percent of those at risk of malaria, particularly children under five and pregnant women, would benefit from personal and community protective measures, such as insecticide-treated mosquito nets and other interventions
- That at least 60 percent of all pregnant women at risk of malaria would have access to chemoprophylaxis or presumptive intermittent treatment²²

For some goals, RBM went into greater detail: point two, for example, included a provision to “reduce or waive taxes and tariffs for mosquito nets and materials, insecticides, anti-malarial drugs and other recommended goods and services.” African governments committed to these goals almost unanimously at a summit in Abuja, Nigeria, in 2000.²³ The World Bank, the United States, the United Kingdom, and other donors together pledged \$750 million. The World Bank alone offered to lend \$300–\$500 million.²⁴

But RBM’s initial impact on reducing malarial deaths was negligible. According to a 2003 internal RBM report, no country in sub-Saharan Africa had seen malaria incidence decline significantly.²⁵ A 2004 Global Forum for Health Research survey found that the child death rate from malaria approximately doubled between 1990 and 2002.²⁶ The RBM report claimed that, given time, improvements would come—a weak prediction after such high hopes at the campaign’s outset.²⁷

Roll Back Malaria: The Reality

RBM suffered from one fundamental, multidimensional problem: an inability to procure adequate financing for what were ultimately overambitious and immeasurable targets. The chief target was to halve the incidence of malaria between 1998 and 2010, but RBM’s partners lacked a baseline for malaria incidence in 1998 and did not try to establish one. Depending on what assumptions were used, estimates of deaths caused by malaria ranged from 1 to 3 million per year.²⁸ In many countries, statistical techniques for estimating incidence still lagged behind international standards, further hampering estimates.²⁹ This data vacuum rendered RBM’s metric meaningless, a pitfall that would be repeated with the rollout of the Millennium Development Goals in 2000. The Millennium Development Goals, as articulated and agreed upon at a UN summit by nearly all of the world’s leaders,³⁰ included worthy goals, one of which was

“reversing the incidence of malaria.”³¹ But in some countries, particularly in sub-Saharan Africa, poor data made it virtually impossible to establish a reliable baseline or, by extension, to measure success responsibly.³²

RBM suffered from one fundamental, multidimensional problem: an inability to procure adequate financing for what were ultimately overambitious and immeasurable targets.

When launched in 1998, RBM projected it would need approximately \$200 million per year for country-level programs, plus some additional (undisclosed) monies to finance the project itself.³³ By the 2000 Abuja Declaration, it had upped this amount to a hefty \$1 billion, but even this proved to be a significant underestimation. A 2004 editorial in the *British Medical Journal* determined that around \$1 billion a year would be needed to pay for the treatment requirement *alone* (artemisinin-based combination therapies [ACTs] for around 60 percent of those who needed them).³⁴ WHO’s own *World Malaria Report* estimated in 2005 that it would cost around \$3.2 billion per year to reach the 2010 Abuja targets and the Millennium Development Goals for malaria by 2015.³⁵

Substantial funding failed to materialize. Several studies estimated that the World Bank actually dispersed far less than it promised.³⁶ Thirteen malaria program managers surveyed by the World Bank in 2005 all noted that the bank had been “very poor” in helping them get funds.³⁷ Overall annual funding for malaria increased after the creation of the Global Fund to Fight AIDS, Tuberculosis and Malaria in 2002, an independent effort whose purpose was to “attract, manage and disburse resources to fight AIDS, TB and malaria,”³⁸ but it still lingered below the pledged amount—and far below the amount required to address the problem.³⁹

Few donor agencies published malaria control budgets or substantive program reports, so it was unclear how RBM’s implementing partners were spending their pledged funding. Critics also suggested that too little was being spent on research into and development of new and better malaria drugs.⁴⁰

A report of the UN secretary general drafted in November 2002 indicated that access to good treatment

was far below the 60 percent target. Although data indicated that 56 percent of children under five who had been diagnosed with a fever (a clinical indicator of malaria) had been treated with an antimalarial, in seventeen countries, analgesics—which are ineffective against malaria—had constituted the main form of treatment. “A considerable proportion of antimalaria treatments,” the report warned, “may not be life-saving because either the parasite is resistant to the drug, the drug is of poor quality, the drug is given too late in the course of the illness, or a full course of the drug is not provided.”⁴¹ Even so, many of RBM’s implementing partners continued to endorse the use of poor therapies, including monotherapies like chloroquine, which were quickly becoming obsolete as the parasite developed resistance to them.⁴²

The distribution of insecticide-treated bed nets (ITNs) as a preventative measure (the second target of the 2000 Abuja summit) was not much better. As the secretary general’s 2002 report noted, in twenty-four countries, use of ITNs for children under five was at or below 5 percent. While taxes and tariffs on the importation of mosquito nets, netting materials, and insecticides had been eliminated in seventeen sub-Saharan countries, twenty-six countries were still charging some kind of tax or tariff.

Some of the initiatives RBM championed were poorly designed or driven by political considerations. For example, the initiative’s scheme for bed-net distribution targeted pregnant women receiving prenatal services, distributing vouchers that subsidized the purchase of nets. However, as recorded by researchers from the Liverpool School of Tropical Medicine and the Global Fund, a high proportion of pregnant women in rural sub-Saharan Africa did not use such prenatal services. Even those who were able to get the vouchers may not have been able to pay for the nets. Writing in the *British Medical Journal*, the researchers argued that RBM could have distributed nets more efficiently by linking their distribution with other disease control programs, such as those used to control onchocerciasis (river blindness) and lymphatic filariasis (elephantiasis).⁴³

RBM also adopted an implicitly hostile stance toward IRS, which historically had demonstrated remarkable effectiveness in combating the parasite.⁴⁴ IRS involves spraying small amounts of insecticides on the inside walls of houses with the goal of either killing or repelling disease-spreading mosquitoes. The intervention is safe for humans and the environment and was being used effectively by several malarial countries. Yet it had long

been neglected—and even discouraged—by most donor agencies and even WHO. The RBM partnership’s core strategies failed to mention IRS at all. Regrettably, in response to pressure from environmentalists and against scientific advice and the wishes of malarial countries, the WHA passed a resolution in 1997 calling for reduced insecticide use in disease control.⁴⁵ This situation persisted until 2006, when WHO adopted guidelines encouraging IRS.⁴⁶

RBM adopted an implicitly hostile
stance toward indoor residual spraying,
which historically had demonstrated
remarkable effectiveness in combating
the malaria-carrying parasite.

RBM’s global advocacy and coordination of its implementing partners’ programs continued to be hobbled by poor data. In 2005, Robert Snow of the University of Oxford, a leading researcher who had spent sixteen years in Kenya, published research showing that the number of infections worldwide from the deadliest strain of malaria was almost double the original figure estimated by WHO.⁴⁷ A presentation launched as a part of RBM’s November 2005 “Change Initiative” recognized the dire state of affairs. One slide was entitled “RBM and Malaria Community Currently Boggled Down and under Intense Scrutiny.” The assessment pointed to disagreements between RBM and WHO about responsibilities, a lack of donor financial commitment, rapid turnover of RBM leaders (four leaders in five years!), and a high rate of Global Fund grant failure.⁴⁸ It noted that \$160 million worth of Global Fund grants were at risk and that few new ones had been awarded in recent years.⁴⁹ A key part of the problem was that RBM had increased awareness⁵⁰ but failed to spur action.⁵¹

A New Day?

Since 2006, propelled by the bold leadership of a new director of WHO’s Global Malaria Programme—Arata Kochi—and increasing attention from implementing partners such as the U.S. President’s Malaria Initiative (PMI), WHO and RBM have made some progress. Characterized by his detractors as an undiplomatic firebrand, Kochi, the former head of WHO’s Stop TB Initiative,

began by bluntly criticizing the failings of the global antimalaria community. “I said, basically, ‘You are stupid,’” Kochi recalled, “[you are] small and inward-looking and fighting each other.”⁵²

Kochi acknowledged the complicity of RBM in the failings. “It’s the WHO’s fault we failed on malaria. . . . We didn’t show technical leadership, and that vacuum created a policy mess.” Kochi noted that WHO did not move fast enough to stop the use of chloroquine and was too quick to demonize DDT.⁵³

Acknowledging that improving accountability for technical matters within a collective partnership would be difficult, Kochi created a new WHO malaria department that would serve as the main technical advisory body to RBM’s implementing partners.⁵⁴ Kochi also made two key policy decisions. To stem the potential development of parasite resistance to artemisinin, in January 2006, Kochi publicly castigated forty companies still selling artemisinin monotherapies, successfully stopping thirteen of them,⁵⁵ and he published the first WHO antimalarial treatment guidelines in twenty years. In May of that year, he drove the WHA to pass a resolution committing WHO member states to stop the production and marketing of oral artemisinin monotherapies. He also renewed the agency’s commitment to IRS (including with DDT) as one of the principal malaria control strategies needed in Africa.⁵⁶

Kochi’s leadership coincided with the U.S. government’s new and improved malaria control program. After coming under fire from malaria scientists and members of Congress for their inability to account for poor program decisions and a lack of progress, the U.S. Agency for International Development (USAID) and the Centers for Disease Control and Prevention launched the President’s Malaria Initiative in June 2005.⁵⁷ The PMI increased malaria control funding for fifteen African countries to \$1.2 billion over five years. It is the largest bilateral commitment for malaria ever made. The PMI also made unprecedented efforts to open U.S. government spending to public scrutiny by publishing planning documents, detailed budgets, and contracts. The PMI heeds WHO’s call to transition to more effective ACTs and long-lasting insecticidal nets, as well as to build capacity in Africa to conduct national IRS campaigns. While Kochi achieved progress by courting controversy and challenging the mistakes of donors, the PMI, led by Admiral Timothy Ziemer, fostered unprecedented cohesion within the

RBM community and sought private-sector support for combating malaria.

According to RBM’s “Case for Change” assessment, global funding for malaria has increased tenfold since RBM’s inception.⁵⁸ Funding by implementing partner USAID alone increased exponentially, from \$10.9 million in 1997 to an estimated \$225 million in 2007.⁵⁹ Not only did the private sector supply financial support, it also encouraged—even insisted on—private sector-style performance through monitoring and evaluation.

The RBM secretariat in turn has done a better job of coordinating the efforts of malaria control donors. It has established new working groups to harmonize programs and improve supply chain management. Perhaps its biggest achievement has been coordinating a focus on technical assistance to African countries to enable them to raise funds elsewhere for their malaria efforts, notably from the Global Fund.

Problems Remain

Propelled by stronger leadership at the top, RBM is making progress, but there is still much room for improvement, particularly in the way RBM gathers and uses data on malaria incidence.

Because many developing countries lack authoritative national statistics on malaria, RBM implementing partners UNICEF and WHO have stepped in to create models of disease incidence.⁶⁰ Among other things, these are used to forecast demand for future treatment requirements. But their estimates have tended to rely on “need,” a normative concept of how many people *should* be treated in an ideal world, rather than on demand, a positive concept of what can and will be bought in the actual world. The main purpose of WHO’s needs estimates is often to provide rationales for funding proposals from donor agencies. As such, needs assessments tend to be negotiating positions rather than realistic projections, overestimating actual demand.

In 2004, for example, WHO projected the global need for ACTs in 2005 would be over 130 million treatments, but demand ended up being only about 25 million treatments. Major suppliers, such as Novartis and Sanofi-Aventis, relied on these estimates and geared up production to meet them. When the forecasted demand never materialized, the companies were forced either to destroy their product or to declare substantial losses. The companies bought massive quantities of *Artemisia annua*—

the plant used to make artemisinin—at high prices but were unable to use it when large aid organizations proved unwilling to buy all of the end product. In December 2006, Novartis temporarily shut down its facility in Suffern, New York, to prevent the production of too much medicine with such a short shelf life; Chinese farmers began to complain that they no longer had buyers for their *Artemisia annua*. With a surfeit of supply, prices have plummeted, and now WHO fears that the withdrawal of farmers and artemisinin producers from the market will create a relative reduction of the artemisinin inventory and a concurrent risk of future shortages.⁶¹

RBM should strike an agreement between technical and funding agencies, such as the Global Fund, WHO, the PMI, the World Bank, and all pharmaceutical companies that demonstrate the capability to supply high-quality ACTs. The companies would agree to supply a certain amount of drugs at a nonprofit price (or at a low-profit price, which would be more economically sound). Donors would agree in advance to purchase the drugs at this price. Under this agreement, demand forecasting—rather than the economically useless assessment of “needs”—would rest with the donors.

In addition to providing more useful data, RBM’s implementing partners can place more pressure on malarial countries that permit the sale of artemisinin monotherapies despite the adoption of ACTs. As of August 2007, forty-four of seventy-eight countries still allow the monotherapies. They can also place pressure on companies still marketing these monotherapies (twenty-six companies out of sixty-seven).⁶²

RBM partners should also take greater care to analyze accurately and report on progress. UNICEF’s latest assessment report highlights the success of RBM partners in dispersing antimalarial resources—“Global funding has increased more than tenfold over the past decade. . . . There has been real progress in scaling up the use of insecticide-treated nets across sub-Saharan Africa”—but does not report the impact of such dispersion on actual health indicators (infant mortality and life expectancy).⁶³

Broader support for IRS is needed in the RBM community. The PMI has provided most of the funding for IRS programs since WHO’s 2006 announcement of IRS guidelines. The Global Fund and the United Kingdom’s Department for International Development provide some limited support. Still, countries that want to spray do not receive adequate support, especially for DDT use.⁶⁴ Although the PMI was able to procure DDT for Zambia without much trouble, it took Uganda over two

years to begin spraying with the chemical due to strong resistance from environmentalist groups and farmers, who feared they would not be able to export their products to a European Union that had threatened to reject any products containing traces of the chemical. Even though WHO has given DDT a clean bill of health for malaria control, the RBM community has not actively supported Uganda’s Ministry of Health or any other governments attempting to use the chemical.

The main purpose of WHO’s needs estimates is often to provide rationales for funding proposals from donor agencies. As such, they tend to be negotiating positions rather than realistic projections, overestimating actual demand.

Awa Coll-Seck, RBM’s executive director, has shown leadership on drug quality procurement standards.⁶⁵ Preliminary reports on a harmonization process, however, indicate that lower standards employed by the Global Fund are likely to win out.⁶⁶ This is troublesome because it means more Africans will receive less-thoroughly-tested drugs with little quality assurance. RBM is also moving to endorse a new mechanism for mass ACT distribution with the same low standards.⁶⁷ Vastly increasing access to ACTs is a commendable initiative, but if the quality of the drugs used is not ensured, widespread exposure to substandard ACTs could accelerate the onset of resistance to artemisinin as it did with chloroquine and other therapies. This would truly be devastating, as no major alternative antimalarial class is expected to enter the market before 2011.⁶⁸

The international malaria community should take time now to fully consider its future promises. Setting goals and making pledges without considering the resources necessary for follow-through is at best irresponsible and at worst dangerous. In the past, it raised false hopes among recipient countries.⁶⁹ And in the future, it could threaten the progress that has been made in the recent past in combating this deadly parasite.

AEI research assistant Karen Porter worked with Mr. Bate to produce this Health Policy Outlook.

Notes

1. Roll Back Malaria (RBM), "Economic Costs of Malaria" (fact sheet), available at www.rbm.who.int/cmc_upload/0/000/015/363/RBMInfosheet_10.htm (accessed April 2, 2008). One study finds that annual economic growth in malarial countries between 1965 and 1990 averaged 0.4 percent of GDP per capita, compared with 2.3 percent in the rest of the world. See Jeffrey Sachs and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature* 415 (February 7, 2002): 680–85.

2. World Health Organization (WHO), "Malaria" (fact sheet 94, May 2007), available at www.who.int/mediacentre/factsheets/fs094/en/ (accessed April 4, 2008).

3. WHO, Sixtieth World Health Assembly, *Malaria, Including Proposal for Establishment of World Malaria Day*, WHA 60/18, May 23, 2007, available at www.who.int/gb/ebwha/pdf_files/WHA60/A60_R18-en.pdf (accessed March 31, 2008).

4. Roger Bate and Lorraine Mooney, "WHO's Comprehensive HIV Treatment Failure: Will We Learn the Real Lessons from 3 by 5?" (AEI Working Paper 133, November 2006), available at www.aei.org/publication25215/.

5. See the website of World Malaria Day at www.rbm.who.int/worldmaliaday/ (accessed April 18, 2008).

6. According to a 2000 World Bank study, public health expenditure in forty-eight sub-Saharan African countries averaged only 1.6 percent. See David H. Peters, A. E. Elmendorf, K. Kandola, and G. Chellaraj, "Benchmarks for Health Expenditures, Services and Outcomes in Africa during the 1990s," *Bulletin of the World Health Organization* 78, no. 6 (2000), available at [www.who.int/bulletin/archives/78\(6\)761.pdf](http://www.who.int/bulletin/archives/78(6)761.pdf) (accessed April 18, 2008). A study of HIV/AIDS expenditures in Kenya, Rwanda, and Zambia found that in no country was public-sector funding responsible for more than one-quarter of HIV/AIDS expenditures. Donors financed 34 percent of HIV/AIDS expenditures in Kenya, 46 percent in Zambia, and 78 percent in Rwanda. See S. Muchiri et al., "HIV/AIDS Expenditures in Sub-Saharan Africa: Observations from Kenya, Rwanda and Zambia" (presentation), available at www.abtassociates.com/presentations/Tania_Dmytraczenko_final_13_July.ppt (accessed April 18, 2008).

7. WHO, Global Malaria Programme, *Informal Consultation on Malaria Elimination: Setting Up the WHO Agenda*, Tunis, February 25–26, 2006, available at www.who.int/malaria/docs/malariaeliminationagenda.pdf (accessed April 21, 2008). In India, malaria incidence decreased from 75 million to about 100,000 cases per year. See WHO, *Implementation of Indoor Residual Spraying of Insecticides for Malaria Control in the WHO African Region* (Brazzaville: WHO Regional Office for Africa, November 2007), 1, available at www.afro.who.int/vbc/reports/

[report_on_the_implementation_of_irs_in_the_african_region_2007.pdf](http://www.who.int/malaria/docs/malariaeliminationagenda.pdf) (accessed April 2, 2008).

8. Lulu Muhe, *Community Involvement in Rolling Back Malaria* (Geneva: RBM, 2002), available at www.who.int/malaria/cmc_upload/0/000/016/247/community_involvement.pdf (accessed April 4, 2008).

9. WHO, *Guidelines on Prevention of the Reintroduction of Malaria* (Cairo: WHO Regional Office for the Eastern Mediterranean, 2007), available at www.emro.who.int/dsaf/dsa743.pdf (accessed March 31, 2008). See also Roger Bate, "The Rise, Fall, Rise, and Imminent Fall of DDT," *Health Policy Outlook* no. 14 (November 2007), available at www.aei.org/publication27063/.

10. WHO, *Guidelines on Prevention of the Reintroduction of Malaria*.

11. WHO, Regional Committee for the Western Pacific, Twenty-Second Session, *Malaria*, WPR/RC22.R5, September 23, 1971, available at www.wpro.who.int/rcm/en/archives/rc22/wpr_rc22_r05.htm (accessed March 31, 2008). Emphasis added.

12. Lulu Muhe, *Community Involvement in Rolling Back Malaria*.

13. *Plasmodium falciparum*.

14. WHO, Regional Office for South-East Asia, "Malaria: Historical Background," available at www.searo.who.int/en/Section10/Section21/Section334_4008.htm (accessed March 31, 2008).

15. For more discussion of indoor residual spraying, see Roger Bate, "The Rise, Fall, Rise, and Imminent Fall of DDT."

16. WHO, *Implementation of Indoor Residual Spraying of Insecticides for Malaria Control in the WHO African Region*.

17. Other African areas that experienced success included southern Africa and Zambia's Copperbelt Province, both areas in which well-organized public health systems successfully controlled the disease. See *ibid*.

18. *Ibid*.

19. RBM, *Africa Malaria Report 2003* (Geneva: RBM, 2003), available at www.rbm.who.int/amr2003/amr2003/amr_toc.htm (accessed March 31, 2008).

20. United Nations (UN) General Assembly, Forty-Ninth Session, *Preventive Action and Intensification of the Struggle against Malaria in Developing Countries, Particularly in Africa*, A/RES/49/135, February 17, 1995, available at www.un.org/ga/49/r135.pdf (accessed March 31, 2008).

21. RBM, *Internal Review: Final Report*, available at www.rbm.who.int/changeinitiative/InternalEvaluation.pdf (accessed April 4, 2008).

22. RBM, *Abuja Declaration* (Abuja, Nigeria, April 25, 2000), available at www.rbm.who.int/docs/abuja_declaration.pdf (accessed April 18, 2008).

23. *Ibid*.

24. Amir Attaran, Roger Bate, et al., "The World Bank: False Financial and Statistical Accounts and Medical Malpractice in Malaria Treatment," *The Lancet* 368, no. 9531 (April 25, 2006): 247–52.

25. RBM, *Africa Malaria Report 2003*.

26. Andrés de Francisco and Stephen Matlin, eds., *Monitoring Financial Flows for Health Research 2004* (Geneva: Global Forum for Health Research, 2004), 59; analysis based on WHO source data.

27. RBM, *Africa Malaria Report 2003*.

28. Roger Bate, "Bad Medicine: The WHO, the World Bank, and Mission Creep," *Health Policy Outlook* no. 6 (2006), available at www.aei.org/publication24278/.

29. A 2002 World Bank analysis of 125 low- and middle-income countries with populations of more than 1 million found that nearly half (sixty countries) did not adhere to key international statistical methods and accepted standards of good practice in gathering data. With the exception of Afghanistan, the lowest-scoring countries were from sub-Saharan Africa. See World Bank, "Building Statistical Capacity to Monitor Development Progress," 2002, available at <http://siteresources.worldbank.org/SCBINTRANET/Resources/239410-1113334813340/board-paper-feb4.pdf> (accessed April 4, 2008).

30. UN General Assembly, Fifty-Fifth Session, *United Nations Millennium Declaration*, 55/2, September 18, 2000, available at www.un.org/millennium/declaration/ares552e.pdf (accessed April 21, 2008).

31. UN, Millennium Development Goals, available at www.un.org/millenniumgoals/goals.html (accessed April 21, 2008).

32. "African Health and Development: Are the Millennium Development Goals Helpful?" (conference, AEI, September 12, 2005), summary available at www.aei.org/eventsummary1137/. For discussion of measurement in Africa, see William Easterly, "How the Millennium Development Goals Are Unfair to Africa" (Global Economy and Development Working Paper 14, Brookings Institution, Washington, DC, November 2007), available at www.brookings.edu/~media/Files/rc/papers/2007/11_poverty_easterly/11_poverty_easterly.pdf (accessed April 3, 2008).

33. WHO, "Establishing a Global Partnership to Roll Back Malaria" (draft report, first partners' meeting, Geneva, December 8–9, 1998), available at www.rbm.who.int/docs/1gpm/1gpm.pdf (accessed March 31, 2008).

34. "Roll Back Malaria: A Failing Global Health Campaign," editorial, *British Medical Journal* 328 (2004): 1086–87, available at www.bmj.com/cgi/content/full/328/7448/1086 (accessed March 31, 2008).

35. RBM, "Global Financing, Commodities and Service Delivery," in *World Malaria Report 2005* (Geneva: RBM, 2005),

available at <http://rbm.who.int/wmr2005/html/3-1.htm> (accessed April 21, 2008).

36. Vasant Narasimhan and Amir Attaran, "Roll Back Malaria? The Scarcity of International Aid for Malaria Control," *Malaria Journal* 2, no. 8 (2003), available at www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=12787469 (accessed April 21, 2008); and Amir Attaran, Roger Bate, et al., "The World Bank: False Financial and Statistical Accounts and Medical Malpractice in Malaria Treatment."

37. World Bank, *Rolling Back Malaria: The World Bank Global Strategy & Booster Program* (Washington, DC: World Bank, June 2005), available at <http://siteresources.worldbank.org/INTMALARIA/Resources/377501-1114188195065/WBMalaria-GlobalStrategyandBoosterProgram-June2005.pdf> (accessed April 4, 2008).

38. Global Fund to Fight AIDS, Tuberculosis and Malaria, "How the Global Fund Works," available at www.theglobalfund.org/en/about/how/ (accessed April 18, 2008). The Global Fund is a part of the RBM partnership, but as an ex officio, nonvoting member of the partnership's board, its leadership impact is limited.

39. "Roll Back Malaria: A Failing Global Health Campaign," *British Medical Journal*.

40. Malaria R&D Alliance, "Malaria Research & Development: An Assessment of Global Investment," November 2005, available at www.malariaalliance.org/PDFs/RD_Report_complete.pdf (accessed March 31, 2008).

41. Draft Report of the UN Secretary General, November 2002, quoted in University of Pennsylvania, African Studies Center, "Africa: Broken Promises on Malaria," December 13, 2002, available at www.africa.upenn.edu/Urgent_Action/apic-121302.html (accessed April 21, 2008).

42. Charles Maponga and Clive Ondari, "The Quality of Antimalarials: A Study in Selected African Countries" (EDM Research Series 30, Department of Essential Drugs and Medicines Policy, WHO, Geneva, May 2003), available at http://whqlibdoc.who.int/hq/2003/WHO_EDM_PAR_2003.4.pdf (accessed June 13, 2007).

43. David H. Molyneux and Vinand M. Nantulya, "Linking Disease Control Programmes in Rural Africa: A Pro-Poor Strategy to Reach Abuja Targets and Millennium Development Goals," *British Medical Journal* 328 (May 8, 2004): 1029–32, available at www.bmj.com/cgi/content/full/328/7448/1129 (accessed April 18, 2008).

44. "Roll Back Malaria: A Failing Global Health Campaign," *British Medical Journal*.

45. WHO, Fiftieth World Health Assembly, *Promotion of Chemical Safety, with Special Attention to Persistent Organic Pollutants*, WHA 50/13, May 1997, available at www.who.int/ipcs/publications/wha/whares_53_13/en/index.html (March 31, 2008).

46. WHO, "WHO Gives Indoor Use of DDT a Clean Bill of Health for Controlling Malaria," news release, September 15, 2006, available at www.who.int/mediacentre/news/releases/2006/pr50/en/ (accessed April 8, 2008).
47. Ian Muir-Cochrane, "WHO Malaria Figures Are Flawed," BBC News, August 30, 2005.
48. Steven Radelet and Bilal Siddiqi, "Global Fund Grant Programmes: An Analysis of Evaluation Scores," *The Lancet* 369 (2007): 1807–13, available at www.cgdev.org/doc/LancetGlobalFundEvaluation.pdf (accessed April 4, 2008). According to analysis of 134 Global Fund grants, malaria programs were 12.9 percent less likely than HIV/AIDS programs to meet or exceed performance targets specified in the Global Fund grant agreement. This is likely due to the long-overdue switch to artemisinin combination therapies for drug-resistant malaria in 2004, researchers noted, which "slowed implementation and added costs."
49. RBM, "The Case for Change," February 21, 2006, available at www.rbm.who.int/changeinitiative/CaseforChange.pdf (accessed April 4, 2008). For a history of the Change Initiative, see RBM, "The RBM Partnership in Transition: Improving Effectiveness at All Levels," available at www.rbm.who.int/changeinitiative/RBMChangeInitiative.pdf (accessed April 4, 2008).
50. RBM, "What Is the Roll Back Malaria (RBM) Partnership?" available at www.rbm.who.int/aboutus.html (accessed April 4, 2008).
51. As Amir Attaran noted in 2005, RBM's biggest problem appeared to be moving from "advocacy to action." See Amir Attaran, "Malaria—Where Did It All Go Wrong?" *Nature* 430 (August 18, 2004): 932–33.
52. Donald G. McNeil Jr., "An Iron Fist Joins the Malaria Wars," *New York Times*, June 27, 2006.
53. "Finally Clearing the Air: America and Malaria," *The Economist*, December 9, 2006.
54. Sarah Boseley, "Arata Kochi: Shaking Up the Malaria World," *The Lancet* 367, no. 9527 (June 15, 2006): 1973.
55. Ibid.
56. Kochi affirmed that indoor residual spraying, especially with DDT, was "one of the best tools . . . against malaria." (WHO, "WHO Gives Indoor Use of DDT a Clean Bill of Health for Controlling Malaria.")
57. See the President's Malaria Initiative's website at www.fightingmalaria.gov.
58. RBM, "The Case for Change."
59. U.S. Agency for International Development, "Funding History: USAID Malaria Funding 1997–2006," available at www.usaid.gov/our_work/global_health/id/malaria/funding/malfunding.html (accessed April 4, 2008).
60. RBM, "The Roll Back Malaria Monitoring and Evaluation Reference Group," annex 4, in *World Malaria Report 2005* (Geneva: RBM, 2005), available at www.rbm.who.int/wmr2005/html/a4.htm (accessed April 18, 2008).
61. WHO, "WHO Informal Consultation with Manufacturers of Artemisinin-Based Pharmaceutical Products in Use for the Treatment of Malaria" (Geneva, August 24, 2007), available at www.who.int/malaria/docs/diagnosisandtreatment/MtgManufacturersArtemisininDerivatives.pdf (accessed April 21, 2008).
62. Ibid. Recent research in six African countries demonstrates that at least eight companies have continued to produce and distribute monotherapy tablets in the region. These include Cipla (based in India), Dafra (Belgium), ETDZS (China), Guilin (China), Kunming (China), Mepha (Switzerland), Qualiphar/Arenco (Belgium), and Shelys (Tanzania). See Roger Bate, Philip Coticelli, Richard Tren, and Amir Attaran, "Antimalarial Drug Quality in the Most Severely Malarious Parts of Africa: A Six-Country Study," *PLoS One* (forthcoming).
63. UNICEF and RBM, *Malaria and Children: Progress in Intervention Coverage* (New York: UNICEF, 2007), available at www.rollbackmalaria.org/docs/unicef2007/malariaandchildren_unicef2007.pdf (accessed April 4, 2008).
64. Roger Bate, "Last Chance for DDT," *Wall Street Journal*, November 5, 2007, available at www.aei.org/publication27067/.
65. Awa Marie Coll-Seck and Tedros Adhanom Ghebreyesus, letter to Michel Kazatchkine and Rajat Gupta, October 8, 2007. Copy on file with author.
66. Michel Kazatchkine (presentation, UK All-Party Parliamentary Malaria Group, London, January 21, 2008).
67. RBM, Affordable Medicines Facility, *Interim Report on Progress against Outstanding AMFm Implementation Challenges* (February 17, 2008), available at <http://rbm.who.int/partnership/tf/globalsubsidy/RBMAMFmTFinterimProgressReport.pdf> (accessed April 21, 2008).
68. WHO, "WHO Informal Consultation with Manufacturers of Artemisinin-Based Pharmaceutical Products in Use for the Treatment of Malaria."
69. World Bank, *Rolling Back Malaria: The World Bank Global Strategy & Booster Program*.