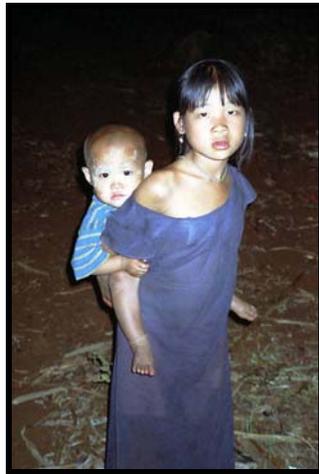


EMBARGOED RELEASE – MONDAY, MARCH 27, 2006 14:00 EST

**Responding to AIDS, TB, Malaria and Emerging Infectious Diseases in
Burma: Dilemmas of Policy and Practice
March 2006**

A Report by the Center for Public Health and Human Rights
Department of Epidemiology
Johns Hopkins Bloomberg School of Public Health



Authors:

^aChris Beyrer, MD, MPH

^aLuke Mullany, PhD

^bAdam Richards, MD, MPH

^cAaron Samuels, MHS

^aVoravit Suwanvanichkij, MD, MPH

^aTom Lee, MD, MHS

^aNicole Franck, MHS

^a The Center for Public Health and Human Rights, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; ^b Department of Family and Social Medicine, Montefiore Medical Center, New York, USA; ^c University of Maryland Medical School, Baltimore, MD, USA; ^d Department of Medicine, University of California at Los Angeles, Los Angeles, CA, USA

Sponsors: The Center for Public Health and Human Rights, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health; The Bill and Melinda Gates Population and Family Health Institute, Department of Population Family Health Sciences, Johns Hopkins Bloomberg School of Public Health

Contact:

Chris Beyrer, MD, MPH, Johns Hopkins Bloomberg School of Public Health, 615 N. Wolfe St./ E 7152, Baltimore, MD, 21205, USA; Tel: 410 614-5247; Email: cbeyrer@jhsph.edu

Nicole Franck, MHS, Johns Hopkins Bloomberg School of Public Health, 615 N. Wolfe St./ E 7144, Baltimore, MD, 21205, USA; Tel: 410 502-0800; Email: nfranck@jhsph.edu

Executive Summary

- I.** Introduction [p. 9-13]

- II.** SPDC Health Expenditures and Policies [p.14-18]

- III.** Public Health Status [p.19-42]
 - a. HIV/AIDS
 - b. TB
 - c. Malaria
 - d. Other health threats: Avian Flu, Filaria, Cholera

- IV.** SPDC Policies Towards the Three “Priority Diseases” and Humanitarian Assistance [p. 43-45]

- V.** Health Threats and Regional Security Issues [p. 46-51]
 - a. HIV
 - b. TB
 - c. Malaria

- VI.** Policy and Program Options [p. 52-56]

- VII.** References [p. 57-68]

Appendix A: Official translation of guidelines

Appendix B: Statement by Bureau of Public Affairs

Appendix C: Ministry of Livestock and Fisheries Avian Flu notification

Responding to AIDS, TB, Malaria and Emerging Infectious Diseases in Burma: Dilemmas of Policy and Practice

Executive Summary

In 2004 the Global Fund to Fight AIDS, Tuberculosis and Malaria awarded program grants to Burma (Myanmar) totaling 98.4 million USD over 5 years. The Fund did so recognizing the severity of Burma's HIV/AIDS epidemic, very high TB rates; and noting that malaria was the leading cause of morbidity and mortality in Burma, and the leading killer of children under age 5. Given longstanding concerns over the governance of the ruling junta, the State Peace and Development Council (SPDC), the Fund imposed additional safeguards on their Burma grants, and requested and received written guarantees from the junta that they would respect the safeguards and accept the Fund's performance-based grant system.

On August 18th, 2005, the Fund announced termination of the grant agreements, stating that "Given new restrictions recently imposed by the government which contravene earlier written assurances it has provided the Global Fund, the Global Fund has now concluded that the grants cannot be implemented in a way that ensures effective program implementation." Other terminations and withdrawals followed, including MSF France whose in-country representative stated in December, 2005 "The last year has been very difficult to implement our program because of restrictions imposed on our international staff regarding access to villagers." The restrictions occurred in a new political context. The SPDC moved the Burmese capital to Pyinmana in November, 2005. The International Committee of the Red Cross announced on Feb. 27th, 2006, that the junta had refused to allow the humanitarian agency to conduct its widely respected prison visits. Further restrictions on donor, NGO and international engagement in Burma were then issued by the SPDC in February, 2006. Burmese language versions of these regulations are more restrictive than English language ones released to the donor community.

This report seeks to synthesize what is known about HIV/AIDS, Malaria, TB and other disease threats including Avian influenza (H5N1 virus) in Burma; assess the regional health and security concerns associated with these epidemics; and to suggest policy options for responding to these threats in the context of tightening restrictions imposed by the junta.

SPDC Health Expenditures and Policies

Burma under the SPDC has markedly low levels of public funding for health and education, both of which have declined as proportions of GDP during the AIDS era. Budgets and years for selected diseases include the 2004 National AIDS Control Program budget of 22,000 USD; the 2004 filaria disease control budget of 6,000 USD, despite two million cases reported to the WHO per year in Burma; and a TB control budget of 312,000 USD in 2005. These are among the lowest levels of government investment in health worldwide. Laboratory infrastructure has weakened, and there is little evidence for capacity for disease surveillance beyond Rangoon and Mandalay. The limits on funding and the weakened laboratory infrastructure mean that all reported figures for disease rates and burdens should be viewed with caution. Where data can be verified or where other kinds of data are available, the officially reported burdens tend to be marked under-estimates of actual rates. The junta has developed a separate military health care system, about which little is known, but it is thought to be better funded and equipped than the civilian sector.

HIV/AIDS

By 2000 Burma clearly had a generalized epidemic of HIV infection, with an estimated 1/29 adults living with HIV, and some 48,000 deaths that year, according to the WHO. The official AIDS reporting system detected some 800 deaths over the same period. The national HIV sentinel surveillance was apparently suspended from 2000 until March-April of 2003. No further sentinel rounds appear to have been conducted since 2003 despite substantial donor aid for HIV/AIDS.

The 2003 national surveillance findings are difficult to interpret, inconsistent, and limited in scale and scope. They do suggest that HIV surveillance is too limited to accurately capture HIV/AIDS trends nationwide; that urban areas are over-represented; and that the laboratory data are likely unreliable. This is consistent with eyewitness accounts of the status of HIV control infrastructure: a visit by a U.S. trained physician in October 2005 revealed that the central reference laboratory for northern Burma was unable to conduct a CD4 test, a minimum standard for accepted monitoring for AIDS care.

TB

Burma today ranks as one of 22 countries that account for 80% of the world's new cases, with about 97,000 new cases diagnosed each year. Overall, about 40% of Burma's population is estimated to be infected with TB and WHO estimates that 6.8% of TB patients in Burma have HIV. Among patients with living HIV infection, 60-80% also have TB, making this the most common AIDS associated infection. Burma has the highest mortality rate amongst TB patients co-infected with HIV in Southeast Asia, at 2.8 per 100,000 population

The SPDC TB program raises serious concern. TB drugs are widely available without control on the black market, and many are taken with inadequate supervision. The diagnostic test currently used for TB notification is sputum exam; in many cases, particularly with HIV co-infection, TB is missed using only this test, and culture is needed. This is not possible in most of Burma due to laboratory infrastructure restraints. A February 2006 WHO reported noted that there was a "...shortage of qualified staff, especially junior laboratory technicians," and that "...a quarter of all sanctioned posts in the National TB Program are vacant."

These failures have had a predictable result: rising rates of drug resistance. In 2005, 33.9% of TB isolates were resistant to any one of the four standard first-line drugs, with the rate of multi-drug resistant TB more than doubling to 4.2%; among patients who had received treatment in the past, this figure rose to 18.4%. This means Burma's *official multi-drug resistant TB rates are more than double those of her neighbors.*

Malaria

Burma reported over 700,000 cases of malaria in 2004, of which almost 80% is the most dangerous type, *Plasmodium falciparum*, and Burma consistently records the most malaria related deaths (almost 2,500) of any country in the region, including India, with her vastly larger population. Slightly over half of all Asia's malaria deaths in 2005 occurred in Burma. As with TB, drug control program failures appear to have led to rising rates of anti-malarial drug resistance. Up to 70% of anti-malarial pills sold in Burma contain substandard amounts of active ingredient, exposing malaria parasites to substandard levels of active ingredients, thereby increasing the risk of resistance and threatening future effectiveness. The most effective drug for resistant malaria is artesunate: counterfeit artesunate, containing little or no active compound, is

now widely available in Burma and over a fifth of drugs sampled in one recent analysis were fake.

Mosquito control using insecticide-treated nets (ITNs) is known to reduce episodes of malaria, particularly for infants and children. This aspect of control is also limited: only 20-41% of an urban population living along the Thai-Burma border was reportedly covered by insecticide treated bednets, well below the goal of 60% coverage set at the Abuja Summit for 2005. The MSF France program in eastern border areas was not given permission to distribute bednets despite working in highly endemic areas. Data from Thai—Burma border programs makes clear that malaria morbidity and mortality are markedly higher in most of the eastern Burma conflict zones than for the rest of the country—and it is these areas with the least SPDC health program access. Hence the national malaria data, as troubling as they are, are clearly markedly underestimating the actual disease burden in the country.

Other Diseases and Health Threats: Avian influenza (H5N1), Filariasis, Cholera

The same conditions that drive the high prevalence of these three diseases also give rise to other emerging health threats, most notably Avian influenza. In a rare admission, Burma's Country Health Profile submitted to the WHO states that: "The principal endemic diseases in Myanmar are cholera, plague, dengue haemorrhagic fever, watery diarrhoea, dysentery, viral hepatitis, typhoid, and meningococcal meningitis. Cholera, plague, and dengue haemorrhagic fever reach epidemic proportions in certain years, often occurring in cycles." These are largely diseases that are preventable with adequate monitoring, treatment, and control programs.

Avian influenza, the H5N1 virus, was first reported in Burma on March 8th, 2006, reported on a poultry (chicken) farm near Mandalay. While SPDC reported the outbreak to WHO and called for international assistance with its control, they refused to alert the citizens of Burma until March 17th, after the outbreak had widened to include quail farms and to Sagaing Division in upper Burma. A March 14th report noted that "Six days after junta officials first began to investigate the deaths of 112 chickens in Mandalay and three days after the Ministry of Livestock and Fisheries itself confirmed the presence of the deadly H5N1 strain of the virus, Burma's state-run press was silent on the issue. The only mention of bird flu was in a report on new cases discovered in Poland." By March 18th more than 10,000 chickens and quail were reported to have died, and an additional 41,000 birds culled. Lengthy delays in notifying the

public is poor public health practice and a discouraging prognostic indicator for further responses.

Mandalay has some capacity for disease surveillance, and has one of the few functioning laboratories in upper Burma, but it is unclear if there is capacity to identify emergence or spread of the virus beyond the city. Specimens from Mandalay were sent to Bangkok for confirmatory testing.

Filariasis, the cause of elephantiasis, is highly endemic in Burma, with a reported 2 million cases per year and an unknown number with clinical disease. The SPDC has *disinvested* in its filariasis control program, funding in 2004 was 6,000 USD. Thailand's annual budget for filariasis control stands closer to 20 million baht, or \$500,000; in 2002, only 185 new patients were reported to the Thai MoPH.

SPDC Policies and Humanitarian Assistance

Public sector investment in education and healthcare combined in Burma is less than \$1 per person per year - one of the lowest levels of public investment in the world. These low levels of funding were part of Burma's very low ranking in the WHO millennium assessment of health care systems, where Burma ranked 190 out of 191 states, outperforming only Sierra Leone. The limits on funding for health programs have driven calls for increased donor aid—but donor aid has increasingly restricted in 2005-2006. In February 2006, the SPDC Ministry of National Planning and Economic Development put forward new Guidelines for UN Agencies, International Organizations and NGOs/INGOs on Cooperation Programme in Myanmar. These formalize and reaffirm both those restrictions which led to the GF pullout and the SPDC's interests in state control, Ministry level approval of programs, coordination, of Memoranda of Understanding, of project implementation, opening and registration of field offices, appointment of staff, internal travel, management and equipment purchases, and coordination at the State, Division, and Township levels. These levels of oversight indicate an increased level of junta engagement and control of international humanitarian activities. The "Internal Travel" section states that the National Planning Ministry coordinates travel within the country, and accompanies all officials. Burmese nationals report that the Burmese language versions of the policies are even more restrictive.

Transnational Issues and Security Concerns

Burma's HIV epidemic is associated with highest prevalence zones in both India (the border states of Manipur and Nagaland) and China (Yunnan Province). Data on malaria, and filariasis from Thailand show that for these diseases, Thailand's remaining endemic zones are largely on her Burma border and occur mostly in Burmese migrants. However, for the first time in decades, clinical filariasis re-emerged in urban Thailand in 2004, diagnosed in two migrants from Burma. For both malaria and TB, multi-drug resistance generated by Burma's weak programs for drug control are increasing drug resistance in Thailand and India and threatening to undermine the only effective regimens for drug resistant *Plasmodium falciparum* in South and Southeast Asia. Taken together these health threats for known diseases also underscore Burma's risks for her neighbors of new and emerging infectious diseases. Resurgent drug resistant malaria and TB have the potential to threaten enormous populations. HIV spread related to Burmese heroin exports has already done so and affects India, China, Thailand, Vietnam, and, most recently Bangladesh.

Policy and Program Options

Engagement with health threats through the junta are becoming increasingly difficult, largely due to increasing SPDC control and program restrictions post-Pyinmana. Cross-border interventions are feasible and can be effective in some settings. Where cross border approaches are not feasible, donors and international organizations will likely have to attempt to work inside Burma in an increasingly limited space. Regional partners will likely have to put greater pressure on the SPDC to allow humanitarian assistance and health collaborations if they seek to control their own epidemics of AIDS, malaria, TB, and other disease threats. The initial phases of the Avian flu response include hopeful indications (reported the Mandalay outbreak and requesting assistance) and discouraging ones (delay in sharing information with the people of Burma). Donors and the international community will likely need to explore all possible avenues, including bypassing state controlled media, to share health information with the people of Burma.

I. INTRODUCTION

In 2004 the Global Fund to Fight AIDS, Tuberculosis and Malaria awarded program grants to Burma (Myanmar) totaling 98.4 million USD over 5 years. The Fund did so recognizing the severity of Burma's HIV/AIDS epidemic, which they reported had reached over 2% prevalence in pregnant women nationwide; citing Burma's tuberculosis (TB) epidemic as having among the highest TB rates worldwide, with an estimated 97,000 new cases detected annually; and noting that malaria was the leading cause of morbidity and mortality in Burma, and the leading killer of children under age 5.(1) For those engaged in Burma in health, humanitarian assistance and development efforts, these awards were welcomed indeed, and were widely seen as addressing what was already a well-described and deepening health and humanitarian crisis.(2) Burma's authoritarian military regime, the State Peace and Development Council, or SPDC, was already accused of severe and ongoing human rights violations in 2004, and UN Secretary General Kofi Annan had earlier appointed both a Special Rapporteur on Human Rights and a Special Envoy to promote dialogue with the elected leadership, evidencing a high level of concern over the junta's governance. Given these realities, the Global Fund imposed additional safeguards on their Burma grants, and requested and received written guarantees from the junta that they would respect the safeguards and accept the Fund's performance-based grant system.

On August 18th, 2005, the Fund announced termination of the grant agreements, stating that "Given new restrictions recently imposed by the government which contravene earlier written assurances it has provided the Global Fund, the Global Fund has now concluded that the grants cannot be implemented in a way that ensures effective program implementation."(1) The Fund made clear in their announcement of withdrawal that the decision was due to the SPDC having imposed new restrictions on access to project implementation areas, and having added additional procedures to procurement of medical supplies. That same month James Morris, Executive Director of the World Food Programme (WFP), visited Burma and called for a relaxation of government controls on the procurement and distribution of food commodities, including aid.(3) He stated that "Current agricultural and marketing policies, and restrictions on the movement of people, make it very difficult for many of those at risk to merely subsist..." WFP reported that one in three Burmese children was chronically malnourished or stunted, and that 15% of the 2005 population of 53 million was food-insecure.(3) Several months later, in

December, 2005, the medical charity Medecins Sans Frontiers France reported that they too were withdrawing from Burma, and again cited junta restrictions on staff travel to project areas as the primary cause for the withdrawal. MSF France's in-country representative stated in a December 20th, 2005 interview that "The last year has been very difficult to implement our program because of restrictions imposed on our international staff regarding access to villagers."⁽⁴⁾ He added "It was very difficult to implement our program [in Burma] to provide equal access to health care. So by virtue of the poor performances of last year, we have decided to pull out."

In February 2006, a third organization, the International Committee of the Red Cross (ICRC), suspended work they were doing in Burmese prisons as a result of insistence by the Union Solidarity and Development Association (USDA), the political wing of the junta, that they supervise such actions.⁽⁵⁾ "Basically, the situation is not very good," said Fiona Terry, a spokeswoman for ICRC in Rangoon. "The government has not authorized us to visit since the end of last year."⁽⁶⁾ One of the most contentious conditions, Terry said, was making the ICRC take local government-affiliated agencies such as the Myanmar Red Cross or Myanmar Women's Federation on visits to political prisoners or "security detainees", as it calls them.

"We were willing to cooperate for a certain amount of things. We were willing to share our knowledge. We were very happy if some Myanmar groups got involved in the welfare of detainees," Terry said. "But obviously we are not able to visit with them. We have to have an independent view of what's going on and to talk with the detainees without any witnesses." The ICRC was trying to negotiate a solution, noted Terry, although the process was being hampered in part by the military government's move to a new administrative centre at Pinyinmana, 200 miles (320 km) north of the old colonial-era capital, Yangon [Rangoon]."⁽⁶⁾ After the ICRC announcement, the former UN human rights envoy to Burma, Paulo Sergio Pinheiro, pointed to the halt of ICRC prison visits as evidence of the deteriorating human rights situation in Burma.

In all these cases, restrictions on access and activity have included lengthy time delays for approval to travel to project sites outside the capitol, variously reported as taking up to three weeks; the addition of junta approved "minders" on all site visits, and limits on time allowed at sites, generally no more than three days on any one visit. Such restrictions have led many donors to conclude that they cannot continue to operate in the country, however great the needs. These restrictions have recently increased: in February 2006, the SPDC Ministry of National Planning and Economic Development put forward new Guidelines for UN Agencies, International

Organizations and NGOs/INGOs on Cooperation Programme in Myanmar. The guidelines formalize and reaffirm both those restrictions which led to the GF pullout and the SPDC's interests in state control. The Guidelines spell out a high degree of central control of activities, including Ministry level approval of programs, coordination, of Memoranda of Understanding, of project implementation, opening and registration of field offices, appointment of staff, internal travel, management and equipment purchases (vehicles are specifically named), and coordination at the State, Division, and Township levels. The English language version of the Guidelines (Appendix A) are highly restrictive. But the Burmese language versions, which have not been formally distributed to the international community, appear to be even more restrictive, and to spell out more explicit levels of junta control in humanitarian assistance. While the English version does not detail processes for national staff recruitment, the Burmese language versions states that candidate lists for national staff recruitment be provided to relevant ministries. The Burmese version of the guidelines also details the Coordinating Committee members in full, and includes a number of junta-controlled and affiliated organizations including the Union Solidarity and Development Association (founded by Senior General Than Shwe), the Police, and the Myanmar Maternal and Child Welfare Association, currently led by the wife of an SPDC General (the post was previously held by the wife of Gen. Khin Nyunt, former head of Military Intelligence.) These levels of oversight suggest an increased level of junta engagement and control of international humanitarian activities at all levels.

Other donors and government aid agencies have argued that aid should be increased, and have continued to attempt to engage with the junta and its civil service arms. The several program withdrawals from Burma highlight what has become a contentious and complex dilemma for the international community: how best to respond to the worsening health crises affecting the people of Burma--hunger, HIV/AIDS, TB, malaria, and other infectious diseases such as Avian influenza, while the ruling regime makes humanitarian and public health responses increasingly difficult. This is not a new dilemma--Burma has endured military rule since 1962. Nevertheless, the situation has become more compelling as Burma's health and humanitarian crises have been increasingly recognized as playing important roles in South and Southeast Asia.(7)

A review of the recent medical literature on malaria and tuberculosis show that Burma's poorly managed and under-funded control and treatment programs for these diseases have

contributed to the generation and spread of drug-resistant strains in the region.(8, 9) In the HIV/AIDS arena, there is mounting evidence of Burma's key role in the generation of new recombinant forms of HIV and of regional spread driven by Burma's narcotics exports.(10,11) All of these emerging disease threats have regional, as well as national implications. In 2005, 65% of all malaria deaths in Asia occurred in Burma.(12) Further, there is evidence of past epidemics of other infectious diseases including a 1999 epidemic of Anthrax in the Wa area and at least one major outbreak of cholera in the Irrawaddy Delta, that were never fully investigated or reported internationally.(13) The spectrum of newly emerging pathogens, including Avian Flu, which was first reported in Mandalay in March of 2006, and Burma's uncertain ability and willingness to effectively respond to new disease threats, is a cause for further concern. There is an emerging consensus that Burma's health challenges can no longer be ignored, but this has been paired with an increasingly clear recognition that the ruling junta is currently unwilling to accept the minimum standards of international agencies offering assistance. How can these dilemmas be addressed? And what approaches might feasibly be tried to respond to HIV/AIDS, tuberculosis, and malaria in Burma, given the current political context? To address these questions several aspects of Burma's current political situation are relevant.

The Political Context of Aid

On November 6th, 2005, at 6:37 am, an hour apparently chosen for astrological reasons, the Burmese junta began an abrupt relocation of the Government, including its civil servants, to a remote interior town, Pyinmana, some 250 miles north of the Capital, Rangoon.(14, 15) Pyinmana is well known in Burma for a network of deep natural underground caves, and was apparently chosen for the security provided by the caves. The move was widely seen as evidence of the junta's deepening isolation and was deplored by western governments, including the U.S., but also drew unusually outspoken responses among Asian Governments. Some analysts have suggested that the restrictions placed on relief agencies for travel outside Rangoon and the long delays involved in getting such approvals were imposed by the junta to limit access to upper Burma as the junta prepared its move to Pyinmana.(16) Concurrently, the increasingly erratic junta has also called for and actively supported the widespread cultivation of *Jatropha curcas* or the physic nut nationwide as an alternate fuel source.(17) Whatever the relationship, these actions came after the Global Fund withdrawal and during a period when those calling for

increased aid to make up for the withdrawal were actively seeking greater engagement with the regime.

A second factor of critical policy import has been the ongoing detention of the leader of the winning party in Burma's last (1990) elections, Daw Aung San Suu Kyi, the detention of many other political prisoners, and ongoing violence and intimidation against former political prisoners. At this writing, Aung San Suu Kyi remains the only Nobel Peace Prize winner in detention, and has been incommunicado since an attack on herself and her entourage in May, 2003, in which scores were killed. The junta has repeatedly rebuffed calls for her release, choosing instead to extend the duration of her arrest, without elaborating on the reason.(18) Leaders of ethnic-based opposition groups have also suffered, with Khun Htun Oo and Sai Nyunt Lwin, leaders of the Shan Nationalities League for Democracy (SNLD), which won the second most votes in 1990, sentenced last year to 93 and 85 years imprisonment, respectively, for "discrediting" the government and "criticizing" the country's National Convention.(19) The most recent evidence of the junta's treatment of former prisoners has been the March 17, 2006, fatal public beating of former student leader Thet Naing Oo by Rangoon police and fire officials (Appendix B). The SPDC's treatment of political prisoners, and its refusal to honor the 1990 election results, have limited many donors engagement with the junta, including engagement in public health efforts with the SPDC Ministry of Health. When Aung San Suu Kyi had been able to address policy questions around humanitarian relief, she repeatedly emphasized the need for accountability, transparency, and independent monitoring of assistance programs.(20) These concerns have proven prescient, given the Global Fund and MSF withdrawals over access to program areas and concerns over program accountability.

II. SPDC HEALTH EXPENDITURES AND POLICIES

The SPDC has repeatedly been cited for its markedly low levels of public funding for health and education, both of which have declined as proportions of GDP during the AIDS era. The Burmese military budget consumes about 40% of national expenditures, maintaining a standing army of over 400,000 troops. Health and education systems, once the envy of Asia, receive <3% and 10%, of expenditures respectively.(21, 22) Table 1 shows recent disease-specific expenditures for the junta budgets.

Table 1. SPDC Expenditures for Disease Control, 2003-2005 for selected infectious diseases

	Year	Amount, US \$
Malaria ¹	2003	23,041,000
HIV/AIDS ²	2004	22,000
Tuberculosis ³	2005	312,000
Filariasis ⁴	2004	6,000

¹ SPDC *total* health budget was \$18 million for the same year (2003).

Source: World Malaria Report 2005. WHO/UNICEF, Myanmar Country Profile. (23)

² National AIDS Control Program.

³ The total reported budget was 5,200,000 USD, mostly from donors, the SPDC contribution to the National TB Program is 6%.

Source: WHO Global TB Report (24)

⁴ WHO Biennium Budget. Source: National Programme to Eliminate Lymphatic Filariasis, Ministry of Health. Annual Report for the National Programme to Eliminate Lymphatic Filariasis (PELF), Myanmar. December 2004, Yangon, Myanmar. (25)

Widespread corruption has also weakened the health sector.(22, 26) Hospitals are operating at very rudimentary levels and, with low government staff wages and corruption, families often must bribe hospital employees to obtain even substandard treatment, in addition to paying for the actual costs of medical expenses.(27-29) Public health programs are also underfunded by SPDC. For perhaps the most cost-effective health intervention, childhood immunizations, 90% of vaccines for preventable diseases such as measles are now provided for by the United Nations Children's Fund.(30) Taken together, these factors help explain Burma's year 2000 health systems ranking by the World Health Organization as 190th of 191 nations, outperforming only war torn Sierra Leone.(27)

Disinvestment, coupled with censorship and intimidation by the authorities, have also eroded Burma's once vaunted educational system, particularly in higher education, a situation that continues to worsen as many of the most skilled and knowledgeable educators and professionals have fled abroad.(31) Libraries and other educational facilities, are woefully inadequate, where available.(31, 32) The authorities have also periodically closed institutions of higher learning in an attempt to curtail political dissent, and many students and educators languish in prison as political prisoners.(33) Although the junta claims to be producing more graduates, including in the field of health, given the sharp fall in medical and nursing education standards, the capacity of recent graduates to effectively perform in their fields is in serious question.(31, 34) Noted a recent medical graduate, now in exile:

“I got my degree, MBBS, in 2000 in Rangoon. Two months before the end of internship, a first cousin died because of the disease [AIDS], that's when I first became interested in HIV/AIDS. After my internship, two friends had chronic diarrhea and chronic fever, the same problem. I try to treat them, there were no HIV doctors in Burma and I first studied about ART [anti-retroviral therapy] then. They did not teach this in medical school, I had to learn on my own.” [Interview, JHU Center for Public Health and Human Rights, January 22, 2005, Mae Sot, Thailand.]

These same pressures have eroded Burma's laboratory infrastructure, both directly as a result of disinvestment as well as indirectly, through creating a dearth of skilled technical personnel.(24) The U.S. Centers for Disease Control and Prevention mission to Burma contains one of the few external laboratory assessments available on Burma in the past several years. Their assessment was that laboratory infrastructure in the public sector (military facilities aside) was markedly underfunded, underdeveloped, and in need of expansive investment.(35) Noted the same Burmese physician in exile:

“There are shortages of supplies in the hospitals, especially for civilians but in the military also. There are no drugs, no food, no reagents for the laboratories. Sometimes we had to transfuse blood without checking for hepatitis B antigen or HIV because we had no reagents to test.” Interview, JHU CPHHR, January 22, 2005, Mae Sot, Thailand.

The lack of laboratory infrastructure is even more marked in rural and conflict zones (see next paragraph below). In one large district in Karenni State in which malaria is highly prevalent, only a single microscope was available for malaria diagnosis in 2005.(36) From HIV/AIDS surveillance data, and eyewitness reports, we know that the two main laboratory sites for HIV screening are Rangoon and Mandalay. Many areas in upper Burma beyond Mandalay

appear to have almost no functioning laboratory capacity in 2006. Thus it was not surprising that the first reports of Avian Flu have come from Mandalay, perhaps likely to be the only site outside Rangoon capable of even crudely identifying the H5N1 flu virus.

The medical and education shortfalls have been exacerbated by junta policies that have impoverished the country; today, a quarter of all Burmese households have incomes below minimal subsistence level and 70% of household expenditures are spent on food, causing many to go without basic education or health services, especially in rural areas where poverty is more prevalent.(37) The situation is especially grave in frontier areas largely dominated by ethnic minority groups, particularly near the border with Thailand. The three main groups continuing to actively resist the Burmese military include the Shan State Army-South (SSA-S), Karenni National Progressive Party (KNPP), and the Karen National Liberation Army (KNLA), the armed wing of the Karen National Union (KNU). It is against these groups, in particular, that the *Tatmadaw* or Burmese army employs a counter-insurgency campaign known as the Four Cuts Policy, aimed at cutting the four crucial links between them and local villages (food, funds, recruits, and information) and increasing Burmese army control over the local population.(38, 39) Central to this strategy is forced relocation to areas more firmly controlled by the Burmese government and the destruction of food, rice fields, and food storage facilities.(40, 41) Forced to move and bereft of assistance from the government or humanitarian aid agencies, the result is disproportionately more poverty and vulnerability to further health threats.(39) And, unable to return to their fields, many are forced to forage in the jungle, risking landmine injuries, malnutrition, malaria and, ultimately, increased morbidity and mortality.(41-46)

In 1996-1997, unable to fully support the costs of maintaining their large standing army, the Burmese government introduced a policy of self-sufficiency for the regional commands, resulting in local army units increasingly engaging in subsistence business, such as the sale of timber, and increasing abuses on the populace, particularly in the conflict areas, in the form of arbitrary taxes, land and property confiscation, rape, and forced labor on public works and military projects.(47, 48) The brunt of these policies have been borne in Shan State, particularly in areas that have faced increased militarization.(49, 50) Unable to survive at home, an estimated 600,000 to 1 million live in Burma as IDPs, while millions more have fled into neighboring countries, particularly Thailand, currently home to an estimated two million migrants from Burma.(51, 52)

The junta generally responds to allegations of abuses with denials, claiming the allegations are a result of the “media outside the nation inventing fabricated news” and “slander.”(53) Health matters are generally more problematic, given the limited health infrastructure of the country, weak disease surveillance and reporting systems, and lack of information from rural, remote areas. Ongoing active conflict, particularly in eastern Burma in the Mon, Karen, and Shan areas, sharply limits data collection in these zones inside the country, although not on her borders.(23, 42) To compound these problems, Burma’s Ministry of Health, like all government programs, is directly controlled by the SPDC, with Secretary-1 of the ruling council, Lt-Gen Thein Sein, directly chairing the National Health Committee. The junta is known for secrecy, censorship, and sharp limitations on criticism of the government. Thus, even where the capacity exists to collect health information, what the junta has allowed to be shared with the international community has generally been limited, sometimes outrightly suppressed, and of uncertain validity.(54) Where data have been shared with the international community, as in Avian Flu, they are often not shared with the Burmese people or have been shared after lengthy delay.

Avian influenza, the H5N1 virus, was first reported in Burma on March 8th, 2006, emerging on a poultry (chicken) farm near Mandalay. While SPDC reported the outbreak to WHO and called for international assistance with its control, they refused to alert the citizens of Burma until March 17th, after the outbreak had widened to include quail farms and to Sagaing Division in upper Burma.(55) A March 14th report noted that “Six days after junta officials first began to investigate the deaths of 112 chickens in Mandalay and three days after the Ministry of Livestock and Fisheries itself confirmed the presence of the deadly H5N1 strain of the virus (Appendix C), Burma’s state-run press was silent on the issue. The only mention of bird flu was in a report on new cases discovered in Poland.”(5)

By March 18th more than 10,000 chickens and quail were reported to have died, and an additional 41,000 birds culled.(55) Lengthy delays in notifying the public is poor public health practice and a discouraging prognostic indicator for further responses. Mandalay has some capacity for disease surveillance, and has one of the few functioning laboratories in upper Burma, but it is unclear if there is capacity to identify emergence or spread of the virus beyond the city. Specimens from Mandalay were sent to Bangkok for confirmatory testing.

Taken together, these realities make it difficult to know how credible any data are from Burma. However, there is an increasing body of evidence, particularly with three national priority diseases (HIV/AIDS, TB, and malaria), to suggest the magnitude of the problem and the junta's role in the ongoing spread of these disease entities and the generation of new strains of pathogens, all of which have destabilizing regional public health and security implications.(56)

III. HIV/AIDS, TB AND MALARIA IN BURMA: WHAT IS KNOWN

A. HIV/AIDS

We reported an estimation of the scale of Burma's HIV/AIDS epidemic in 2003. We used data from the national HIV sentinel surveillance of the National AIDS Control Program of the Ministry of Health, and a national household survey to generate conservative estimates of HIV prevalence, and identified a population rate of 3.46% of reproductive age adults living with HIV infection in mid-year 2000.(2) UNAIDS estimated a slightly lower prevalence, but an estimated 46,000 deaths attributable to AIDS that year. The national reporting system identified just 802 AIDS in 2000. The sentinel surveillance was apparently either suspended or not reported until March-April of 2003, when it was again undertaken. These data were not widely reported, but were made available to us (Tables 2 and 3). No further sentinel rounds appear to have been conducted.

Table 2. Sentinel Surveillance data from March-April, 2003, from the National AIDS Control Program of the Ministry of Health, Burma [Myanmar].

Groups	# Sites	Total N	# HIV+	% HIV+	Med.	Min.	Max.
Male STD	29	2713	163	6.01	6.00	0.00	21.00
Female STD	8	693	63	9.09	12.55	1.00	18.18
Sex Workers	2	185	58	31.35	-	11.00	55.17
IDU	6	243	92	37.86	48.10	23.00	77.78
ANC	29	5654	93	1.64	1.00	0.00	7.50
Blood donors	2	5596	69	1.23	-	1.05	1.38
New Military	2	1199	25	2.09	-	1.00	3.17

Table 2. shows the 2003 national HIV sentinel surveillance results. For those populations where only 2 sites were surveyed, including sex workers, blood donors, and military recruits, the 2 sites in all 3 cases were the cities of Rangoon and Mandalay. The only populations with sentinel coverage from most states and regions are the two with 29 sentinel sites, male sexually transmitted disease clinic attendees (male STD), and pregnant women. Overall, the samples are generally quite small, making the estimates of minimum and maximum prevalence (shown as reported by the NACP) quite wide. As an example, the median HIV prevalence among 2713 male STD patients surveyed is 6%, giving a minimum estimate of 0.0% and a maximum of 21%.

The minimum would suggest Burma had a very low HIV prevalence, the maximum would place it among the highest reported in Asia. Similarly, the range for pregnant women is from 0.0 to 7.5% HIV prevalence, again, wide enough to make interpretation difficult. Taken together these data suggest several features: the HIV sentinel surveillance is probably too limited in scale and scope to accurately capture HIV/AIDS in this large and diverse country; urban areas are over-represented; and the laboratory data are difficult to interpret and are likely unreliable. This is consistent with eyewitness accounts of the status of HIV control infrastructure in the country: a visit by a U.S. trained physician from the region in October 2005 revealed that the central reference laboratory for northern Burma was unable to conduct a CD4 test, a minimum standard for accepted monitoring for AIDS care and a key indicator of when to begin anti-viral therapy. In addition, despite the fact that the office was responsible for areas of Burma worst hit by the HIV epidemic, there was only a staff of approximately 20 individuals to carry out this task. It is relevant also to note that in the HIV sentinel surveillance, the only sites where blood donors appear in the screening is from Rangoon and Mandalay. While additional sites may have the laboratory capacity to screen HIV, this does not appear in the national AIDS data.

Table 3 (next page) presents the same 2003 surveillance data by site, and gives percentages, not absolute numbers, across sites. These disaggregated data suggest additional concerns with the sentinel surveillance. Sex worker rates in the 2 cities sampled are quite divergent, with 11% reported prevalence in Rangoon, the capital, but 55.17% prevalence in Mandalay sex workers. Looking at ANC rates from the same two cities, we see 2.0% prevalence in Rangoon, but strikingly lower. 0.50% infection rates in Mandalay. While such an outcome is possible, given the small numbers sampled, it is highly unlikely. Further uncertainty is found in the fact that female STD clinic attenders in Rangoon had higher rates than sex workers, and again, the opposite was true in Mandalay. Such divergent findings in the two largest cities in the country suggest more methodologic and sampling differences than true variance in rates. A U.S. Centers for Disease Control mission to Burma in 2003 came up with essentially the same conclusion, strongly advocating for improved surveillance methods and laboratory upgrades.⁽⁵⁴⁾ CDC also proposed a collaboration to do this, similar to the work the CDC had done with Thai Ministry of Public Health in HIV surveillance. This effort did not go forward when the junta refused to allow for confidential voluntary counseling and testing, a cornerstone of the CDC's efforts globally.⁽⁵⁴⁾ All HIV positive test results continue to be reported to the junta.

Table 3. Site Specific HIV sero-positive rates (%) among sentinel population, March-April, 2003.

Sites	Male STD	Female STD	SWs	IDUs	ANC	Blood Donors	Mil. rec
Rangoon	15.0	15.0	11.0	33.33	2.0	1.05	1.00
Mandalay	7.55	18.18	55.17	53.57	0.50	1.38	3.17
Meiktila	21.0	-	-	-	2.50	-	-
Taungyi	11.0	1.00	-	23.00	1.00	-	-
Lashio	1.0	-	-	77.78	0.50	-	-
Tachilek	13.00	-	-		2.75	-	-
Muse	2.50	-	-	66.67	3.11	-	-
Dawei	7.00	3.00	-	-	0.50	-	-
Kawthaung	3.0	16.0	-	-	1.0	-	-
Myitkyeena	13.51	17.19	-	42.62	1.50	-	-
Bamaw	10.0	-	-	-	2.01	-	-
Mawlamyaing	0.0	-	-	-	0.53	-	-
Pathein	0.0	-	-	-	0.00	-	-
Bago	7.0	10.1	-	-	0.0	-	-
Pyay	14.0	-	-	-	5.0	-	-
Magway	6.0	-	-	-	1.5	-	-
Hpa-an	0.00	-	-	-	7.50	-	-
Sittwe	2.0	-	-	-	0.00	-	-
Monywa	0.0	2.0	-	-	1.0	-	-
Liokaw	0.00	-	-	-	0.0	-	-
Haka	2.17	-	-	-	0.00	-	-
Hintharta	0.0	-	-	-	2.0	-	-
Maubin	0.0	-	-	-	1.0	-	-
Myeik	4.0	-	-	-	2.0	-	-
Myingyan	6.0	-	-	-	0.50	-	-
Pakokku	4.0		-	-	3.5	--	-
Shwebo	9.0	-	-	-	2.0	-	-
Kyaington	8.0	-	-	-	2.0	-	-
Myawaddy	6.0		-	-	1.0	-	-

Surveillance data on HIV/AIDS in Burma is limited, but other data do suggest some important aspects of the epidemic. Molecular epidemiologic data from several groups working both within the country and on the India, China, and Thai border regions, suggest that Burma's epidemic is characterized by marked viral diversity, high rates of recombination and circulating recombinant forms, and very high rates of HIV and HCV co-infection among injecting drug users (IDUs).(10) This molecular picture has been linked to Burmese heroin trafficking routes, and to the very high exposure settings of injection drug use in upper Burma. IDUs in upper Burma typically use at tea stall settings, where injection equipment is kept on the premises, and is used repeatedly and by multiple users, creating extraordinary opportunities for viral interactions. Variants identified in this zone include CRF01_A/E, B, C, CRF07_B/C, CRF08_B/C, CRF15_01/B, and unique B/C, and C/E recombinant forms.(10)

Most recently, diverse forms of second-generation, inter-CRF recombinants of CRF07_BC and CRF01_AE were identified amongst recent seroconverters in Rangoon, providing evidence of ongoing high level transmission.(11) The 07 and 08 variants spread from this region to become the dominant forms of HIV infection in much of Southwest, Southern, and Western China, and there is evidence that, similarly, the new second generation recombinants are also spreading in this area.(11) The CRF15 virus has been identified as circulating in Thailand and Malaysia. Virtually all of the variants have also been subsequently found in the India-Burma border areas, underscoring the centrality of Burma to both the regional narcotics trafficking industry and to the generation of new recombinant forms of HIV-1.(57-59) The lack of prevention and treatment services for IDUs in the border areas in India, China, and Thailand, subsequently allowed for much wider epidemics of HIV in these areas and these program failures have little to do with Burma, but the high rates of injection drug use in these regions is a clear outcome of Burma's production and export of heroin. Despite some declines, Burma remains the world's second leading producer and by far the largest heroin exporter in Southeast Asia.(60, 61)

B. TB

The limited information on priority infectious diseases in Burma is perhaps most pronounced for tuberculosis (TB). Despite this gap, Burma's TB epidemic does appear to have marked parallels with the HIV/AIDS and malaria situations in the country. What is known is that South and Southeast Asia have the highest burden of TB worldwide, with one in three cases

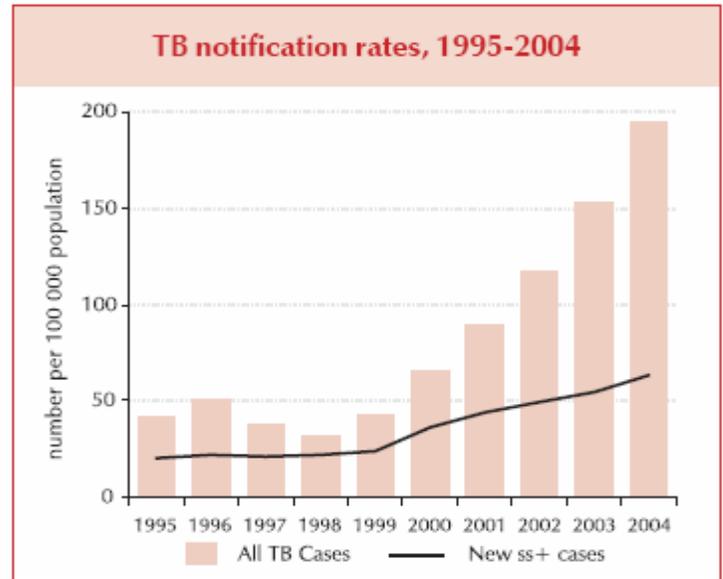
of TB diagnosed worldwide in the region. Almost all cases of TB diagnosed here are accounted for by five countries: Bangladesh, India, Indonesia, Thailand, and Burma.(62) Burma today ranks as one of 22 countries that account for 80% of the world's new cases, with about 97,000 new cases diagnosed each year.(1,62,63,64) Overall, approximately 40% of Burma's population is estimated to be infected with TB.(65) In recognition of this, the Ministry of Health has designated tuberculosis as a priority disease.(34) Nevertheless, attempts to address TB have been limited, and Burma has been rated by the WHO as moving far too slowly to adequately control TB, a problem identified by WHO as far back as 1998 due to a lack of political will and commitment.(63)

The epidemic of TB in Burma is closely linked to that of HIV. The WHO estimates that approximately 6.8% of TB patients in Burma have HIV, while in patients with living HIV infection, 60-80% also have TB, making this the most common opportunistic infection in AIDS.(62, 65, 66) Today, Burma has the highest mortality rate amongst TB patients co-infected with HIV in Southeast Asia, at 2.8 per 100,000.(62)

The cornerstone of the WHO strategy for controlling TB is directly observed treatment short course (DOTS), whereby a community or healthcare worker directly observes the patient swallowing their anti-tuberculosis treatment, usually a combination of drugs taken over at least six months. The regimen costs approximately \$11 per course.(63) In addition, the optimal TB control strategy also entails case detection and monitoring systems.(63) Inherent is the need for laboratory and other infrastructure in order to carry out a successful program. With the introduction of WHO's DOTS program in Burma in 1997, the government claims that case detection rates have improved. (Figure 1) (62) The country now also claims to have 100% DOTS coverage amongst its 324 townships and a treatment success rate of 81%, just below the goal of 85% set by the WHO for 2005.(24, 62, 67) Other available data, however, suggests that this optimistic scenario is unlikely to the case.

Figure 1: TB Case notification rates submitted to the WHO by the Burmese government, claiming increased detection rates. Source: WHO- SEAR(73)

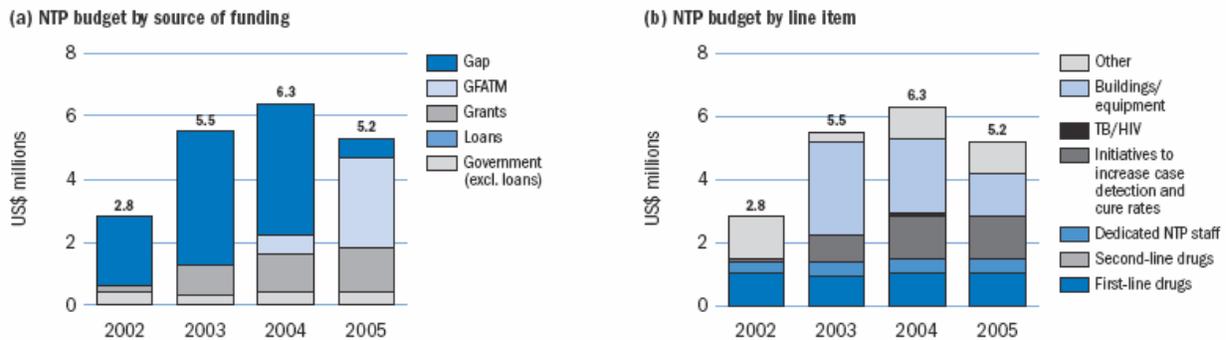
Trends	00	01	02	03	04
Notification Rates					
All cases (per 100k)	65	89	117	153	195
New ss+ (per 100k)	36	44	49	55	63
DOTS case-detection rate					
New ss+ (%)	48	56	65	73	84
Treatment success (DOTS, ss+, %)	82	81	81	81	—



While scant independent information is available; there are some data suggesting that TB programs may be performing much more poorly than the SPDC has avowed. A 2005 WHO report noted that “a national TB prevalence survey would provide a more accurate estimation of incidence and a baseline for assessing the impact of DOTS services on the TB epidemic,” indicating that basic information to gauge the extent of the epidemic has not yet been collected.(24) Most health expenditures in Burma is from private sources, spent in private clinics and with general practitioners who may not comply with DOTS standard practices.(68-70) TB drugs in Burma are widely available without control on the black market, and many patients take them without supervision and are not reported to the authorities.(8,70) Indirect data on the actual state of TB control in Burma is available from clinics providing services to Burmese patients on the Thai side of the Thai-Burma border, including the Mae Tao Clinic facility in Tak Province. In 2004, despite the fact that most clients of the Mae Tao Clinic are Burmese migrants resident in Thailand, amongst patients with tuberculosis, residents of Burma double those of Thailand, and these patients are largely commuting across the border to obtain TB care unavailable at home.(71) These kinds of program failures, in addition to contributing to further high-level spread of TB, can have grave implications on the rates of antibiotic resistance.

Several TB program shortcomings have been acknowledged by both the Burmese Government and the WHO. As seen in Figure 2, despite increasing TB prevalence rates, most likely from increased detection and notification, reported funding from the government has not risen to match the problem. Rather, the junta has relied on donors to make up for budget shortfalls, providing only 6% of the National Tuberculosis Program (NTP) budget.(24) Noted the report, “The NTP budget was around US \$3 million in 2002, but a large funding gap meant that actual expenditures were only around US \$1 million, primarily for staff and first-line drugs.” It also noted, “strengthening of the national laboratory network is needed... It is also planned to introduce culture in four state/divisional laboratories in Bago, Mawlamyine, Patheingyi, and Taunggyi.”(24)

Figure 2: Funding sources for the National TB Program, Burma. Source: WHO Global TB Report (24)



The diagnostic test being currently used in Burma for TB notification is examination of the sputum for the bacterium; however, in many cases, particularly with HIV co-infection, TB is missed using only this system, and culture or attempting to grow the bacterium is necessary. This is not possible yet in Burma due to laboratory infrastructure restraints. This is particularly relevant in those state capitals where HIV is highly prevalent, such as Taunggyi. Further, the same report also admitted to a “...shortage of qualified staff, especially junior laboratory technicians,” and that “...a quarter of all sanctioned posts in the NTP are vacant.”(24) All of these represent barriers to implementation of TB control programs and likely affect accurate reporting of cases as well as management of reported cases.

There is also microbiologic evidence that suggests the TB control program in Burma is failing: rising antibiotic resistance, a problem especially common where there is failure to complete the full treatment regimen of at least six months. Multi-drug resistant (MDR) TB, defined as resistance to two or more of the primary drugs used in the treatment of TB, is more difficult to treat, carries a high mortality, and is expensive to cure. In one analysis, inpatient costs for treatment of MDR TB averaged over \$25,000, with outpatient costs averaging over \$19,000.(72) In the first publication on this issue, an analysis done in Rangoon in 2000, 33.3% of isolates from patients newly diagnosed with pulmonary TB were resistant to at least one first-line drug (isoniazid, rifampicin, ethambutol, or streptomycin), and 2% of isolates were MDR TB.(70) The author concluded, “Our present results, therefore, indicate that drug resistance is an imminent threat to TB-control efforts in Yangon.”

In a follow up analysis by the same group, published in 2005, 33.9% of TB isolates were resistant to any one of the four standard first-line drugs, with the rate of multi-drug resistant TB more than doubling to 4.2%; among patients who had received treatment in the past, this figure rose to 18.4%.(8) The same authors found that a history of exposure to TB treatment for at least one month was associated with an over 3-fold odds of developing MDR TB. Noted the authors, “Evaluating and strengthening the quality of TB control in the Yangon division needs to be prioritized by the NTP since one-third of *M. tuberculosis* isolates were resistant to any 1 of currently used anti-TB drugs.”(8) To put this in perspective, the average MDR rates in Southeast Asia are 2.0%, so Burma’s *official multidrug resistant TB rates are more than double those of her neighbors.*(73) Data concerning MDR TB along the borders is sparse; however, isolates collected from the Thai side of the Thai-Burma border reveal that MDR TB accounts for 6.5% of TB isolates, compared to 0.9% for the rest of Thailand.(74)

There are currently no national guidelines on treatment of patients with MDR TB and, given that the necessary second-line drugs to treat this problem are only available in private pharmacies and hospitals, and that culture and drug-susceptibility testing are needed to guide therapy, most patients with MDR TB are likely to be insufficiently treated, increasing the risk ongoing of transmission of this entity.(8, 62)

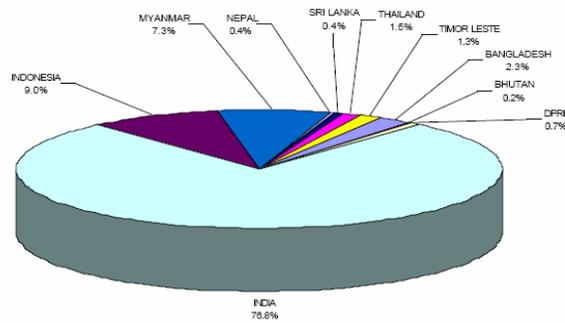
C. Malaria

Epidemiology

There are considerable parallels between malaria and HIV/AIDS programs in Burma. Malaria is also a “priority disease” according to the Ministry of Health and, similarly, the extent of the problem is uncertain.(66) Official statistics reported to the WHO demonstrate that malaria causes proportionately more death and suffering in Burma than any other country in Southeast Asia.(12) Burma reported over 700,000 cases of malaria in 2004, of which almost 80% is the most dangerous type, *Plasmodium falciparum*, and consistently records the most malaria related deaths (almost 2,500) of any country in the region, including India, with her vastly larger population.(12,23,75) This figure puts Burma’s *reported* malaria caseload at about 7.3% of the region but 53.6% of malaria deaths, particularly in children under 5.(1,12,23) (Figure 3) Over 38.3 million of the 54.3 million Burmese live in severe to moderate malaria risk zones, over 70% of the population.(12)

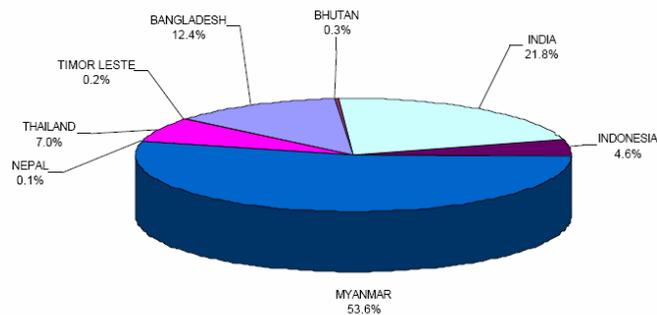
According to the WHO, the annualized country-wide incidence rate of malaria is approximately 3.6 cases per 1,000 population (0.36%) per year (2003 data).(12) The areas of greatest risk disproportionately lie in the forested border areas of Burma, mostly populated by impoverished ethnic minorities living in areas ravaged by decades of conflict. (Figure 4) Over half of Burma’s malaria cases are reported from just 100 townships in these areas, townships which account for only 25% of the population (13.7 million people).(76) As a result, according to WHO, actual malaria related morbidity and mortality in Burma is likely “much higher than reported” because of poor access to health services in these remote areas:(23) only an estimated 25-40% of suspected malaria cases seek care at public health facilities.(76) In one analysis, the morbidity rates as a result of malaria were highest in Chin and Karenni States, at over four times the national rates.(77) This poor access to care is also reflected in Burma’s malaria deaths relative to cases ratio of 3%, the highest in the region, outstripping the next highest, Bangladesh at 0.8%, by a significant margin.(78) This figure is higher in ethnic minority states; in one analysis, Kachin State had mortality rates for malaria almost five times higher than the national average.(77)

Distribution of Reported Malaria Cases in SEA Region, 2003



Total Reported Malaria Cases = 2,425,556

Distribution of Reported Malaria Deaths in SEA Region, 2003



Total Malaria Deaths = 4620

Figure 3: Burma accounts for about 7% of malaria cases reported in Southeast Asia, including India, yet over half the malaria deaths in the region occur in this country.
Source: WHO, SEAR. (12,78)

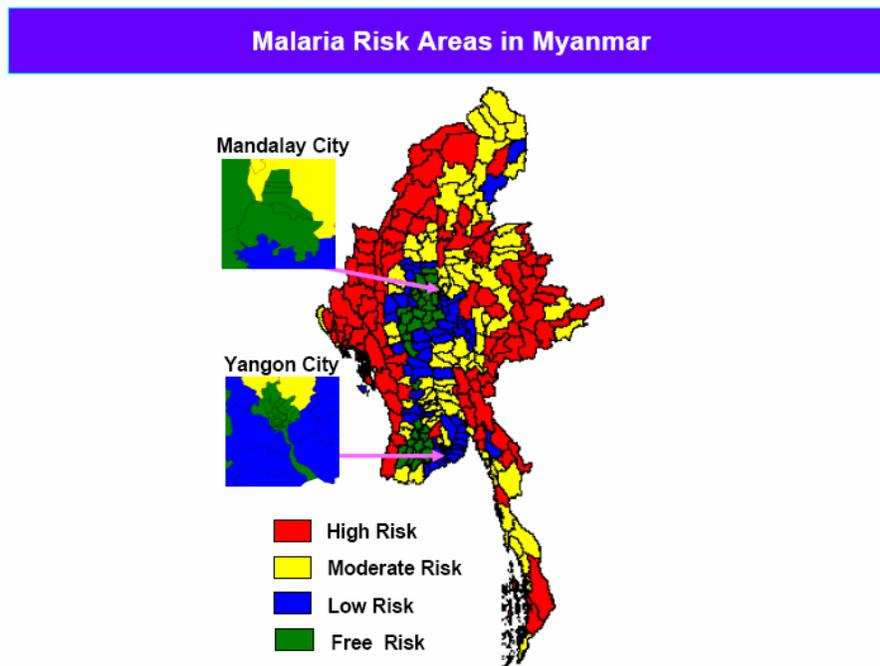


Figure 4: Malaria risk areas in Burma. The areas at highest risk are overwhelmingly along the frontiers, at sites where insurgencies and widespread human rights abuses occur. Source: WHO Malaria Situation in SEAR Countries: Myanmar. (115)

Less is known about malaria in conflict areas, with the Myanmar Ministry of Health reporting severe deficiencies in data for these areas.⁽⁷⁹⁾ Several small studies have investigated the incidence and prevalence rates of malaria in rural Burma, showing that both are remarkably high. Several studies performed in rural Burma have consistently recorded incidence rates of up to 30% to 75% per year; in one analysis, universal infection of a cohort occurred over the course of three years follow-up.⁽⁸⁰⁻⁸³⁾ In another analysis, despite chemoprophylaxis being given over four months, the incidence rate was still 12% to 21.6%; a re-infection rate of approximately 10% was also noted.⁽⁸⁴⁾ Other surveys looking at malaria prevalence in Burma revealed that between 10-40% of the study populations were infected.^(85, 86) At the Mae Tao Clinic, operating on Thailand's border with Burma's Karen State and serving primarily Burmese migrants, malaria accounted for over a quarter of hospitalizations, and was, with TB, the second most common cause of death (after HIV/AIDS).⁽⁷¹⁾

Although there are no published studies describing the burden of malaria among Burma's internally displaced persons (IDPs), systematic population surveys conducted by mobile teams of backpack workers in 2001-2004 suggest that IDP's in Karen, Mon, and Karenni States

experience an even more severe malaria crisis. In 2004, 15,559 cases of malaria, confirmed and presumptive, were treated in a population of 176,200 by the Backpack Health Worker Team (BPHWT).(87) These figures are consistent with those of the Karen Department of Health and Welfare (KDHW), which treated over 10,000 cases of malaria in a population of over 80,000 IDPs in eastern Burma.(87) In a population-wide survey performed by BPHWT and KDHW using Paracheck, a rapid diagnostic test for malaria, 12% of 250,000 IDPs in eastern Burma were found to be asymptomatic carriers, indicating a massive reservoir of untreated individuals.(87) In sharp contrast, the Tak Malaria initiative reported a 2.8% asymptomatic carrier rate in Burmese migrants along the Thai-Burma border.(88) Amongst IDPs of eastern Burma, *Plasmodium falciparum*, the dominant malaria species in this area, now accounts for 45% of all adult and child deaths.(42) Other clinics and mobile health worker teams managed by local ethnic CBOs (Shan, Palaung, Kachin, Karenni, and Arakan) similarly report malaria as the most significant health problem in their respective areas.

Challenges to Malaria Control

The ecology of malaria in Burma poses multiple challenges to control. Transmission is seasonal, with cases in most areas clustering around the rainy season. This ‘unstable’ transmission pattern, coupled with the fact that approximately 80% of cases are caused by *Plasmodium falciparum*, the most deadly form of the parasite, increases the probability of severe infection and/or death. The effectiveness of prevention efforts such as insecticide treated bednets (ITN’s) and residual house spraying is diminished by the mosquito vectors indigenous to the forested areas (*A. dirus*; *A. minimus*),(85) which bite earlier in the evening and tend to rest outside the home. However, there are also non-biologic factors which contribute to the problem of malaria in Burma.

As is true with the other two priority diseases, disinvestment by the junta and the weakening of Burma’s health infrastructure has also affected malaria control, with the disease burden disproportionately borne by those living in the frontiers of the country. Similar to data regarding malaria and HIV/AIDS epidemiology, the Burmese budget allocated for malaria control remains elusive and, where it exists, inconsistent. In 2002, the government expenditure on malaria was \$134,000, with an additional \$800,000 of external funding.(89) For the next year, 2003, the annual “national funds” devoted for malaria control were reported at just over

\$23 million, with another \$622,000 from “other sources.”(23) (Figure 5) This figure may be misleading. SPDC total health expenditures for the same year totaled about 20 billion kyat, some \$18 million USD based on the actually used, but unofficial exchange rates. Hence, the reported malaria budget alone is larger than the national health care expenditures, suggesting that much of the reported budget is in fact, donor aid.(66) Further, given the ongoing economic stagnation in Burma, a rapid rise in domestic funding to this degree compared to the previous year is also highly unlikely.(90)

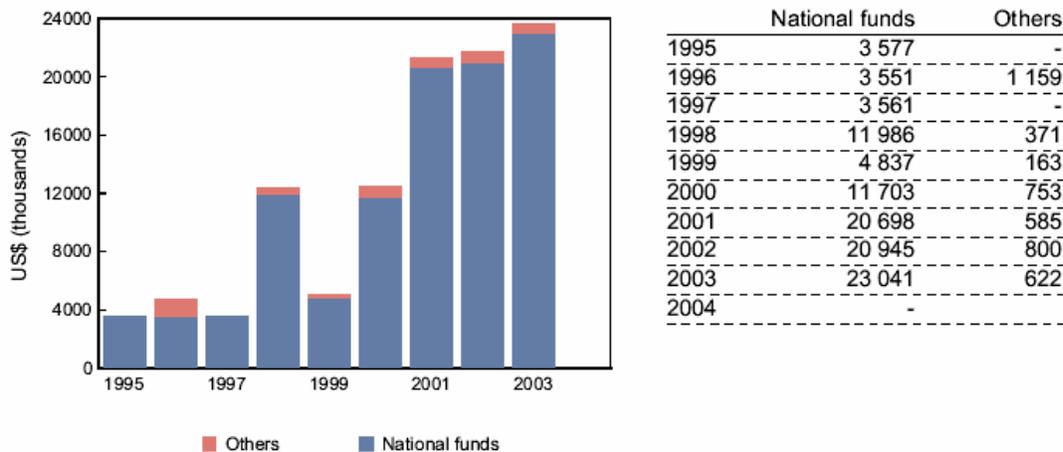


Figure 5: Funding for Burma’s malaria control program, as reported to the WHO and UNICEF. Source: World Malaria Report 2005. (23)

Not only is Burma highly endemic for malaria, it has also become an epicenter for drug resistant *Plasmodium falciparum* malaria, particularly along the frontiers of the country.(77) Chloroquine and sulfadoxine-pyramethamine (SP), two former mainstays of malaria treatment, are too frequently ineffective if used alone, and have been abandoned in favor of combination therapies.(77, 91-93) The Thai-Burma border in particular has documented significant levels of clinical treatment failure and *in vitro* resistance against quinine and mefloquine. In this region, between 1986 and 1997, a 10-fold decrease in mefloquine sensitivity was noted, and the use of this drug alone is also no longer effective.(9, 77) In addition, quinine, an effective antimalarial in most regions of the world, has reached resistance levels as high as 33% among pregnant Karen women along the Thai-Burma border.(94)

Multi-drug resistant *P falciparum* malaria, defined as resistance to three or more drugs, is most problematic on the border with Thailand.(77) As a result, combination therapy, particularly with artesunate and high-dose mefloquine, is now the recommended treatment for *falciparum*

malaria to reduce the spread of multi-drug resistance, including in the official Burmese treatment guidelines. There are currently no other practical alternative in this area to artemisinin compounds to date.(77, 95, 96)

Malaria drug resistance generally arises due to incomplete or inappropriate use of anti-malarials, of program failure, and of the sale and use of fake or expired antimalarials, all of which are present in Burma. There is almost no regulatory oversight of the importation and sale of anti-malarials in Burma by the government, and the proportion of fake drugs is high.(97) Although much anti-malarial drugs sold in Burma contain no active ingredient, up to 70% contain substandard amounts of active ingredient, which is far worse from a public health standpoint: exposing malaria parasites to substandard levels of active ingredient promotes the selection of drug resistance, and threatening the future effectiveness of the entire combination.(98)

These underlying realities, in the face of an effective drug, artesunate, ultimately threaten to undermine its utility. The more expensive artemisinin derivatives strain already scarce resources available for treatment of malaria, and many Burmese continue to purchase their medications on the black market, including these drugs, which are also dispensed without control and supervision.(77, 95) And, counterfeit artesunate, containing little or no active compound, is now common and easily available in Burma, where over a fifth of drugs sampled in one analysis were fake.(98, 99)

Mosquito control using insecticide-treated nets (ITNs) have been shown to reduce episodes of clinical malaria, particularly childhood morbidity and mortality as a result of this disease.(100) As a result, there has been an increase in the distribution and re-treatment of insecticide treated nets in recent years.(23) However, ITN's remain scarce through most of the country, with cost posing a significant barrier for many in this impoverished country.(81) The situation is especially dire along the border, where healthcare services are already marginal. In a survey presented by the Burmese Ministry of Health, only 20-41% of an urban population living along the border was covered by insecticide treated bednets, well below the goal of 60% coverage set at the Abuja Summit for year 2005.(101)

Border Areas

The burden of malaria is disproportionately borne along the frontiers. (Figure 4) In these areas the effects of disinvestment in Burma's health and educational infrastructure are most acutely felt. Although Burma's official literacy statistics cite figures of over 90%, actual functional literacy rates are closer to 30%, especially in areas dominated by ethnic minorities, where the teaching of local languages is often forbidden.(52, 102) As a result, health education efforts have been crippled, an effect extending to malaria control, with levels of knowledge regarding transmission and treatment of malaria in rural Burma being low.(103) And, with disproportionately widespread poverty in these areas, only about half of those in one survey completed their therapy as a result of cost, increasing the risk of treatment failure as well as resistance.(104) Similarly, laboratory services and treatment facilities continue to be seriously lacking in these areas, according to many sources, including the WHO, further contributing to the disproportionately high malaria prevalence, morbidity, and mortality along the frontiers.(12, 102)

These factors, coupled with large-scale population movements as a result of civil conflict, and forced displacement policies, dramatically increase malaria risks, contribute to outbreaks of disease and hasten the spread of drug resistance regionally.(77, 105-108) Although data directly linking the military junta to the malaria situation along the borders is limited, BPHWT has documented that the risk of malaria is increased among those who have undergone forced relocation and forced labor or suffered from food insecurity, and that SPDC counter-insurgency strategies have indirectly elevated malaria risk, morbidity, and mortality.(43) Bednets are almost absent, given that many IDPs, already impoverished, have had to hastily flee Burmese military patrols and hide in the jungles.(109) Theft of foodstuffs by Burmese soldiers often forces IDPs to forage in the jungles, increasing malaria exposure.(43) Burmese military forced laborers working in the jungles often fall sick with malaria and are denied treatment by their captors.(110) In many contested areas, properly-trained health providers are non-existent and the Burmese military obstructs delivery of medical supplies; as a result, villagers are forced to purchase medications informally or rely on herbal remedies.(45, 102) And, in some areas where the construction of large projects such as transnational gas pipelines and dams have occurred, the resultant ecologic changes have increased the risk of malaria.(111, 112)

In addition to these factors increasing the risk of acquiring malaria, they also may contribute to the widespread problem of resistance in these areas. Although published studies of malaria-related behavior in the border areas of Burma are scarce, as noted earlier, one survey among IDPs in eastern Burma in 2001 suggested that the main factor for discontinuing therapy, a risk for generation of resistant parasites, was severe poverty.(104)

Despite the disproportionate toll malaria exacts on its population living along the frontiers and the regional implications of this unaddressed problem, rather than support humanitarian agencies, the SPDC has impeded the implementation of non-government programs by restricting access of international NGO's and through open hostility to indigenous efforts. The junta negotiated in 2004 with Medecins Sans Frontiers to open several fixed and mobile malaria clinics in Karenni State.(113) In some areas, MSF was forced to rely exclusively on local staff due to travel restrictions placed on foreigners.(114) However, soon, the SPDC constrained clinical activities to locations and times suitable to the military and finally suspended all activities of several clinics in late 2004.(113) The BPHWT and the Karen Department of Health and Welfare provide the only malaria services to areas of Karen State not under government control, and the Burmese military poses a persistent threat to their activities. Military patrols have repeatedly attacked ethnic minority communities, delaying or precluding delivery of health services to many villages.(43)

D. Other Diseases and health threats: Avian Flu, Filariasis, Cholera

Although the three priority diseases of AIDS, Malaria and TB account for much of the burden of morbidity and mortality in Burma and have the most significant regional public health implications for the region, there are others. The Country Health Profile submitted to the WHO states that: “The principal endemic diseases in Myanmar are cholera, plague, dengue haemorrhagic fever, watery diarrhoea, dysentery, viral hepatitis, typhoid, and meningococcal meningitis. Cholera, plague, and dengue haemorrhagic fever reach epidemic proportions in certain years, often occurring in cycles.”(116) These are, for the most part, diseases that are preventable with adequate monitoring, treatment, and control programs. This is a surprising disclosure from the junta, given the degree of secrecy that usually surrounds epidemics and natural disasters. However, despite this admission, much less is known about other infectious diseases and emerging threats.

Avian Flu

Avian flu, and the human infections and fatalities with the H5N1 influenza strain that have occurred in Asia to date, is a regional and global concern. Given Burma’s poor health and laboratory infrastructure, the closed nature of the regime, and the increasingly marked limits on access to Burma and her people, the concern over the potential for Burma to play a devastating role in the evolution of Avian flu is prudent. Burma’s first report of the H5N1 virus describe emergence on March 8th, 2006, on a farm in the Kywesekan ward of Mandalay district, 430 miles north of Rangoon.(117)

Some 112 birds were identified as killed by the outbreak. While the veterinary authorities in country called for international assistance, the state run media refused to notify the Burmese people of the threat until March 17th, more than a week later.(55) Six days after junta officials first began to investigate the deaths of 112 chickens in Mandalay and three days after the Ministry of Livestock and Fisheries itself confirmed the presence of the deadly H5N1 strain of the virus, Burma’s state-run press was silent on the issue. Today’s [March 14th, 2006] New Light of Myanmar instead devoted its front and back pages to a story on top government officials—including vice Snr-Gen Maung Aye and Prime Minister Gen Soe Win—attending a Buddhist alms ceremony in Rangoon. The only mention of bird flu was in a report on new cases discovered in Poland.(5)

By March 18th 2006, more than 10,000 chickens and quail were reported to have died, and an additional 41,000 birds culled.(55) Mandalay has some capacity for disease surveillance, and has one of the few functioning laboratories in upper Burma, but it is unclear if there is capacity to identify emergence or spread of the virus beyond the city. Specimens from Mandalay were sent to Bangkok for confirmatory testing and the SPDC was reportedly cooperating with the Food and Agriculture Organization on an increased response.

Nevertheless, it is clear from eyewitness accounts of medically trained observers that the laboratory infrastructure in Rangoon and Mandalay, while certainly the best in Burma, remains weak and lacking in staff, equipment, and reagents. But Burma is the largest country in mainland Southeast Asia, and has very large areas in the North, South, and West, and the Shan Plateau to the East, where little if any laboratory infrastructure appears to be functioning in 2006. Hence, the SPDC's ability to conduct Avian flu or other disease surveillance outside Rangoon and Mandalay is highly uncertain. While H5N1 may indeed have first emerged in Mandalay, it is also true that emergence in many areas of the country would likely have been missed had it occurred, and likely will be missed should the virus emerge elsewhere or spread from the Mandalay and Sagaing Division focus.

When disease surveillance does report an outbreak, as has now happened with Avian Flu, the SPDC reaction has generally to restrict information to the population. It is difficult to imagine how Burmese citizens can be expected to take necessary precautions, and avoid, for example, children touching or holding sick pet birds (a common cause of Avian flu sickness and of some 80 deaths in children in Vietnam and Thailand) if they have not been informed that the disease is present and spreading in the country. This kind of *information control*, as opposed to *disease control*, has hampered health education for AIDS and Malaria, and is likely to do so for new disease threats as well. The problem of reliable information to the public appears to be more severe in remote areas—precisely those places with the weakest health infrastructure. As reported by Clive Parker on March 16th:

“Residents of Tachilek in Shan State—which borders Thailand—and Myitkyina, the capital of Kachin State, told The Irrawaddy today they knew nothing of any suspected cases of bird flu in Burma...Laurence Gleeson, an official of the Food and Agriculture Organization in Bangkok, said that ultimately non-disclosure to the public could work against efforts to contain the spread of the virus. “Ideally it is good for the surveillance system that people are aware, so that new cases are quickly reported,” Gleeson said,

referring to the situation in Europe where isolated cases have been quickly reported because of high public awareness.” (5)

Early reports indicate that the SPDC intends to work more closely with the international community in responding to Avian flu than they have done on other health threats. They reported to H5N1 outbreak to the FAO, and have requested international assistance with quarantine and culling supplies and equipment. They reportedly have quarantined at least 4 poultry farms in the region around the initial outbreak, and they have shared samples from infected animals with Thailand and Australia. All of these steps suggest their recognition that the international community is greatly concerned about H5N1, and about SPDC willingness to respond effectively. The delay in alerting the Burmese people however, does undermine the effectiveness of the response thus far—and the concerns about capacity virtually anywhere North, East or West of Mandalay to identify the virus remain.

Lymphatic filariasis

A neglected disease that is re-emerging in the region is lymphatic filariasis. Approximately 120 million people worldwide are infected and it is an important cause of morbidity, with over 40 million worldwide disfigured and disabled by its long-term outcome, elephantiasis.(118, 119) Most cases are caused by one species of parasite, *Wuchereria bancrofti*, transmitted by several different mosquito species.(118,120) The disease disproportionately affects the “poorest of the poor,” reducing productivity and incurring treatment costs in those least able to bear it.(119,121,122)

The cornerstone of controlling this disease is mass drug administration (MDA), whereby single dose anti-parasitic drugs (diethylcarbamazine with ivermectin) are administered as widely as possible (80-90%) in communities at risk, for about 4-6 years.(121-124) It is simple and inexpensive, usually costing less than one dollar per person per year; there are few public health measures that are as cost-effective, particularly for the most economically disadvantaged.(119, 121) In recognition of these realities the World Health Organization issued Resolution 50.29 in 1997, calling on all member states to eliminate lymphatic filariasis, after the International Task Force for Disease Eradication (ITFDE) named this entity one of six potentially eradicable diseases.(125,126)

Using mass drug strategy in endemic areas, Thailand has been able to eliminate transmission in almost the entire country; lymphatic filariasis is now mainly confined to the three provinces of Tak, Mae Hong Son, and Kanchanaburi, along the western border with Burma. (Figures 6, 7) (127-129)

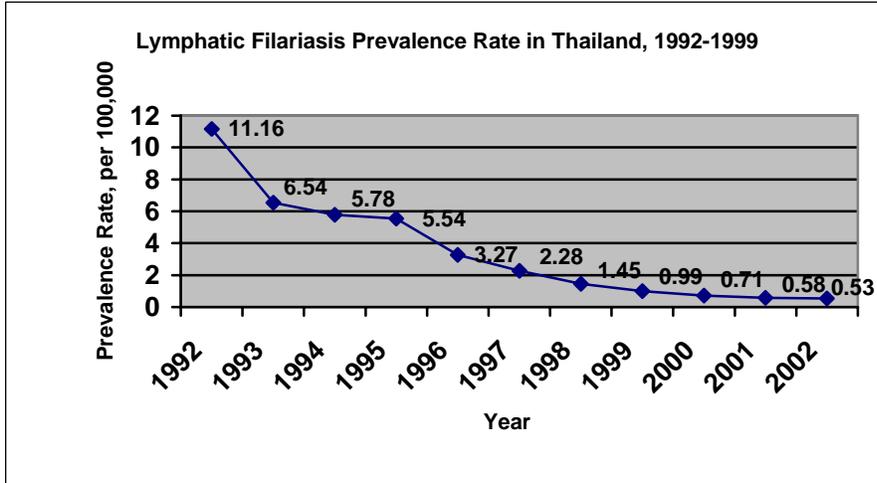


Figure 6: Prevalence of lymphatic filariasis in Thailand

Adapted from: Division of Communicable Disease Control, Ministry of Public Health. Annual Report, Filariasis Unit, 2002. (129)

In contrast, Burma remains a highly endemic country for filariasis.(25) Two million cases of filariasis are reported to the WHO every year in Burma; even this figure is likely a gross-underestimate, given the largely unknown situation in the frontiers. (Figure 8) (130) Many of the same frontier areas lack programs for MDA.(Figure 9) (25) In the face of these gaps and similar to other prevalent infectious disease control problems, the Burmese government has actually *divested* in its filariasis control program. The National Programme to Eliminate Lymphatic Filariasis (PELF) annual report for 2004, submitted to the WHO, states: “There is decrease in budget source in 2004. WHO Biennium budget for PELF is only 6000US\$. Except for US\$ 9000 from Liverpool LF support Centre, there was no other extra budgetary support from SEAR office in this year.”(25) Thailand’s annual budget for filariasis control stands closer to 20 million baht, or \$500,000; there are no uncertain areas of the country and, in 2002, only 185 new patients were reported to the Ministry of Public Health.(129)

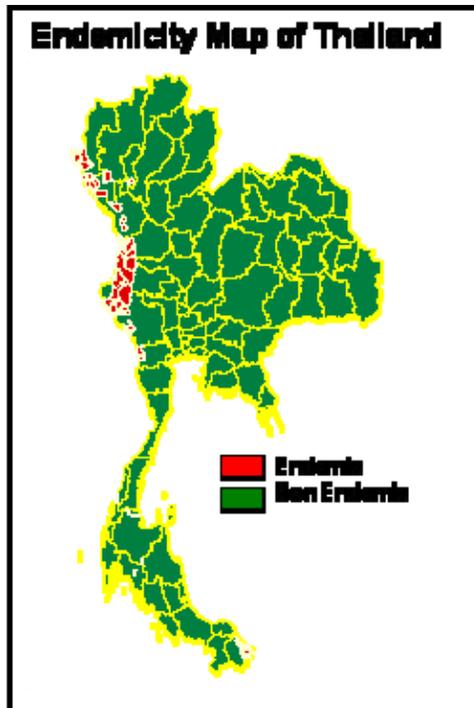


Figure 7: Map of areas of endemicity of lymphatic filariasis in Thailand. Source: World Health Organization, Regional Office for Southeast Asia. Current Situation in South-east Asian Countries: Thailand: Annual Report 2004. (134)

Among Burmese migrant populations in Thailand, cross-sectional surveys have demonstrated filariasis prevalence rates of up to 10%; another 40% had evidence of previous exposure to *Wuchereria bancrofti*.(127, 131) Almost all had never been treated at home in Burma.(131, 132) Increasingly, migrants from Burma venture far beyond the borders and to major Thai cities inland in search of security and work.(127, 131) As most migrants are undocumented, the numbers of individuals at risk for

filariasis and thus eligible for Thai MDA is unknown, and treatment delays are common.(132)

Given that mosquito types common in urban Thailand are capable of transmitting the strains of *W. bancrofti* found in migrants from Burma, the possibility of re-emergent filariasis in urban Thailand was raised in 1999-2000.(128,131,133) In 2004, this had come to pass, and migrants suffering from lymphatic filariasis were found in Chiang Mai, the largest city in northern Thailand, after fleeing from areas in Shan State where widespread documented human rights abuses committed by the Burmese army against local populations has been well documented.(133) This provides yet another example of how the volatile mix of Burma's failure to address domestic public health problems and complicity in causing the impoverishment and widespread migration of her peoples threatens to undermine public health gains by other countries in the region.

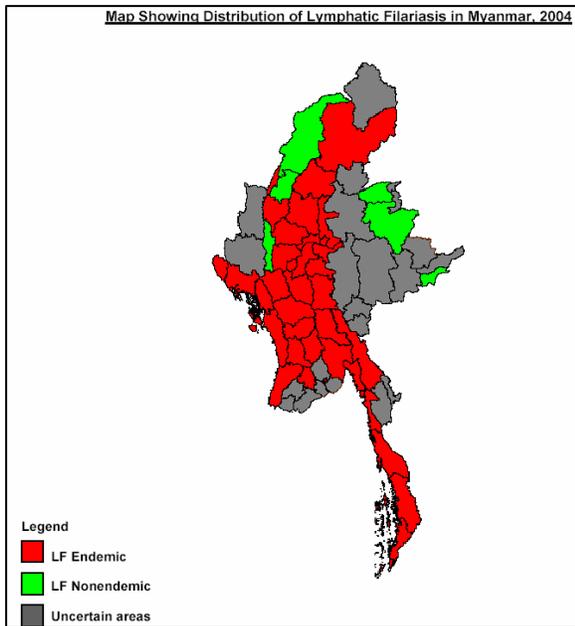


Figure 8: Distribution of lymphatic filariasis in Burma. Red represents endemic areas, green non-endemic areas, and grey uncertain areas. The latter areas disproportionately are in ethnic states: Chin, Kachin, Shan, Karenni, and Karen States.

Source: National Programme to Eliminate Lymphatic Filariasis, Ministry of Health. Annual Report for the National Programme to Eliminate Lymphatic Filariasis (PELF), 2004(25)

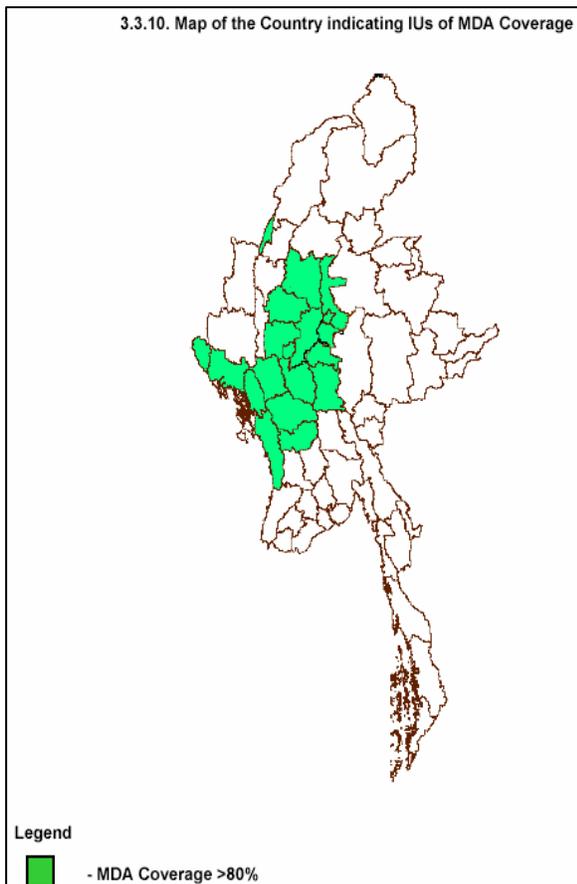


Figure 9: Areas of the country covered by the national mass drug administration (MDA) program. Most of the ethnic minority states are not included in this program.

Source: National Programme to Eliminate Lymphatic Filariasis, Ministry of Health. Annual Report for the National Programme to Eliminate Lymphatic Filariasis (PELF), Myanmar, 2004. (25)

Several other infectious disease entities share similar realities with Avian flu and filaria. Two deserve special mention, also for their implications on health in the region.

Cholera, a cause of acute diarrhea, is caused by a bacterium, *Vibrio cholerae*, usually obtained through ingestion of contaminated food or water and is easily preventable with sanitation, food safety, clean water, and adequate hygiene. Without treatment, it can quickly lead to dehydration and death in 30-50%, with treatment, mortality drops to less than 1%.⁽¹³⁵⁾ Because of its potential for sweeping epidemics across regions, surveillance is essential for rapid control, and it remains one of three diseases which the International Health Regulations mandates reporting to the WHO.⁽¹³⁵⁾ However, despite the fact that cholera outbreaks are frequent in Burma and occur on a yearly basis, Burma does not report this to the WHO.^(135, 136) Cholera occurs both in rural areas as well as urban areas, including Rangoon.⁽¹³⁷⁾ Like other infectious diseases, there is likely significant under-reporting of this disease in Burma, given the poor laboratory infrastructure and the secrecy of the regime surrounding this disease entity. There are reports of cholera outbreaks occurring several times a year, often in settings fully under control of the authorities, especially state prisons.⁽¹³⁸⁾ The response of the authorities usually is to ignore the issue and attempt to hide evidence of an epidemic, including secretly disposing of victims' bodies.^(139, 140) That people in Burma continue to die from cholera, particularly in urban prisons, is further evidence that there is no treatment available, resulting in easily preventable death and ongoing spread.

Another serious disease that is more prevalent in Burma compared to her neighbors and is even more under-reported is anthrax.⁽¹⁴¹⁾ Although inhalational anthrax has received much press owing to its recent use as a bioterror agent in the U.S., it is usually a disease of herbivorous mammals and most naturally-acquired cases are transmitted to humans through contact with infected animals. In humans, the most common form is cutaneous anthrax. Untreated, there is an increased risk of spread, more severe disease, and death. Outbreaks in animals can result in significant economic damage to the livestock industry and, if unrecognized, spread to humans who unknowingly consume the dead animals, which may occur when laboratory infrastructure to diagnose this entity is non-existent. Control of the disease is again through careful surveillance of livestock and timely control of outbreaks in livestock, including safe disposal of carcasses.⁽¹⁴²⁾

Although like other infectious diseases its extent is unknown in Burma, it is a problem that also spills over the borders and affects her neighbors.(143) Although most cases are cutaneous, one of the first descriptions of oropharyngeal anthrax occurred as a result of an epidemic in northern Thailand, in which cattle from Burma that were undercooked served as the source for infection.(144)

IV. SPDC POLICIES TOWARDS THE THREE “PRIORITY DISEASES” AND HUMANITARIAN ASSISTANCE

What been the policies of the ruling junta towards health and humanitarian efforts? From the perspective of public expenditures, the junta has made health a very low priority, including HIV/AIDS, malaria, and TB. Despite naming these three as priority diseases in Burma, national control programs remain woefully under-funded and under-staffed. The entire HIV/AIDS control program budget for the country was 22,000 USD in 2004. TB and malaria budgets have similarly been markedly low, where plausible figures exist. (See Figure 5)

While health and education programs have seen declines in funding under the SPDC, military expenditures have continued to rise, and Burma remains one of the most militarized states in the region with a standing army of over 400,000 troops.⁽⁷⁾ Conflict with ethnic nationalities continues, even in those areas where cease-fires have been established.⁽¹⁴⁵⁾ In these areas, particularly in Shan State, militarization continues to increase and, given the self-sufficiency policy covering these regional commands, they continue to extort and loot from local villagers.⁽⁴⁸⁾ [Shan Human Rights Foundation (SHRF). Widespread human rights abuses against civilians by the *Tatmadaw* also continue in these areas.^(48, 102) These policies towards ethnic minorities have been shown to contribute to poor health outcomes and have been associated with food insecurity, childhood malnutrition and increased rates of infant and child mortality, and with adult morbidity and mortality including excess deaths from diarrheal diseases, malaria, landmines, and violence.⁽⁴²⁾

Given the junta’s low level of funding in health, and policies in ethnic areas that continue to undermine the wellbeing of rural communities—what have been their policies toward humanitarian assistance from foreign donors? Direct aid to the junta has come from several bilateral donors, notably China and Japan. These donors have generally had few if any restrictions on their aid, and much of it appears to have been used to support the junta itself as the economy has stumbled and Burma’s currency, the kyat, lost most of its value. Humanitarian aid from UN agencies, European donors, and the US, in contrast, has generally been limited to non-military use, and earmarked specifically for either non-governmental organizations, NGOs, or government organized NGOs (GONGOs), such as the Myanmar Maternal and Child Welfare Organization, the professional organizations, and the junta’s large national organization, the Union Solidarity and Development Association, USDA, founded by the current junta head,

Senior General Than Shwe. The junta position toward aid has generally been that it should come through either government agencies or these GONGOs, and international NGOs too, should partner with these entities. Membership in the junta created NGOs is often essential to securing work in this sector. As an example, all public school teachers are required to join the USDA and to make donations to it, to be allowed to teach.⁽³¹⁾ Requirements for membership include a repudiation of the elected leadership, and swearing allegiance to perpetual military rule. Humanitarian aid channeled through these bodies serves the junta patronage system, rewarding those who support their rule, and excluding both employment and aid to those who support the NLD. The effort to exert control over these GONGOs has been thorough and systematic, and includes not only licensure in the professions, but also admission to the national universities. These policies imply that in the domain of health and humanitarian assistance, as is the case in most sectors, survival of the junta and maintenance of their political control are arguably a higher priority than programmatic success.

In February 2006, the SPDC Ministry of National Planning and Economic Development put forward new Guidelines for UN Agencies, International Organizations and NGOs/INGOs on Cooperation Programme in Myanmar. The guidelines formalize and reaffirm both those restrictions which led to the GF pullout and the SPDC's interests in state control. The Guidelines spell out a high degree of central control of activities, including Ministry level approval of programs, coordination, of Memoranda of Understanding, of project implementation, opening and registration of field offices, appointment of staff, internal travel, management and equipment purchases (vehicles are specifically named) and coordination at the State, Division, and Township levels. These levels of oversight suggest an increased level of junta engagement and control of international humanitarian activities at all levels. The "Internal Travel" section is telling in this regard. The National Planning Ministry coordinates travel within the country, and accompanies all officials. The policy states:

* If the official/personnel is from UN Agencies, International Organizations and NGOs/INGOs in Myanmar, the Ministry responsible for the project will coordinate for the travel programme and necessary approval from the concerned authorities. Official(s) from Myanmar side will accompany them in the trip. NGO travel to project sites within the country thus formally becomes the responsibility of the junta and are moved firmly under their control.

The objectives of this tightening of control are also spelled out explicitly in the document.

There are four and they include:

- To enhance and safeguard the national interest
- To prevent the infringement of the sovereignty of the State
- To cooperate without any strings to the State
- To provide guidance to be on the right track, render necessary assistance as well as cooperate and coordinate with the view to contributing to the socio-economic development of the Nation

Again, it is telling that these objectives do not address any of the humanitarian or health concerns of concern to the international community. They are concerned, as they state, primarily with national interests, state sovereignty, and state independence from international norms. The fourth objective, which addresses guidance and cooperation of the state, does state that economic development is a goal.

V. HEALTH THREATS AND REGIONAL SECURITY ISSUES

How important are Burma's ongoing epidemics of HIV, TB, and malaria to her neighbors in South and Southeast Asia? Given Burma's relative isolation and limited international engagement in research, considerably more is known about Burma's border regions from research done on populations in China, India, and Thailand than in Burma proper. Nevertheless, enough is known to suggest that Burma's neighbors will continue to find disease control programs for their populations thwarted as long as Burma's health threats remain unresolved.

The regional nature of Burma's health and humanitarian crises was underscored by Thai Senator Hon. Jon Ungphakorn in October, 2005:

When Myanmar joined ASEAN in 1997, there were only 210,000 Burmese refugees and asylum seekers throughout the region. Now, nearly 1 million people have fled Myanmar's political and economic chaos for neighboring countries, and another million people remain internally displaced. Our youth are at an all-time high risk of drug addiction from the massive flow of narcotics, particularly amphetamine-type stimulants (ATS), from Myanmar, while the generals there maintain congenial ties with notorious drug lords. In the middle of last month, the UN Office on Drugs and Crime admitted that Myanmar and China were the world's top producers of ATS. Amphetamine drugs produced in eastern Myanmar seem to be transported with such ease that significant quantities have been found in northeast India, on Myanmar's western border. That, together with the heroin that is trafficked from Myanmar to India, China, Thailand and other countries in the region, poses a serious threat to our political and economic security. It is both tragic and inevitable that the areas of India and China bordering Myanmar now suffer from those countries' highest concentration of drug addiction and HIV infection. My own country, Thailand, receives up to 900 million amphetamine pills from Myanmar every year, and about a third of our regular drug users are below the age of 16. If this is the impact on Thailand, what about the young people and children of Myanmar, who have been restricted from access to education, information and health care? (146)

A. HIV/AIDS and Regional Concerns

Senator Ungphakorn correctly identified an important aspect of Burma's regional importance in HIV/AIDS dynamics: the interaction of HIV spread and narcotics use and exports from Burma. Burma remains the world's second largest opium and heroin producing state, and has dramatically increased its production and export of methamphetamine, with devastating impact on her neighbors.(60, 147) In Burma's border regions with China and India, the

epidemiologic impact of Burma's HIV/AIDS epidemic has been driven on both sides of her borders by spread related to illicit drug use.(148)

A recent report adds the Burma-Bangladesh border to those border regions where heroin exports from Burma have led to increases in heroin use by young people.(149) Officials on the ground in Bangladesh report that Burmese narcotics enter Bangladesh through Cox's Bazaar, Bandarban, the seaport at Chittagong and via the northeast Indian transshipment state of Tripura into Khagrachhari.(149)

Yunnan Province, in China's southwest, is the highest HIV prevalence zone in China. It was also the first Chinese Province to have undergo epidemic spread, which began among injecting drug users in several districts on the Yunnan-Burma border in the early 1990s.(150, 151) The Beijing Center for Disease Prevention and Control, has pointed out that:

After nearly three decades of being virtually drug free, use of heroin and other illicit drugs has re-emerged in China as a major public health problem. One result is that drug abuse, particularly heroin injection, has come to play a predominant role in fueling China's AIDS epidemic. The first outbreak of HIV among China's IDUs was reported in the border area of Yunnan province between China and Myanmar where drug trafficking is heavy.

The uptake of heroin use, and subsequent epidemics of injecting drug use related infections, including HIV and Hepatitis C are direct outcomes of Burma's heroin exports to China.(INSCR, UNODC) In 2002 a joint Japanese and Chinese research group studying HIV and Hepatitis C infections (HCV) among IDU in Yunnan made a similar observation: "The Southeastern region of Yunnan province is a key site for drug trafficking and HIV-1 infection spread."(150) Both of the predominant forms of HIV-1 circulating in China have been identified as originating in the upper Burma high recombination zone.(152)

Northeast India

The National AIDS Control Program of India (NACO) in collaboration with the Gates Foundation supported Avahan Program, has mapped the HIV prevalence rates among pregnant women across India's HIV surveillance reporting districts.(170) These data identify generally low rates across most of India, with two marked exceptions: a broad focus of 1-4% HIV infection rates among pregnant women in 4 southern States (Tamil Nadu, Andhra Pradesh, Karnataka, and Madhya Pradesh) and somewhat higher rates of infection in two of India's most remote regions, the Northeastern States of Manipur and Nagaland. What Manipur and Nagaland

share, in addition to isolation and poverty, are porous borders with Burma, and both are on principal overland heroin trafficking routes out of Burma. Not surprisingly, the epidemiology of HIV-1 infections in the Indian Northeast differs significantly from the Southern epidemic. In the south, and in the affected urban centers of Mumbai and Chennai, sexual transmission of HIV, with clearlinks to the commercial sex industry, predominates. In Manipur and Nagaland, the epidemics have long been driven by injecting drug use, and specifically by injection use of heroin.(153-155) What is so disturbing about the NACO data are that the high rates of infection were reported among pregnant women, not drug users—clear evidence of the extent to which IDU spread led to a wider epidemic of infection in these states.(156) The Burma border epidemic in Northeast India not only is driven by the same dynamic of local use of Burmese heroin leading to HIV spread—it is linked to the China epidemic at a molecular level: like upper Burma and Yunnan, Manipur is characterized by a mix of variants and recombinant forms seen in all three areas. In contrast, the epidemic in South India is almost entirely due to one subtype (subtype C of HIV-1) and hence these appear to be unlinked epidemics.

B. Tuberculosis and Regional Concerns

The population exodus from Burma, a country with one of the most cases of TB worldwide, have made this disease, particularly MDR TB, an issue of regional concern, particularly given the close link between the epidemics of HIV/AIDS and TB.(30) This is particularly the case for Thailand, host to over 2 million migrants from Burma and with a substantial HIV and TB problem of its own. Patients in the Thai-Burma border areas presenting for TB care are disproportionately migrants from Burma. In 2003, 1,766 migrant workers from Burma required follow-up treatment in Thailand and, in 2002, in one border province of Thailand, 885 out of 30,000 registered workers from Burma needed to start TB treatment.(67) At the Mae Tao Clinic, on the Thai side of the border, over 700 patients were referred to MSF in 2004 for further evaluation of suspected tuberculosis and 210 patients were admitted for inpatient treatment of TB, where it accounted for over 10% of deaths.(71) Isolates collected from such patients on the Thai side of the border reveal that MDR TB now accounts for 6.5% of TB isolates, against the national average of 0.9% for the rest of Thailand, again providing indirect evidence of program failures in Burma.(74) In some provinces of Thailand bordering Burma, almost half of all TB patients are not Thai and cure rates amongst these individuals is

low, 25.8% in one analysis, threatening the ability of the Thai public health system to control TB, particularly given the crowded and poor living conditions that Burmese migrant workers often face in Thailand.(157) As is true elsewhere, the expense of treating MDR TB in Thailand (Almost 90,000 baht or \$2200 per patient, on average, in one analysis), the ongoing spread of this entity not only has increases morbidity and mortality, particularly those with HIV, but also has important economic impact on health systems in the country.(158)

C. Malaria and Drug Resistance

The same large-scale migrations across international borders has significant regional malaria control implications. This is particularly true for Thailand, where malaria incidence rates have been steadily declining over time. However, this trend is not seen in those provinces which share a border with Burma. (Figure 10) (159, 160) Today, the highest malaria incidences in the country are found in these areas, with most cases found in foreign migrants, 90% of whom are Burmese, numbers which have remained stable for the last decade.(134, 159) Of these provinces, Tak Province, adjacent to Burma's Karen State, has the highest numbers of cases; while 25,000 cases per year are diagnosed in Thais, 40,000 are found in Burmese migrants.(95) In another analysis done in this province, asymptomatic parasitemia prevalence in migrants is over 20 times that of the local Thai population (4.4% versus 0.2%), creating a huge reservoir for ongoing transmission of malaria.(161)

In addition, multi-drug resistant malaria parasites are common along this border.(77) A similar spillover effect has also been noted in India and China, where unfettered migration across porous borders, largely driven by civil strife and economic desolation in Burma, threaten to undermine local control efforts.(108, 162-164) These mobile populations are difficult to reach, in particular IDP communities, which impedes malaria control and results in reservoirs of infection and regional malaria outbreaks, particularly with resistant strains.(39, 95, 159) This has been dramatically demonstrated in India's northeastern border with Burma, where the risk of treatment failure decreases with increasing distance away from the border, with most cases of drug failure occurring in locations along the border.(165) The authors note that "In view of similar topographic, climatic, vectorial and other malariogenic conditions in all sites of the present study it is difficult to explain the variable therapeutic response of Pf [Plasmodium falciparum] strains to antimalarials in areas located at different distances from the Myanmar

border,” and that “northeast India may be acting as gateway of resistance falciparum strains to the country.”(165) As a result, the Mekong region has become “the global epicenter of malaria drug resistance,” and Burma in particular has been identified as a central player in forging the “cauldron of resistance” fueling the epidemic in Southeast Asia and beyond.(166)

As noted earlier, malaria drug resistance generally is the outcome of incomplete or inappropriate use of anti-malarials, of program failure, and of the sale and use of fake or expired antimalarials, all of which are common in Burma, given the junta’s policies coupled with the lack of regulatory oversight over the importation and sale of anti-malarials, resulting in the high proportion of fake drugs in the country.(97,98,167)

Neighboring countries will continue to face an influx of multi-drug-resistant malaria from Burma until malaria is controlled along Burma’s borders, which historically have been neglected by the central government and international organizations. The unique combination in these areas of intransigent malaria vectors, deadly drug resistant parasites, fake drugs, extreme poverty, migration and active civil conflict requires comprehensive malaria programs that address the complex issues of access and affordability of all three pillars of malaria control: diagnosis, treatment and prevention. The pilot phase of a comprehensive malaria program organized by and for IDPs in Eastern Burma documents a greater than 85% decrease in malaria prevalence over two years,(168) demonstrating that malaria control is possible in this setting when local populations are given a stake in organizing mechanisms to cheaply distribute high quality technologies and services. Scaling up malaria control to all remote areas will require the coordinated effort of the Burmese government, NGOs, indigenous groups as well as the cooperation of neighboring nations, to provide services from within Burma as well as across international borders.(166)

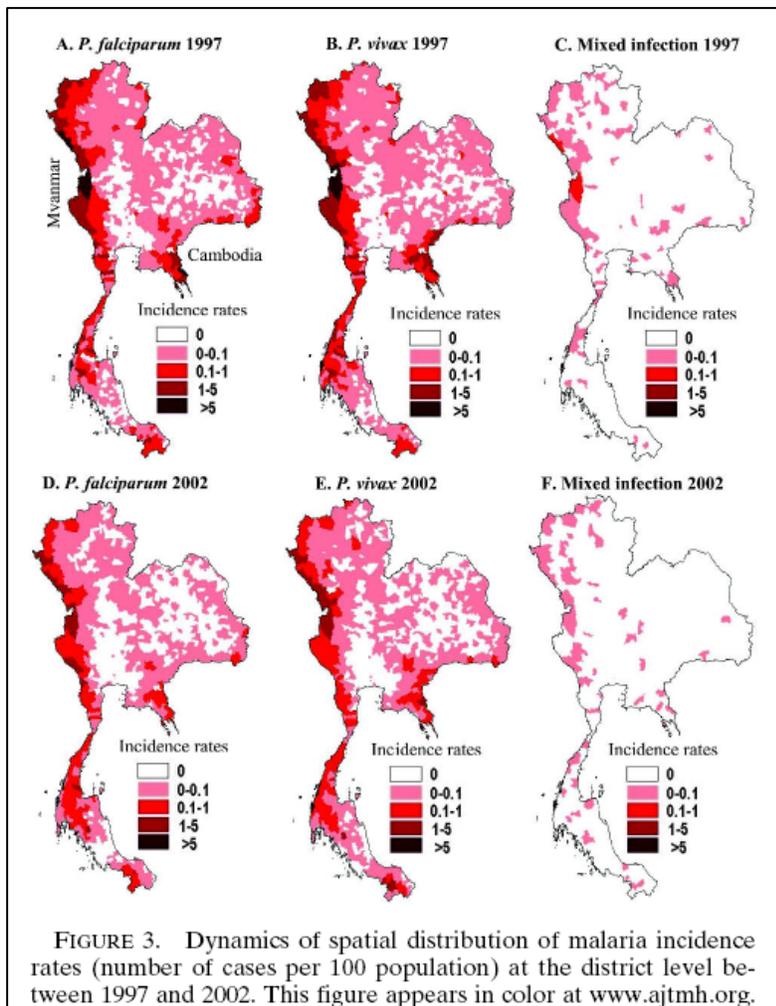


Figure 10: Incidence rates for malaria in Thailand. The highest rates are found in those provinces that border Burma, and most cases occur in Burmese migrants.

Source: Zhou et al, 2005(159)

V. POLICY AND PROGRAM OPTIONS

Given the scale and scope of Burma's health needs, and the increasing threats to health for her people and for the region, are there policy options for health work in the current restrictive climate? At least three options for working in the current context have some evidence for efficacy: 1) Cross border approaches; 2) Use of independent media for health education and information; 3) Support through international organizations and NGOs, although the last are arguably the most severely affected by the new restrictions on humanitarian assistance and public health programs imposed after the relocation to Pyinmana.

Cross Border Interventions

It is a feature of this report that much of the available data on TB, malaria, and HIV/AIDS comes from border areas and from ethnic surveillance and medical programs. Indeed, one might assume that the *health threats themselves* were most marked in the Thai-Burma border areas, since so much of what we know comes from programs like the Mae Tao Clinic, The Backpack Health Worker Program, The Shoklo Malaria Research Project, and Thai public health research from institutions including the Faculty of Tropical Medicine at Mahidol University, and the Thai Ministry of Public Health, among others. It should be clear, however, that at least some of the emphasis on data from this area is due to a the great paucity of information from other areas such as the Chin Hills, Burmese Nagaland, Arakan, Shan State and the Wa areas and other areas bordering India, Bangladesh, the Lao PDR, and China. There is little expectation that health status is likely to be dramatically better in these limited access zones, but we simply do not know. What the information available from the Thai-Burma border does make clear is that health programs can be effectively mounted both in border areas, and in cross-border contexts, at least in some areas, and that these programs can provide both services and health information independent of some of the constraints imposed by the SPDC in government controlled zones. One implication is certainly that cross-border efforts, where feasible, are likely to increase in importance to the health of the Burmese people should SPDC restrictions continue to tighten.

Many IDP communities on the Thai-Burma border rely upon a network of mobile indigenous health workers, known as collectively as "Backpack Health Worker Program," for basic health care. These communities have very poor access to health services and are

considered inhabitants of “black zone,” or conflict areas, by the SPDC. Although security is problematic, the health workers are indigenous, highly mobile, and have successfully navigated the ongoing conflict to provide much-needed care and information. Some target communities become inaccessible if the backpack workers determine that the route to reach those communities has become too dangerous. In addition to providing basic health services, the group also has collected vital health and demographic information. In public health there are few, if any, other settings where refugee workers staff cross-border health projects and assess vital statistics.

Almost all other ethnic groups within Burma have health organizations that operate clinics and/or mobile backpack teams (including the Arakanese, Chin, Kachin, Shan, Palaung, Karenni, and Mon) on all of Burma's borders, with varying degrees of development. The Karen, for example, run more than 30 clinics servicing a population of >80,000, the Kachin run more than 60 clinics servicing a population of 98,000. These health departments have hundreds of health workers, conduct training programs, and implement a wide variety of health programs including malaria control, Vitamin A distribution, reproductive health, and even vaccination where feasible.(168)

There are substantial barriers to effectively delivering cross-border interventions. These include the dangerous conditions under which program workers must operate in some regions. Six workers in the BPHWT have died since the program was initiated in 1998 (42), health workers are often actively target by regime soldiers, and mobility of workers is often limited given security risks. Access to consistent supply routes, lack of referral options, inadequate facilities for maintaining and storing supplies and medicines, and continuing population displacement are additional barriers to effective operation.

Despite these challenges, the cross border program provides some of the only available health services to IDPs. As an example, the Backpack Medics alone treated 15,559 cases of malaria (combined presumptive and confirmed) in 2004, 17,404 (2003), and 22,212 (2002) per year inside Burma.(87) Similarly, the program identified enough malaria fatalities to account for 44% of all malaria deaths reported across the country.(42) These activities remain relatively unknown because the ethnic groups intentionally maintain a low profile as to avoid targeting by the SPDC. With international support, these ethnic groups have the potential to reach a substantial proportion of the population with two *critical* characteristics: (1) the *highest* disease

burden, and (2) the highest *potential to transmit infection* to neighboring countries. Thus, they deserve increased international support and protection.

Independent Media

While the international community has some indication of Burma's health and humanitarian problems, the Burmese people have very limited access to uncensored information. The recent outbreak of Avian flu in Mandalay is a case in point: The SPDC did report the outbreak to the FAO, but not to the people of Burma, where the official daily, *The New Light Of Myanmar*, refused to publish reports of the outbreak more than 8 days after the Ministry of Health had confirmed it. This is both a human rights issue and a public health one, since most of the fatalities recorded from H5N1 virus in the region to date have been among children and others handling sick fowl. H5N1 control requires public notification and cooperation, not silence and denial. It is for this reason that health education messages which bypass the SPDC are so vital to the Burmese people. Radio has played a particularly important role, including Radio Free Asia, Voice of America, Democratic Voice of Burma (from Norway) and the BBC Burmese language service.

Data from health knowledge and behavior surveys among Burmese populations, while limited, do suggest that this is an area of still largely unmet need: HIV/AIDS knowledge among married Burmese factory workers was much lower than in married Thai women of similar ages.(169)

International Organizations and NGO

The new government guidelines for the provision of humanitarian assistance put forth by the Ministry of National Planning and Economic Development in early 2006 have been described in Section III of this report. The new restrictions imposed, if enforced (early indications are that they are being vigorously enforced) are likely to markedly diminish independent capacity to respond to health threats in Burma. While a range of donors are engaged in efforts to counter the funding losses incurred by the withdrawal of the Global Fund, the new restrictions are even harsher and more explicitly supportive of junta control of activities, staffing, site visits, procurement, and the like, than those which led the Global Fund and MSF France to conclude that they could not continue operations inside the country. The fundamental

dilemma of how best to respond to health threats and provide humanitarian assistance while the SPDC further restricts access to Burma's neediest, has sharply worsened in 2006. What limited programs can function in this climate are likely to continue, and donors willing to fund the junta, despite the new guidelines, will likely go forward as well. But from a public health perspective, much more fundamental and widespread change will be required to actually meet the scale and scope of Burma's HIV/AIDS, TB, and Malaria epidemics, her increasing malnutrition and other health threats. And this holds true for the regional impact of these health problems. The new SPDC guidelines should be resisted, and what regional and international pressure can be brought to bear on the junta to lift them, and to allow humanitarian and public health interventions to go forward, should be done so immediately. While reform in Burma has been painfully slow, disease spread can be markedly rapid. The evidence of Burma's program failures on generating multi-drug resistant TB and malaria variants ought to be enough to convince regional partners that they cannot afford to let the SPDC operate against health care efforts with impunity. Perhaps the concerns over emergent Avian flu will have more regional impact than the tragedies of AIDS, TB and malaria in Burma have had.

Policy Options: for the International Community

- * International Donors and Organizations (UN, INGOS, NGOs) should make every effort to pressure the SPDC to lift, or at a minimum, amend, their restrictive guidelines for humanitarian assistance. The guidelines as written and put forward in February 2006 will likely limit program implementation, effectiveness, and equity, and will lead more donors to conclude that they cannot operate in Burma, however great the need.
- * Immediately cease militarization of Burma and stop policies that allow government agents to rape, commit forced relocation and forced labor, seize property, and perpetrate other human rights abuses with impunity. These abuses continue to drive many, particularly ethnic minorities, to flee their homelands and seek refuge in neighboring countries, especially Thailand. Those committing such crimes must be held accountable.
- * Cross-border efforts are underway in multiple areas in Burma in 2006. Given the increasing difficulty of operating under SPDC guidelines, increasing humanitarian aid and public health programs through cross-border approaches should be attempted where feasible and expanded where already operational.

* Independent media may be more important than ever in providing the Burmese people with accurate and timely health information and education. Independent media efforts should be rapidly expanded in scale in scope to meet these ends.

* Regional partners, with special foci on Burma's border states (India, China, Thailand, Bangladesh), should be encouraged to engage the SPDC in health and humanitarian assistance and to allow cross-border interventions from their states and in their affected border regions. Increasing infectious disease surveillance and drug resistance testing in border areas should be a priority for all border regions.

* Those donors who do intend to work in Burma should endeavor wherever possible to focus on increasing support for Laboratory capacity, lab staff, better disease surveillance and reporting.

Policy Options: for the SPDC

* Reconsider and revise the guidelines on humanitarian assistance to allow international organizations and non-governmental organizations substantially increased access to project sites, the ability to hire in-country staff based on merit and not political affiliation, and assurance of neutrality of humanitarian efforts.

* Markedly expand the funding for health and education, with a substantial focus on infectious diseases and disease surveillance. Burma is not at war with her neighbors. Her security is much more profoundly threatened by the rise of drug-resistant malaria and TB, and from emergent diseases, than from external military threats. Hence, military expenditures should be re-routed to address actual security concerns, including disease surveillance.

VII. References

1. The Global Fund. Termination of Grants to Myanmar. 2005 August 18. Available: www.theglobalfund.org/en/media_center/press/pr_050819_factsheet.pdf.
2. Beyrer C, Razak MH, Labrique A, Brookmeyer R. Assessing the magnitude of the HIV/AIDS epidemic in Burma. *J Acquir Immune Defic Syndr* 2003 Mar 1;32(3):311-7.
3. The World Food Programme. News, Press Release. Myanmar must do more to help its hungry millions, says WFP. 2005 August 5. Available: <http://www.wfp.org/english/?ModuleID=137&Key=1357>.
4. Shah Paung. Another international aid group pulls out. *The Irrawaddy*. 2005 December 20.
5. Parker C, Yeni. Rangoon Aid agencies await their fate. *The Irrawaddy*. 2006 February 8.
6. Cropley E. Red Cross says Myanmar junta stops prison visits. Reuters Foundation 2006 February 27. Available: <http://www.alertnet.org/thenews/newsdesk/BKK79632.htm>.
7. Havel, V., Tutu, D. Threat to Peace: A call for the UN Security Council to act in Burma. 2005 September 20. Available: <http://www.burmacampaign.org.uk/reports/Burmaunscreport.pdf>.
8. Phyu S, Lwin T, Ti T, Maung W, Mar WW, Shein SS, et al. Drug-resistant tuberculosis in Yangon, Myanmar. *Scand J Infect Dis* 2005;37(11-12):846-51.
9. Rojanawatsirivet C, Congpuong K, Vijaykadga S, Thongphua S, Thongsri K, Bangchang KN, et al. Declining mefloquine sensitivity of *Plasmodium falciparum* along the Thai-Myanmar border. *Southeast Asian J Trop Med Public Health* 2004 Sep;35(3):560-5.
10. Takebe Y, Motomura K, Tatsumi M, Lwin HH, Zaw M, Kusagawa S. High prevalence of diverse forms of HIV-1 intersubtype recombinants in Central Myanmar: geographical hot spot of extensive recombination. *AIDS* 2003 Sep 26;17(14):2077-87.
11. Takebe Y. Inter-CRF Recombinants: A New Class of HIV-1 Recombinants and its Epidemiological Implications. 13th Conference on Retroviruses and Opportunistic Infections. Poster #324; February 8; Denver, USA. 2006.
12. World Health Organization. Regional Office for South-East Asia. Malaria: Disease Burden in SEA Region. 2005 June;2006(1 February) Available: http://w3.whosea.org/EN/Section10/Section21/Section340_4018.htm.
13. Matthews D. Personal Communication at Australian National University. 2006.
14. Sipress A. Relocating Myanmar capital baffles many. *The Washington Post* 2005 December 29.
15. Sipress A. As scrutiny grows, Burma moves its capital. *The Washington Post* 2005 28 December.

16. Democratic Voice of Burma. Burma junta suspends prison visits of Red Cross. 2006 February 27. Available: <http://www.dvb.no/>.
17. Maung W. Let's grow physic nut (*Jatrophas curcas*) most extensively. *New Light of Myanmar* 2006 January 17:6.
18. McConnell M, McCain J. Associated Press: Myanmar extends arrest of Aung San Suu Kyi. 2005 November 28. Available: http://www.usatoday.com/news/world/2005-11-28-suukyi-detention_x.htm?csp=34.
19. Democratic Voice of Burma. Shan leader, Htun Oo, allowed to meet wife, lawyer. 2005 December 16. Available: <http://english.dvb.no/news.php?id=6189>.
20. ALTSEAN Burma. Rangoon Suspense. 2002 July;ISBN:974-90486-0-1.
21. International Monetary Fund. Myanmar: Statistical Appendix. 2001 January. Available: <http://www.imf.org/external/pubs/ft/scr/2001/cr0118.pdf>.
22. Open Society Institute. Burma: Country in Crisis. 2001 October. Available: <http://www2.soros.org/burma/CRISIS/index.html>.
23. World Health Organization. UNICEF. World Malaria Report 2005. 2005. Available: <http://www.rbm.who.int/wmr2005>.
24. World Health Organization. WHO Global TB Report. 2005. Available: http://www.who.int/tb/publications/global_report/2005/annex1/en/index11.html.
25. National Programme to Eliminate Lymphatic Filariasis, Ministry of Health, Myanmar. Annual report for the National Programme to Eliminate Lymphatic Filariasis. Yangon, Myanmar. 2004 December. Available: http://w3.whosea.org/LinkFiles/New_Lymphatic_Filariasis_Annual_Report_Myanmar_2004.pdf
26. Transarency International. Corruptions Perceptions Index 2005. 2005. Available: http://www.transparency.org/policy_and_research/surveys_indices/cpi/2005.
27. World Health Organization. World Health Report 2000: Health Systems- Improving Performance. 2000.
28. Belak B. Gathering Strength: Women from Burma on their rights. Chaingmai, Thailand: Images Asia; 2002.
29. Sen B. Women and the law in Burma. *J Legal issues on Burma* 2001;9:28-43.
30. Pinheiro P. Question of the violation of human right and fundamental freedoms in any part of the world: Situation of human rights in Myanmar, Report of the Special Rapporteur, Paulo Sergio Pinheiro. UN Commission on Human Rights, 62nd session. 2006 February 7;E/CN.4/2006/34.

31. All Burma Federation of Student Unions. Year 2004 Education Report. 2005 February. Available: <http://www.abfsu.net/2004edureport.pdf>.
32. Min Zin. Hard Lessons. The Irrawaddy 2003 July. Available: <http://www.irrawaddy.org/database/2003/vol11.6/c-hard.html>.
33. Kyaw Zwa Moe. Educationg the Elite. The Irrawaddy 2003 July. Available: <http://irrawaddy.org/database/2003/vol11.6/c-edu.html>.
34. Ministry of Health, Mynamar.2006(28 February). Available: <http://www.myanmar.com/Ministry/health/g09.htm>
35. Bozzi C. CDC Briefing. Assessment of HIV/AIDS in Myanmar (Burma). 2002 June.
36. Karenni Backpack Health Worker. Communication to Chris Beyrer. 2006 January;Mae Sot, Thailand.
37. United Nations Development Programme and United Nations Population Fund. United Nations Population Fund Proposed Projects and Programmes: Recommendations by the Executive Director, Proposed Special Assistance to Myanmar. 2001 July 13.
38. International Crisis Group. Myanmar Backgrounder: Ethnic Minority Politics. 2003 May 7. Available: <http://www.crisisgroup.org>.
39. Risser G, Oum Kher, Sein Htun. Running the Gauntlet: The impact of internal displacement in Southern Shan State. Bangkok, Thailand: Institute of Asian Studies, Chulalongkorn University; 2004.
40. ALTSEAN. Interim Report Card: July 2004 - February 2005: A summary of political and human rights developments in Burma. 2005;Bangkok, Thailand.
41. Thailand Burma Border Consortium. Internal displacement and vulnerability in Eastern Burma. 2004.
42. Lee, T, Mullany LC, Richards A, Maung C, Beyrer C. Mortality rates in conflict zones, Karen, Karenni, and Mon states in eastern Burma. Trop Medicine and Int Health 2005;In Press.
43. Lee, T, Mullany LC, Richards A, Kalu E, Maung C. Burma: The Impact of Human Rights Violations on Health Among Internally Displaced Persons in Conflict Zones. In: Beyrer and Pizer, Eds, editor. Public Health and Human Rights: Evidence Based Approaches. In Press ed. Baltimore: Johns Hopkins University Press; 2006.
44. Karen Human Rights Group. Enduring hunger and repression: Food scarcity, internal displacement, and the continued use of forced labor in Toungoo District. 2004. Available: <http://www.khrg.org>.

45. Karen Human Rights Group. KHRG#2005-F2. Report from the field. 2005 February 21. Available: <http://www.ibiblio.org//freeburma/humanrights/khrg/archive/khrg2005/khrg05f2.html>.
46. Human Rights Watch. "They came and destroyed our village again." The plight of internally displaced persons in Karen State. 2005 June;Vol 7, 4C.
47. Global Witness. A conflict of interests: The uncertain future of Burma's forests. 2003. Available: <http://www.globalwitness.org/reports/index.php?section=burma>.
48. Shan Human Rights Foundation. Monthly Report. 2006 February. Available: <http://www.shanland.org/articles/humanrights/monthlyreport/2006/SHRF280206>.
49. Shan Human Rights Foundation. Dispossessed. 1998 April. Available: <http://www.shanland.org/resources/bookspub/humanrights/dispossessed/>.
50. Shan Human Rights Foundation. Charting the exodus from Shan State: Patterns of Shan refugee flow into Northern Chiang Mai Province of Thailand, 1997-2002. 2003.
51. Caouette TM, Pack ME. Pushing past definitions: Migration from Burma to Thailand. 2002 December. Available: http://www.refugeesinternational.org/files/3074_file_burma.pdf.
52. US Department of State, Bureau of East Asian and Pacific Affairs. Background Note: Burma. 2005 August. Available: <http://www.state.gov/r/pa/ei/bgn/35910.htm>.
53. Government, people and Tatmadaw joining hands in nation-building tasks. Taking advantage of technological and development gap, media outside the nation inventing fabricated news. USDA to rebut the slanders of those media. The New Light of Myanmar 2006 2 February;13(292):1.
54. Cohen J. Myanmar: the collaboration that almost was. Science 2003 Sep 19;301(5640):1654.
55. Bird flu kills over 10,000 birds in Myanmar, 41,000 birds culled. Japan Economic Newswire 2006 18 March.
56. Garrett L. HIV and National Security: Where are the Links? 2005;Council on Foreign Relations. Available: http://www.cfr.org/publication/8256/hiv_and_national_security.html.
57. Tovanabutra S, Beyrer C, Sakkhachornphop S, Razak MH, Ramos GL, Vongchak T, et al. The changing molecular epidemiology of HIV type 1 among northern Thai drug users, 1999 to 2002. AIDS Res Hum Retroviruses 2004 May;20(5):465-75.
58. Tovanabutra S, Polonis V, De Souza M, Trichavaroj R, Chanbancherd P, Kim B, et al. First CRF01_AE/B recombinant of HIV-1 is found in Thailand. AIDS 2001 May 25;15(8):1063-5.
59. Tovanabutra S, Watanaveeradej V, Viputtikul K, De Souza M, Razak MH, Suriyanon V, et al. A new circulating recombinant form, CRF15_01B, reinforces the linkage between IDU and heterosexual epidemics in Thailand. AIDS Res Hum Retroviruses 2003 Jul;19(7):561-7.

60. International Narcotics Control Strategy Report. Strategy Report 2005. 2005;050406-SR-2005.
61. United Nations Office on Drugs and Crime. Annual Report 2005. 2006.
62. WHO Regional Office for Southeast Asia. TB in Southeast Asia: TB Epidemiology. ;2006(17 February). Available: http://w3.whosea.org/en/Section10/Section2097/Section2100_10639.htm.
63. Wise J. WHO identifies 16 countries struggling to control tuberculosis. BMJ 1998 Mar 28;316(7136):957.
64. Hebert K. Global Fund to give a 7m dollars grant to Myanmar to combat tuberculosis. BMJ 2004 Aug 21;329(7463):420.
65. The Global Fund. Portfolio of Grants in Myanmar. 2006;2006(17 February).
66. World Health Organization. Health in Myanmar 2005. 2006;2006(17 February). Available: http://www.whomyanmar.org/EN/Section6_39.htm.
67. Kaiser Network. Migrant workers from Myanmar with TB prompt Thailand to increase control measures. 2005 06 September 2005;2006(17 February). Available: http://www.kaisernetwork.org/daily_reports/print_report.cfm?DR_ID=32413&dr_cat=4.
68. World Health Organization. Myanmar Health Indicators 2004. ;2006(15 February). Available: http://www3.who.int/tb/publications/global_report/2004/en/Myanmar.pdf.
69. World Health Organization. Myanmar. Country Profile. TB Report 2004. 2005. Available: http://www.who.int/tb/publications/global_report/2004/en/Myanmar.pdf.
70. Phyu S, Ti T, Jureen R, Hmun T, Myint H, Htun A, et al. Drug-resistant Mycobacterium tuberculosis among new tuberculosis patients, Yangon, Myanmar. Emerg Infect Dis 2003 Feb;9(2):274-6.
71. Mae Tao Clinic. Annual Report 2004. Mae Sot, Tak. 2005.
72. Rajbhandary SS, Marks SM, Bock NN. Costs of patients hospitalized for multidrug-resistant tuberculosis. Int J Tuberc Lung Dis 2004 Aug;8(8):1012-6.
73. World Health Organization. Regional Office for South-East Asia. Tuberculosis Control in the South-East Asia Region. Regional Report: 2005. 2005 November;SEA-TB-282. Available: [http://w3.whosea.org/LinkFiles/Media_Centre_TB_annual_report_2005_\(SEA-TB-282\).pdf](http://w3.whosea.org/LinkFiles/Media_Centre_TB_annual_report_2005_(SEA-TB-282).pdf).
74. Suksont J. Report on the Thai/Myanmar Border TB Situation. WHO - Thailand, Border Health. 2005. Available at www.who.org.
75. Wongsrichanalai C, Pickard AL, Wernsdorfer WH, Meshnick SR. Epidemiology of drug-resistant malaria. Lancet Infect Dis 2002 Apr;2(4):209-18.

76. Department of Health, Ministry of Health, Myanmar. Strengthening of prevention and control programme on HIV/AIDS and Malaria in Union of Myanmar. Application for Proposals to the Global Fund. 2003 March.
77. Wongsrichanalai C, Lin K, Pang LW, Faiz MA, Noedl H, Wimonwattrawatee T, et al. In vitro susceptibility of Plasmodium falciparum isolates from Myanmar to antimalarial drugs. *Am J Trop Med Hyg* 2001 Nov;65(5):450-5.
78. World Health Organization. Regional Office of South-East Asia. Distribution of Reported Malaria Deaths in SEA Region. 2003;2006(25 February). Available at http://w3.whosea.org/LinkFiles/Malaria_distr_mal_cases03.pdf.
79. Myint N. Recent levels and trends of fertility and mortality in Myanmar. *Asia Pac Popul J* 1991 Jun;6(2):3-20.
80. Soe-Soe, Khin-Saw-Aye, Htay-Aung, Nay-Win, Tin-Aung, Than-Swe, et al. Premunition against Plasmodium falciparum in a malaria hyperendemic village in Myanmar. *Trans R Soc Trop Med Hyg* 2001 Jan-Feb;95(1):81-4.
81. Lin K, Aung S, Lwin S, Min H, Aye NN, Webber R. Promotion of insecticide-treated mosquito nets in Myanmar. *Southeast Asian J Trop Med Public Health* 2000 Sep;31(3):444-7.
82. Win TT, Lin K, Mizuno S, Zhou M, Liu Q, Ferreira MU, et al. Wide distribution of Plasmodium ovale in Myanmar. *Trop Med Int Health* 2002 Mar;7(3):231-9.
83. Soe S, Theisen M, Roussilhon C, Aye KS, Druilhe P. Association between protection against clinical malaria and antibodies to merozoite surface antigens in an area of hyperendemicity in Myanmar: complementarity between responses to merozoite surface protein 3 and the 220-kilodalton glutamate-rich protein. *Infect Immun* 2004 Jan;72(1):247-52.
84. Lwin M, Lin H, Linn N, Kyaw MP, Ohn M, Maung NS, et al. The use of personal protective measures in control of malaria in a defined community. *Southeast Asian J Trop Med Public Health* 1997 Jun;28(2):254-8.
85. Oo TT, Storch V, Becker N. Anopheles dirus and its role in malaria transmission in Myanmar. *J Vector Ecol* 2003 Dec;28(2):175-83.
86. Tun-Lin W, Thu MM, Than SM, Mya MM. Hyperendemic malaria in a forested, hilly Myanmar village. *J Am Mosq Control Assoc* 1995 Dec;11(4):401-7.
87. Backpack Health Worker Team. Annual Report 2004. 2005.
88. Sirilak S. From TMI to Tak GFM. Thailand-Myanmar Border Malaria Conference; November; Bangkok, Thailand. 2004.
89. The Global Fund. Myanmar. TRP Reporting Form 2003. 2003. Available at http://www.theglobalfund.org/en/files/boardmeeting6/gfb66_annexIV/searo/Myanmar_malaria.pdf.

90. Central Intelligence Agency. The World Fact Book. Myanmar. 2006 10 January 2006;2006(2 February). Available at <http://www.cia.gov/cia/publications/factbook/geos/bm.html>.
91. Smithuis F, Shahmanesh M, Kyaw MK, Savran O, Lwin S, White NJ. Comparison of chloroquine, sulfadoxine/pyrimethamine, mefloquine and mefloquine-artesunate for the treatment of falciparum malaria in Kachin State, North Myanmar. *Trop Med Int Health* 2004 Nov;9(11):1184-90.
92. Smithuis FM, Monti F, Grundl M, Oo AZ, Kyaw TT, Phe O, et al. Plasmodium falciparum: sensitivity in vivo to chloroquine, pyrimethamine/sulfadoxine and mefloquine in western Myanmar. *Trans R Soc Trop Med Hyg* 1997 Jul-Aug;91(4):468-72.
93. Ejoy MN, Tun T, Aung S, Sein K. Response of falciparum malaria to different antimalarials in Myanmar. *Bull World Health Organ* 1999;77(3):244-9.
94. McGready R, Cho T, Samuel, Villegas L, Brockman A, van Vugt M, et al. Randomized comparison of quinine-clindamycin versus artesunate in the treatment of falciparum malaria in pregnancy. *Trans R Soc Trop Med Hyg* 2001 Nov-Dec;95(6):651-6.
95. Wongsrichanalai C, Thimasarn K, Sirichaisinthop J. Antimalarial drug combination policy: a caveat. *Lancet* 2000 Jun 24;355(9222):2245-7.
96. Nosten F, van Vugt M, Price R, Luxemburger C, Thway KL, Brockman A, et al. Effects of artesunate-mefloquine combination on incidence of Plasmodium falciparum malaria and mefloquine resistance in western Thailand: a prospective study. *Lancet* 2000 Jul 22;356(9226):297-302.
97. United States Pharmacopeia. A review of Drug Quality in Asia with a Focus on Anti-Infectives. 2004 February.
98. Dondorp AM, Newton PN, Mayxay M, Van Damme W, Smithuis FM, Yeung S, et al. Fake antimalarials in Southeast Asia are a major impediment to malaria control: multinational cross-sectional survey on the prevalence of fake antimalarials. *Trop Med Int Health* 2004 Dec;9(12):1241-6.
99. Newton PN, Dondorp A, Green M, Mayxay M, White NJ. Counterfeit artesunate antimalarials in southeast Asia. *Lancet* 2003 Jul 12;362(9378):169.
100. Lengeler C. Insecticide-treated bed nets and curtains for preventing malaria. *Cochrane Database Syst Rev* 2004;(2)(2):CD000363.
101. Saw Lin. Current situation along Thai-Myanmar border. July 5; World Health Organization. Geneva. 2005.
102. Karen Human Rights Group. KHRG#2006-F1. Report from the field. 2006 February 11. Available at <http://www.ibiblio.org/freeburma/humanrights/khrg/archive/khrg2006/khrg06f1.html>.

103. Kyawt-Kyawt-Swe, Pearson A. Knowledge, attitudes and practices with regard to malaria control in an endemic rural area of Myanmar. *Southeast Asian J Trop Med Public Health* 2004 Mar;35(1):53-62.
104. Backpack Health Worker Teams. Summary of findings for the Malaria Survey: BPHWP, July - December 2001. 2001;Internal BPHWT document. Unpublished.
105. Hu H, Singhasivanon P, Salazar NP, Thimasarn K, Li X, Wu Y, et al. Factors influencing malaria endemicity in Yunnan Province, PR China (analysis of spatial pattern by GIS). Geographical Information System. *Southeast Asian J Trop Med Public Health* 1998 Jun;29(2):191-200.
106. Thimasarn K, Sirichaisinthop J, Vijaykadga S, Tansophalaks S, Yamokgul P, Laomiphol A, et al. In vivo study of the response of *Plasmodium falciparum* to standard mefloquine/sulfadoxine/pyrimethamine (MSP) treatment among gem miners returning from Cambodia. *Southeast Asian J Trop Med Public Health* 1995 Jun;26(2):204-12.
107. Konchom S, Singhasivanon P, Kaewkungwal J, Chuprapawan S, Thimasarn K, Kidson C, et al. Chronicle of malaria epidemics in Thailand, 1980-2000. *Southeast Asian J Trop Med Public Health* 2005;36 Suppl 4:64-7.
108. Mohapatra PK, Prakash A, Taison K, Negmu K, Gohain AC, Namchoom NS, et al. Evaluation of chloroquine (CQ) and sulphadoxine/pyrimethamine (SP) therapy in uncomplicated falciparum malaria in Indo-Myanmar border areas. *Trop Med Int Health* 2005 May;10(5):478-83.
109. Mother finds hope in Law Thi Hta. *Internally Displaced People News* 2004 April;2(2).
110. Karen Human Rights Group. KHRG#95-26. Report from the field. 1995 July 31. Available at <http://www.ibiblio.org/freeburma/humanrights/khrg/archive/khrg95/khrg9526.html>.
111. Htay-Aung, Minn S, Thaung S, Mya MM, Than SM, Hlaing T, et al. Well-breeding *Anopheles dirus* and their role in malaria transmission in Myanmar. *Southeast Asian J Trop Med Public Health* 1999 Sep;30(3):447-53.
112. Mya MM, Saxena RK, Soe P. Study of malaria in a village of lower Myanmar. *Indian J Malariol* 2002 Sep-Dec;39(3-4):96-102.
113. Former MSF physician. Conversation with Tom Lee. 2005 January.
114. Medecins sans Frontiers. Myanmar: Helping the Most Vulnerable. 2005 5 December 2005;2006(16 February). Available at www.msf.org.
115. World Health Organization. Regional Office for South-East Asia. Malaria Situation in SEAR Countries. ;2006(17 January). Available at http://w3.whosea.org/LinkFiles/Malaria_in_the_SEAR_Malaria_Risk_Areas_in_Myanmar.pdf.

116. World Health Organization. Regional Office for South-East Asia. Country Profile: Myanmar. ;2006(17 January). Available at http://w3.who.sea.org/LinkFiles/Myanmar_myanmar.pdf.
117. AFP. Myanmar calls for international help after first bird flu outbreak. 2006 14 March.
118. World Health Organization. Lymphatic Filariasis: The Disease and Its Epidemiology. ;2006(24 January). Available at www.who.it
119. Molyneux D. Lymphatic Filariasis (Elephantiasis) Elimination: A public health success and development opportunity. *Filaria J* 2003 Sep 9;2(1):13.
120. Heymann DL. Control of Communicable Diseases. 18th ed. Washington, D.C.: American Public Health Association Publications; 2004.
121. Global Alliance to Eliminate Lymphatic Filariasis. ;2006(26 January). Available at <http://www.filariasis.org>.
122. Sunish IP, Rajendran R, Mani TR, Gajanana A, Reuben R, Satyanarayana K. Long-term population migration: an important aspect to be considered during mass drug administration for elimination of lymphatic filariasis. *Trop Med Int Health* 2003 Apr;8(4):316-21.
123. World Health Organization. Global Program to Eliminate Lymphatic Filariasis: Policy. ;2006(24 January).
124. Ottesen EA. The global programme to eliminate lymphatic filariasis. *Trop Med Int Health* 2000 Sep;5(9):591-4.
125. Centers for Disease Control. Recommendations of the International Task Force for Disease Eradication. 1993;42:1-38.
126. World Health Organization. Elimination of Lymphatic Filariasis as a Public Health Problem. Fiftieth World Health Assembly. 1997 13 May;WHA50.29.
127. Tritteraprapab S, Nuchprayoon I, Porksakorn C, Poovorawan Y, Scott AL. High prevalence of *Wuchereria bancrofti* infection among Myanmar migrants in Thailand. *Ann Trop Med Parasitol* 2001 Jul;95(5):535-8.
128. Tritteraprapab S, Kanjanopas K, Suwannadabba S, Sangprakarn S, Poovorawan Y, Scott AL. Transmission of the nocturnal periodic strain of *Wuchereria bancrofti* by *Culex quinquefasciatus*: establishing the potential for urban filariasis in Thailand. *Epidemiol Infect* 2000 Aug;125(1):207-12.
129. Division of Communicable Disease Control, Ministry of Public Health. Annual Report, Filariasis Unit. 2002 Nonthaburi, Thailand.

130. Department of Communicable Diseases, World Health Organization, Regional Office for Southeast Asia. Elimination of Lymphatic Filariasis in Myanmar. 2001 January;CDS Info 16-31, Vol 2(22).
131. Tritteraprapab S, Songtrus J. High prevalence of bancroftian filariasis in Myanmar-migrant workers: a study in Mae Sot district, Tak province, Thailand. J Med Assoc Thai 1999 Jul;82(7):735-9.
132. Koyadun S, Bhumiratana A. Surveillance of imported bancroftian filariasis after two-year multiple-dose diethylcarbamazine treatment. Southeast Asian J Trop Med Public Health 2005 Jul;36(4):822-31.
133. Huanok W. Thailand under threat: How Burma's dams project could spread disease. The Irrawaddy 2005 June;13(6):15-6.
134. World Health Organization, Regional Office for Southeast Asia. Current Situation in South-East Asian Countries: Thailand. Annual Report 2004. 2005.
135. World Health Organization. Cholera: Prevention and Control. ;2006(17 January).
136. Chelala C. Burma: a country's health in crisis. Lancet 1998 Aug 15;352(9127):556.
137. Oo KN, Than WM, Win T, Thida M, Aung KS. Vibrio cholerae non-O1 as a causal pathogen in cholera patients in Yangon, Myanmar. J Diarrhoeal Dis Res 1995 Sep;13(3):176-9.
138. Democratic Voice of Burma. Prisoners die from cholera outbreak at Sittwe in West Burma. Democratic Voice of Burma 2006 16 January.
139. Democratic Voice of Burma. Cholera outbreaks in upper Burma kill at least four. Democratic Voice of Burma 2005 8 December.
140. Democratic Voice of Burma. Cholera outbreak in Burma tharawaddy latest: 40 dead within one day. Democratic Voice of Burma 2005 30 September.
141. Centers for Disease Control. Traveler's Health: Yellow Book 2005-2006. Asia. ;2006(20 February). Available at <http://www2.ncid.cdc.gov/>.
142. World Health Organization. Anthrax Fact Sheet No 264. 2001 October;2006(5 March).
143. Sattha C. Daily News. Anthrax fears lead to Burmese cattle import ban. Daily News 2001 26 October. Available at <http://www.rebound88.net/01/oct/26.html#story5>.
144. Sirisanthana T, Navachareon N, Tharavichitkul P, Sirisanthana V, Brown AE. Outbreak of oral-oro-pharyngeal anthrax: an unusual manifestation of human infection with Bacillus anthracis. Am J Trop Med Hyg 1984 Jan;33(1):144-50.
145. US Department of State. Bureau of Democracy, Human Rights, and Labor. Burma. Country Reports on Human Rights Practices 2004. 2005 28 February.

146. Ungphakorn J. Asian states run out of patience with Myanmar. Taipei Times 2005 11 October:9.
147. Beyrer C, Razak MH, Jittiwutikarn J, Suriyanon V, Vongchak T, Srirak N, et al. Methamphetamine users in northern Thailand: changing demographics and risks for HIV and STD among treatment-seeking substance abusers. *Int J STD AIDS* 2004 Oct;15(10):697-704.
148. Beyrer C, Razak MH, Lisam K, Chen J, Lui W, Yu XF. Overland heroin trafficking routes and HIV-1 spread in south and south-east Asia. *AIDS* 2000 Jan 7;14(1):75-83.
149. Narinjara News B. Drugs from Burma a menace in Bangladesh hill district. 2006 20 March.
150. Zhang C, Yang R, Xia X, Qin S, Dai J, Zhang Z, et al. High prevalence of HIV-1 and hepatitis C virus coinfection among injection drug users in the southeastern region of Yunnan, China. *J Acquir Immune Defic Syndr* 2002 Feb 1;29(2):191-6.
151. Chu TX, Levy JA. Injection drug use and HIV/AIDS transmission in China. *Cell Res* 2005 Nov-Dec;15(11-12):865-9.
152. Takebe Y. Molecular epidemiology of HIV: principle and its application. *Nippon Rinsho* 2002 Apr;60(4):652-61.
153. Chakrabarti S, Panda S, Chatterjee A, Sarkar S, Manna B, Singh NB, et al. HIV-1 subtypes in injecting drug users & their non-injecting wives in Manipur, India. *Indian J Med Res* 2000 Jun;111:189-94.
154. Sarkar K, Panda S, Das N, Sarkar S. Relationship of national highway with injecting drug abuse and HIV in rural Manipur, India. *Indian J Public Health* 1997 Apr-Jun;41(2):49-51.
155. Panda S, Wang G, Sarkar S, Perez CM, Chakraborty S, Agarwal A, et al. Characterization of V3 loop of HIV type 1 spreading rapidly among injection drug users of Manipur, India: a molecular epidemiological perspective. *AIDS Res Hum Retroviruses* 1996 Nov 1;12(16):1571-3.
156. Migrant Assistance Project Foundation. Migrant Health Rights. National Health and Education Committee Health System Development Seminar; 17 January 2006; Mae Sot, Thailand.
157. Wandee P, Supawitkul S, Pinta N, Ngoentong Y, Khunkonkapan S, Kaewkampa P, et al. Dual TB/HIV epidemic in northern Thailand and Myanmar Border: The vital need for bridging cross-country cooperation. Abstract B10478. IV International AIDS Conference; July; Bangkok, Thailand. 2004.
158. Kamolratanakul P, Hiransuthikul N, Singhadong N, Kasetjaroen Y, Akksilp S, Lertmaharit S. Cost analysis of different types of tuberculosis patient at tuberculosis centers in Thailand. *Southeast Asian J Trop Med Public Health* 2002 Jun;33(2):321-30.

159. Zhou G, Sirichaisinthop J, Sattabongkot J, Jones J, Bjornstad ON, Yan G, et al. Spatio-temporal distribution of *Plasmodium falciparum* and *p. Vivax* malaria in Thailand. *Am J Trop Med Hyg* 2005 Mar;72(3):256-62.
160. Childs DZ, Cattadori IM, Suwonkerd W, Prajakwong S, Boots M. Spatiotemporal patterns of malaria incidence in northern Thailand. *Trans R Soc Trop Med Hyg* 2006 Jan 6.
161. Wiwanitkit V. High prevalence of malaria in Myanmar migrant workers in a rural district near the Thailand-Myanmar border. *Scand J Infect Dis* 2002;34(3):236-7.
162. Xu J, Liu H. Border malaria in Yunnan, China. *Southeast Asian J Trop Med Public Health* 1997 Sep;28(3):456-9.
163. Kidson C, Indaratna K. Ecology, economics and political will: the vicissitudes of malaria strategies in Asia. *Parassitologia* 1998 Jun;40(1-2):39-46.
164. Kidson C, Indaratna K, Looareesuwan S. The malaria cauldron of Southeast Asia: conflicting strategies of contiguous nation states. *Parassitologia* 2000 Jun;42(1-2):101-10.
165. Mohapatra PK, Prakash A, Taison K, Negmu K, Gohain AC, Namchoom NS, et al. Evaluation of chloroquine (CQ) and sulphadoxine/pyrimethamine (SP) therapy in uncomplicated *falciparum* malaria in Indo-Myanmar border areas. *Trop Med Int Health* 2005 May;10(5):478-83.
166. Kidson C, Indaratna K, Looareesuwan S. The malaria cauldron of Southeast Asia: conflicting strategies of contiguous nation states. *Parassitologia* 2000 Jun;42(1-2):101-10.
167. Newton P, Proux S, Green M, Smithuis F, Rozendaal J, Prakongpan S, et al. Fake artesunate in southeast Asia. *Lancet* 2001 Jun 16;357(9272):1948-50.
168. Htee Moo, Richards A. Malaria control among internally displaced persons in Eastern Burma: A public health and human rights approach. *Lessons Learned from Rights Based Approaches to Health*; April 15; Emory University, Atlanta, GA. 2005.
169. Mullany LC, Maung C, Beyrer C. HIV/AIDS knowledge, attitudes, and practices among Burmese migrant factory workers in Tak Province, Thailand. *AIDS Care* 2003 Feb;15(1):63-70.
170. National AIDS Control Program, India. HIV Estimates 2004. Available at <http://www.nacoonline.org/>

Appendix A

Guideline for systematic and effective plan to implement development activities with the cooperation of UN agencies, Non-governmental Organizations (NGOs), International Non-governmental Organizations (INGOs) and International Organizations

Official Translation
January 2006

Ministry of National Planning and Economic Development

**Guidelines for
UN Agencies, International Organizations and
NGO / INGOs
on Cooperation Programme
in Myanmar**

February 2006

Guidelines for UN Agencies, International Organizations and NGO / INGOs on Cooperation Programme in Myanmar

- The UNODC Representative called on the Minister for Foreign Affairs after completion of his assignment in December 2005. During the meeting, he reported that there are 22 INGOs who have been engaging in Southern Shan State, WA area. He observed that there have been no collaboration and coordination among these INGOs. He also mentioned that these INGOs are not aware of the presence of the other INGOs working in that area and the effective services have not been rendered to the people in that area.
- In this regard, he recommended the Minister that there should be collaboration and coordination among these INGOs and their programmes should be coordinated and guided by the central responsible body.
- In the light of these circumstances, the programmes and projects that are being conducted with the assistance of UN Agencies, International Organizations and NGO/ INGOs were reviewed and analyzed.
- It is clearly observed that there are many programme of activities that will benefit both sides and contribute to the well being of the communities in Myanmar.
- It is also observed that UN Agencies, International Organizations and NGO/ INGOs that have been providing assistance for the socio-economic development of Myanmar should be systematically coordinated and guided so as to achieve more effective and efficient outcomes.
- Myanmar welcomes the assistance being provided by these organizations. Myanmar side will cooperate and give support for the successful implementation of these cooperation programmes and projects.
- Aiming at efficient, smooth and systematic implementation of the activities to bring about more effective results, I would like to explain the Programme Guidelines for carrying out the cooperation programme.

- The Programme Guidelines cover the Objectives, Proposal for Basic Cooperation Agreement, Proposal for the Project, Proposal for MOU and Implementation Arrangement.
- The objectives of the Programme Guidelines are as follows:
 - To enhance and safeguard the national interest
 - To prevent the infringement of the sovereignty of the State
 - To cooperate without any string to the State
 - To provide guidance to be on the right track, render necessary assistance as well as cooperate and coordinate with the view to contributing the socio-economic development of the Nation

Initial Coordination

- The initial coordination among UN Agencies, International Organizations and NGO/ INGOs with respect to cooperation programme will be carried out by the Ministry of National Planning and Economic Development.
- The line ministry will be responsible for the implementation of the respective projects.

Proposal for Basic Cooperation Agreement

- The Draft Basic Agreement for cooperation to be signed between the Union of Myanmar and the UN Agencies, International Organizations and NGO/INGOs shall be submitted to the Ministry of National Planning and Economic Development.

Proposal for the Project

- Any proposed project to be implemented in cooperation with UN Agencies, International Organizations and NGO / INGOs shall be submitted by these organizations to the Ministry of National Planning and Economic Development.

- The project proposal which is to be implemented in Myanmar shall be in line with the objectives of the Programme Guidelines. If the proposal is not in line with the objectives of the Programme Guidelines, consultation shall be made with the concerned Ministry to revise the proposal.
- If NGO/INGOs submit the project proposal which involves more than one Ministry, the Ministry which receives the proposal will scrutinize and transfer it to the Ministry of National Planning and Economic Development.

Proposal for Memorandum of Understanding (MOU)

- NGO/INGOs shall submit the Draft MOU, which is to be implemented in Myanmar, to the Ministry of National Planning and Economic Development after consultation with the concerned Ministries on the Draft MOU.
- Draft MOU which is to be implemented in Myanmar shall be in line with the objectives of Programme Guidelines. If the MOU is not in line with the objectives of the Programme Guidelines, consultation shall be made with the concerned Ministry to revise the MOU.
- If NGO/INGOs submit the draft MOU which involves multiple sector to the concerned Ministry, that respective Ministry will scrutinize and transfer the draft MOU to the Ministry of National Planning and Economic Development.

Implementation Arrangement

- Signing of Basic Agreement, Project proposal and MOU
 - The Basic Agreement between the Union of Myanmar and UN Agencies, International Organizations will be signed by the Ministry of National Planning and Economic Development on behalf of the Government.

- The MOU/Project Proposal involving Overall Framework/Multiple Ministry/ Multiple Sector, will be signed by the Ministry of National Planning and Economic Development.
- If the MOU/Project Proposal is concerned only with the individual Ministry, that respective Ministry will sign the MOU/ Project Document.
- NGO/INGOs shall seek the approval from the concerned Ministry before signing any sub -contract covered by the MOU/ Project Document.
- Registration and opening of the offices
 - NGO/INGOs shall register with the Ministry of Home Affairs and the opening of office will be allowed only after registration of organization.
 - At the time when NGO/INGOs open their offices they shall inform the Ministry of National Planning and Economic Development, Ministry of Foreign Affairs, Ministry of Home Affairs and concerned Ministries.
 - When NGO/INGOs close their offices, it is also required to inform the Ministry of National Planning and Economic Development, Ministry of Foreign Affairs, Ministry of Home Affairs and concerned Ministries.
 - NGO/INGOs may apply for extension of their registration in accordance with the existing procedure.
- Appointment of staff
 - Regarding the appointment of international staff in the UN Agencies, International Organizations and NGO/INGOs in Myanmar, these Agencies and Organizations shall seek the prior consent from the Myanmar side.
 - Regarding the appointment of international personnel for the Representative's Offices in Myanmar, the Agencies and Organizations shall seek the prior consent from the Ministry of National Planning and Economic Development.

➤ Regarding the appointment of international staff for the respective projects, the Agencies and Organizations shall seek the prior consent from the concerned Ministry.

➤ The list of international and local staff working in Myanmar shall be provided to the Ministry of National Planning and Economic Development and the concerned Ministry.

• Internal Travel

➤ The Ministry of National Planning and Economic Development will coordinate for the travel programme and necessary approval for the official(s) /mission from the headquarter of the respective organizations with which Ministry of National Planning and Economic Development signed the MOU /Project Document. Official(s) from the Ministry of National Planning and Economic Development will accompany them in the trip.

➤ If the MOU /Project Document is signed by the other Ministries, that Ministry will coordinate for the travel programme and necessary approval for the official(s) /mission from the headquarter and official(s) from Myanmar side will accompany them in the trip.

➤ If the official/personnel is from UN Agencies, International Organizations and NGO/INGOs in Myanmar, the Ministry responsible for the project will coordinate for the travel programme and necessary approval from the concerned authorities. Official(s) from Myanmar side will accompany them in the trip.

• Management

➤ The relevant Ministry which has signed with the UN Agencies, International Organizations and NGO/INGOs will coordinate the matters on importation of equipment and motor vehicles for the project as well as the entry visa for the officials/ mission from the Headquarters in accordance with the rules and regulations of the State.

• For the smooth implementation of the projects, the Central Coordination Committee will be formed. The committee will be chaired

by the Minister for National Planning and Economic Development and the Minister for Foreign Affairs and the Minister for Home Affairs will be vice-chairmen. The members of the committee are the Deputy Ministers from the concerned Ministries and the Deputy Minister for the Ministry of National Planning and Economic Development will act as Secretary. The Director General of Foreign Economic Relations Department will act as Joint Secretary.

- The Central Coordination Committee Meeting will be held every three months. Special meeting will be held if needed.
- The meeting among Central Coordination Committee and UN Agencies, International Organizations and NGO / INGOs will be held every three months.
- The coordination at the central level will contribute to smooth and successful implementation of the project activities.
- The Ministries concerned will hold the coordination meeting with the respective Departments monthly (or) every two months.
- State/ Division and Township Coordination Committees will be formed at the State/ Division and Township level consisting of the head of the General Affairs Department as chairman and the members from the concerned Departments. The Secretary of the Committee will be the Planning Officer of the respective State/Division and Township Planning Department.
- The State / Division and Township Coordination Committees are responsible for coordination among NGO / INGOs as well as coordination with Departments and communities.
- Upon the arrival to the State / Division / Township, the team leader from the organizations which will implement the projects shall inform the State / Division and Township Coordination Committees.
- The UN Agencies, International Organizations and NGO/INGOs shall refrain from the activities not within the scope of work. If it is necessary to carry out the activities which are not within the scope of

work, the respective organization shall seek the prior approval from the concerned Ministry.

- The UN Agencies, International Organizations and NGO/INGO shall provide monthly and quarterly reports to the Ministry of National Planning and Economic Development as well as to the concerned Ministries.
- If the proposed activities to be undertaken is substantive and is related to the another Ministry, the Scope of Work / Terms of Reference shall be revised officially and if the work is marginal, concurrence from the concerned Ministry will be required.
- Through close cooperation and coordination among the Ministries, UN agencies, International Organizations and NGO/INGOs in accordance with the Programme Guidelines, it will lead to smooth, systematic and efficient implementation of the project activities bearing better results.
- The organizations which would like to implement the cooperation programme in Myanmar shall comply with this Programme Guidelines.
- Many organizations currently working in Myanmar may not require to change substantially the way they are working now. However, if there are some practices which are not in line with the Programme Guidelines, the organizations shall carry out their programmes in conformity with the Programme Guidelines in consultation with the concerned Ministry. NGO/INGOs which have not yet registered are required to do so.
- There are many NGO/INGOs which have been implementing their projects without any difficulty in Myanmar. For these organizations, we would not like to see any inconvenience in their activities. Accordingly in the process of their works, they may continue to carry out project activities in line with this Programme Guidelines.
- In the event of special circumstances, the Ministry concerned will consider the situation with understanding in order to implement the project smoothly.

Appendix B

March 21, 2006
2006/293

Statement by Sean McCormack, Spokesman

Burma: Beating of Former Political Prisoner

The United States condemns the March 17 fatal public beating of former political prisoner Thet Naing Oo by Rangoon police and fire officials. This incident is the latest in a string of increasingly violent acts targeting members of the political opposition that highlight the brutality and repressiveness of the Burmese regime. The responsible officials should be held accountable for this unconscionable act. The United States calls on the Burmese regime to renounce violence against its own people, to release all political prisoners, and to engage all elements of Burmese political life in a meaningful dialogue that empowers the people to determine their own future.

Appendix C

**The Ministry of Livestock and Fisheries
Livestock Breeding and Veterinary Department
The notification on Avian Influenza (bird flu) to the public
(13-3-2006)**

1. Incidences of Avian Influenza

Avian Influenza (bird flu) is of zoonotic nature, (transmissible to human beings) that has occurred since December 2003 and spreads to 14 countries in Asia and 30 countries in other parts of the world totaling 44 countries. As of the end of February it caused 96 numbers of human death.

2. Situation in Myanmar

Starting from the 1st week of February to the early part of March, the outbreaks of chicken disease, suspected Avian Influenza occurred in Shwebo Township, Kantbalu and KhinOo Townships in Sagaing Division and Pyigyidagun Township in Mandalay Division. The cause of disease may be due to migratory birds that fly across the country or illegal importation of hatching eggs and day-old-chicks. If the dead bird had been vaccinated with Avian Influenza vaccine, it causes complication in disease diagnosis and identification.

3. The measures currently taken

The above said townships in the southern part of Sagaing Division and Mandalay Division are confined as restricted zones and the movement control, temporary close down of markets and disease investigation in the poultry farms are undertaken under the guidance of local authorities. Field investigation and disease surveillance are carried out continuously.

4. Signs and Symptoms

- (a) Sudden death and high mortality, drop in egg production
- (b) Dull, decreased feed intake and excessive drinking
- (c) Difficult in breathing, eye and nasal discharges.
- (d) Oedema in head and face
- (e) Oedema in comb and wattles
- (f) Haemorrhages and red spots in legs and knee joints
- (g) 100% mortality if it is severe

5. Disease control measures to be taken

- (a) To notify promptly the local authorities or Livestock Breeding and Veterinary Department (LBVD) if the disease suspected of Avian Influenza is noticed.
- (b) If chickens are affected with any kind of disease, not to sell out to the market or any other region.
- (c) To protect the domestic birds from contact with wild and migratory birds.

Appendix C

(d) Not to convey the birds from other farms to the own farm and not to practice mixed farming of different species.

(e) Not to allow the entry of people including young children from outside into own poultry farm

(f) Whenever enter the farm, use boots, overcoat, head wear, glove and mask for protection.

(g) To keep the farm hygienic and apply disinfectants and lime regularly on the farm.

(h) Not to allow farm workers to poultry markets and to change clothes and shoes before entering the farm if happens to do.

(i) To cook well poultry meat and eggs to prevent transmission to humans.

6. The Animal Health and Development Law has been promulgated for the control of animal infectious diseases. The stakeholders involved in poultry farming and trading are notified to coordinate and cooperate in contributing effectively to the control of Avian Influenza.