

# Recommendations for Malaria Control Policy in Sub-Saharan Africa

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*Billions of dollars each year are dedicated to malaria control policy at great cost to the donating agencies and countries. This paper outlines the primary sources of that funding and the methods by which it is used. The Web sites for these funding agencies: The Global Fund, The President's Malaria Initiative and Malaria No More provide much of the data for this study. Information from the United States Center for Disease Control, the World Health Organization, and several books on the history of the malaria parasite provide this investigation's epidemiological foundation. This paper offers alternatives to the current funding practices, such as moving production of malaria control supplies to Africa and increasing collaboration between funding agencies. These suggestions will reduce the number of malaria cases while stimulating the economies of the affected Sub-Saharan nations.*

## INTRODUCTION

By the time you finish reading this sentence a child in Africa will have died of malaria. As disheartening as this may be, the true tragedy of this death is that malaria is a treatable disease. Anti-malarial pills cost only \$1 USD per treatment. Cheap secondary combatant methods such as mosquito spraying and use of bed nets have also significantly lowered infection rates. The only step left in defeating this "ancient killer" is locating the funding to make these treatments universal.

For many years foreign powers have occupied and exploited the land and its people. The list of atrocities is so long now that it is difficult to definitively trace the blame. Rather than assume responsibility for this state of affairs, many countries have decided to push off the costs of rebuilding on others. What is needed is a dynamic institution that can attract many nations to the project, organize their resources, monitor their activities, and deliver sustainable results. The President's Malaria Initiative is the best candidate for this task.

In this time of economic recession, funding for global health should be maintained. While celebrity-based aid agencies, private corporations, and The Global Fund have made commendable efforts to fight malaria, the United States President's Malaria Initiative must lead out in bringing an end to this terrible disease. By doing so, millions of lives will be saved around the world, spillover from failed states affected by malaria will be reduced, and the marred reputation of the United States will be mended in the world community.

## WHAT IS THE HISTORY OF MALARIA TREATMENT?

The campaign against malaria began in 1638 with the mysterious cure of the Spanish princess Doña Francisca Henríquez de Ribera (Honigsbaum, 2002, p. 2). While visiting Peru she contracted what appears to have been malaria. A Jesuit priest that was passing through the area heard of her illness and treated the disease with an infusion of bark from the local cinchona tree. She quickly recovered from the disease and returned to Europe to spread the news. The quinine extracts from the bark effectively lowered the princess's temperature enough to prevent the reproduction of the malaria parasite in her body, breaking the cycle of fevers.

Unfortunately, the species of tree from which this powerful drug was derived was only found in Peru and Bolivia along the Andean fault line. Depending on the location of the infected victim, accessibility to this treatment outside of South America was either impossible or extremely expensive. Only a few British scientists recognized the value of transporting the seeds of the cinchona tree to Europe where they could be mass produced. Among them were Richard Spruce (1817-1893), Charles Ledger (1818-1905), and Sir Clements Markham (1830-1916). Several attempts were made by each to acquire the seeds. Most of these excursions were foiled by the South American winters, sickness, and the governments of Peru and Bolivia, which carefully protected their rare crop of trees.

Ledger's Cinchona Ledgeriana seeds switched hands a few times before ending up in the possession of the Dutch. By the early 1870s, the Dutch had established a plantation of trees in Java. These trees had approximately 10% quinine content, which was enough for commercial production (Slater, 2009). By the early 1900s the Dutch plantation in

Java was producing nearly 66% of the world's supply of quinine and reaping significant returns on its investment (Honigsbaum, 2002). As the number of cinchona trees increased, more people were able to receive treatment for malaria at a significantly lower price.

During this same time, medical researchers were able to determine the mechanics of the disease. In 1880, Charles Louis Alphonse Laveran, a French army surgeon, noticed that the blood of individuals suffering from symptoms of malaria contained parasites. It wasn't until 1897 that the British officer Ronald Ross discovered that the parasite was spread by mosquitoes (United States Centers for Disease Control, 2004). Both were awarded the Nobel Prize in Medicine for their achievements.

Only female mosquitoes take blood from humans. They do so in order to produce eggs. When a female mosquito bites an infected human being, the parasite is transferred to the mosquito's salivary glands. The mosquito transfers the parasite to subsequent victims of its bite. The parasite matures first in the human host's liver and then moves outward to infect and destroy the host's red blood cells. The destruction of the red blood cells releases daughter parasites called merozoites which then infect other red blood cells. Once the parasite has moved out of the liver, it can be picked up by other mosquitoes and spread to other victims. The symptoms of malaria include fever, chills, sweating, headaches, and muscle pains. If left untreated they can escalate to anemia, permanent brain damage, kidney failure, and death (United States Centers for Disease Control, 2004).

### THE WEIGHT OF MALARIA

Analysts from the United States President's Malaria Initiative estimate that approximately 1 million people each year die of the disease. Another half billion individuals are infected (President's Malaria Initiative, 2009). Pregnant women and young children are particularly susceptible to contracting the disease. Their weakened immune systems increase the severity of the symptoms. If left untreated, the disease can develop into cerebral malaria in children, leading to long-term brain damage or death. The President's Malaria Initiative has developed programs that focus specifically on protecting pregnant women and children from the disease.

While there is no vaccine for malaria, symptoms become milder after multiple infections. Adults that have had the disease many times experience only a mild fever or dehydration. Death becomes less and less likely. The symptoms of the disease however still produce a significant drain on national economies, the families, and individuals. Once a person is infected, the parasite can come out of remission at any time. An attack may come once in a year or every few weeks. During each attack the man or woman is unable to go to work. Days missed at work cause job loss or at the very least lost wages.

Purchasing the drugs to treat the disease is also a drain on family finances. If drugs are not available for free from a

donating agency, many families choose to forgo spending money for the drugs and suffer until the disease goes into remission. Others do not take the full round of prescribed doses, hoping to save some money by keeping the extra pills for the next attack. Symptoms may be reduced by taking a half dose of the pills, but the malaria parasite will not be completely eradicated. It is likely that the parasite will return much sooner than if the full treatment was taken.

Economists at the Roll Back Malaria partnership have estimated that malaria is responsible for a yearly drain of 0.25-1.3% on the GDP of several African countries (Malaney, Spielman, & Sachs, 2004). In the year 2000, the United Nations was preparing to establish its Millennium Development Goals. One of these was "Combat HIV/AIDS, Malaria and Other Diseases" (United Nations, 2009). At that time the World Health Organization released a report estimating that the hypothetical elimination of malaria in 1965 would have increased the total GDP of Sub-Saharan Africa in 2000 by 32%. In other words, this would mean an additional \$100 billion USD to the year 2000 GDP total of approximately \$300 billion (World Health Organization, 2000). Another estimate issued during this time when the campaign against malaria was just beginning showed that "40% of public health expenditures, 30-50% of inpatient admissions, and up to 50% of outpatient admissions" were malaria related (Roll Back Malaria, 1999). Had the United States chosen to ramp up its funding of anti-malaria aid programs even 10 years earlier, Sub-Saharan African would likely not be in the same plight of poverty that it is currently facing.

### WHAT ARE THE CURRENT METHODS FOR COMBATING MALARIA?

#### ARTEMISININ-BASED COMBINATION THERAPIES (ACTs)

The most lethal strain of malaria *Plasmodium Falciparum* began to show signs of resistance to quinine around the turn of the century. Over the past nine years this level of resistance has increased steadily. As a result, pharmaceutical companies have been forced to seek other treatments to combat the disease. Artemisinin, derived from the wormwood plant, is at the top of the list. While Chinese natural healers have been using the drug for over a thousand years, it has only recently been mass produced to treat malaria. This new drug has been shown to clear the parasite faster than any other drug yet discovered. It is about 90% effective in curing uncomplicated malaria (Rehwagen, 2006). Other drugs such as chloroquinie, doxycycline, mefloquine and malarone are employed to cover the remaining 10%. While these drugs may kill the parasites currently in the body, the host can become infected again soon after treatment by another infected mosquito.

The use of combination therapies has become much more common. This is the practice of using multiple drugs in tandem to combat malaria. The benefits of this strategy are that the parasite is killed more rapidly and the development

of resistance is slower. Artemisinin-based combination therapies (ACTs) involve the combination of Artemisin with sulfadoxine/pyrimethamine or lumefantrine, depending on the condition of the patient. The use of Artemisinin or its derivatives Artemether and Artesunate as a monotherapy are strictly outlawed by the World Health Organization for fear that resistance will render the compound ineffective. Signs of early resistance have already been seen in South Asia, as pharmaceutical companies continue to seek new treatments. While there have been some attempts to develop a vaccine to the disease, none have been successful. The cost of one three-day treatment of ACT was about \$2.50 before 2007. The price tag has since been reduced to approximately \$1 with new manufacturing procedures implemented by pharmaceutical companies and subsidies from global donors (Kaiser Network, 2007).

#### BED NETS

The quality of bed nets varies widely. The most expensive bed nets are those with insecticide woven into the fibers. Mosquitoes are killed as soon as they land on these nets. The insecticide can remain active for four to five years and more than 20 washes. Each net costs approximately \$10 USD (Sachs, 2009). Less expensive models are treated with insecticide after the net has been produced. The potency of the net is greatly reduced and it needs to be sprayed again after being washed. There are also simple nets that are not treated with insecticide.

Between 2006 and 2008 the percentage of households owning a bed nets nearly doubled from 13% to 31%. In some high malaria occurrence areas in Africa, ownership reached more than 50% (World Health Organization, 2010). The greatest challenge for making this prevention method effective is convincing locals to use bed nets. A large proportion of the bed nets distributed are never used or only used sporadically. Each bed net can protect one or two people. Conventional policy recommends that those with weakened immune systems should receive first priority for bed nets.

#### MOSQUITO SPRAYING

Another common component of malaria control is the spraying of home interiors with insecticide. The type of insecticide varies from country to country. The effects of the insecticide can last anywhere from six to eight months. Supplies are typically shipped from overseas to Africa. Sprayers are usually locals of the country. Prior to spraying a home, members from the spray team instruct locals on the purpose and practice of the spraying.

#### BEHAVIORAL CHANGE EDUCATION

Simple changes in behavior can help to significantly reduce the number of mosquitoes in a given area. Most malaria prevention programs include an educational component in which experts train local workers on how to prevent infec-

tion. Education is perhaps the most cost effective method of reducing infection rates.

Mosquitoes breed in standing water and almost always bite humans within one to two kilometers from their hatch site (Benavente & Torres, 2004). Filling in or covering ditches, troughs, wells, etc. can help to reduce the number of adult mosquitoes in the vicinity.

While some mosquito bites can occur during the day or night, bite rates are highest at dusk. Staying indoors during these times can help to reduce the possibility of being infected with malaria. It is recommended that infants and pregnant mothers who have weaker immune systems should stay inside during these hours. The 2009 World Malaria Report indicates that as funding for malaria control programs focusing on these solutions has increased from \$0.3 billion to \$1.7 billion between 2003 and 2009, more than one-third of the 108 malarious countries (including nine African countries) have shown a reduction in malaria rates of over 50% (World Health Organization, 2009).

#### WHERE DOES MALARIA FUNDING CURRENTLY ORIGINATE? CELEBRITY DONATIONS

Malaria No More is the non-profit organization most skilled in partnering with public figures to generate funds for combating malaria. Just in the past year they have attracted such mainstream media names as Fox Television, Jack Bauer (Keifer Sutherland), American Idol, Sean Diddy Combs, Acura, and even Nickelodeon to raise money (Malaria No More, 2009). These media idols are clearly powerful tools for mobilizing capital and influencing public opinion. Note that all of these events have taken place during the current economic recession.

Hollywood has great sway over the American consumer. Any legitimate cause championed by one of the names in the list above gets a lot of attention. These consequent donations have the power to potentially change the lives of millions. These names do more than garner funds; they motivate common citizens to participate on the ground.

Nevertheless, not all celebrity aid is effective. In her book *Dead Aid* Zabmisa Moyo condemns aid generated by celebrity efforts. Her argument is that figures like Bono campaigning for Africa tend to perpetuate the public opinion that Africa is a mess and can only be helped by benevolent acts from the West. This decreases investor confidence in African Foreign Direct Investment and convinces Africans that they really are helpless (Moyo, 2009). While she may be correct to a certain point, it is still difficult to believe that bed nets, medicine, and spray equipment provided by celebrity foundations is not having a positive effect in the short-term. Every pill distributed potentially saves a life. What is needed is a commitment to smart aid that simultaneously stimulates the economy while reducing malaria cases. This goal of smart aid will be discussed later in this paper.

### PRIVATE CORPORATIONS

Some of the funding for malaria is supplied by private corporations. These organizations have various reasons for supporting such programs. These motives may be altruistic, ulterior, or imposed by government as punishment for past misdeeds. Marathon Oil's operations in Equatorial Guinea fall into this last category.

Despite Equatorial Guinea's endemic rates of infection (Benavente & Torres, 2004), the United States government did not include the nation in its President's Malaria Initiative. This choice was likely the result of two factors. First, the U.S. government has been wary of making ties with the corrupt ruling party led by Teodoro Obiang Nguema (1979–present) and wished to avoid further criticism for making corrupt deals to obtain oil reserves. Second, Equatorial Guinea didn't make the cut because news of success would be a small blip on the global news wire. Turning the tide in larger countries such as Angola or Kenya would produce more significant positive news for the United States government (Roberts, 2006).

In the late 1990s oil reserves were discovered in the region. Marathon Oil gained the rights from Equatorial Guinea to drill in the area by offering lavish bribes to the nation's President Obiang. In 2003, Obiang deposited over half a billion dollars in a private bank account in Washington, DC, (Roberts, 2006). During one of the post-9/11 investigations geared toward finding the source of foreign holdings in domestic banks, these funds were discovered. Riggs Bank was fined \$25 million for turning "a blind eye to evidence suggesting the bank was handling the proceeds of foreign corruption" (Silverstein, 2006). In addition to the fine, Marathon Oil was obligated by the Senate committee to initiate a humanitarian program in Equatorial Guinea.

In 2004, Marathon Oil contracted with a non-profit agency based in Washington, DC, to begin a malaria control project (Carter-Gau, 2009). While there has been some success in reducing malaria rates on the island portion of the nation, progress has been slow. Marathon Oil continues to fund the project, but it is naturally not their first concern; the program began as a punishment.

### THE GLOBAL FUND

The origin of The Global Fund was a January 2001 article published by economist Jeffrey Sachs. He called for a dramatic increase in funding for HIV/AIDS, malaria, and tuberculosis programs in order to meet the G8 Millennium Development Goals. The fund was formally organized at the G8 Summit meeting later that year in Genoa, Italy. The World Health Organization provided much of the administrative services in the early stages of the project so that the fund could begin distributing funds within a year of its creation. As of January 1, 2009, this tie with the WHO was severed, making it an independent organization (The Global Fund, 2008). Even though its headquarters are located in Geneva, it is no longer part of the United Nations. The

Global Fund currently employs approximately 250 permanent staff members in Geneva.

According to its Web site, to date The Global Fund has committed a total \$15.6 billion in 140 countries to combat HIV/AIDS, malaria and tuberculosis. The Global Fund currently provides 25% of all worldwide funding for HIV/AIDS, 66% for tuberculosis, and 75% for malaria (The Global Fund, 2009).

The United States government is the leading donor to The Global Fund. As of the end of 2008 it had donated \$3.5 billion, and the amount donated each year has increased steadily. Between 2001 and 2004 the US donated just over \$1 billion. By 2009 it donated the same total in a single year. The committed amount for the 2010 fiscal year has been reduced slightly to \$900 million, probably due to the current economic recession. The largest non-country donor is the Bill and Melinda Gates Foundation, which to date has committed \$550 million (The Global Fund, 2009).

Competition for funding is extremely fierce because of the large number of applicants around the world. Implementing organizations are expected to be the foremost experts not only in their area of expertise (bed nets, ACTs, spraying, behavioral change, etc.), but also in the region/countries where the resources are to be used. The methods of combating malaria are quite accessible, but knowledge of culture and resources in a particular country in the end is much more difficult to obtain, making applications which include this knowledge more competitive for funding. Funds are allocated for a working period of anywhere from two to five years. Each year, fund recipients are required to submit progress reports. If it is determined that funds are being used ineffectively, The Global Fund withdraws its support (The Global Fund, 2010).

### THE PRESIDENT'S MALARIA INITIATIVE

On June 30, 2005, President George W. Bush announced a new program that expanded the funds dedicated to fighting malaria in Sub-Saharan Africa. This program was called the President's Malaria Initiative (PMI) and operated under the umbrella of the United States Agency for International Development (USAID). The initial total of committed funds was \$1.2 billion, spread out over five years, or approximately \$240 million per year. While commendable, this total is still far from the estimate of \$5 billion per year that is required to begin to control the disease (World Health Organization, 2009). Nevertheless this increase in funding far surpassed the \$10.9 million allocated to malaria by USAID in 1997 (USAID, 2009). The general goal of the PMI is to reduce current levels of malaria deaths by 50% in 15 Sub-Saharan countries.

The 15 participating PMI countries are Angola, Benin, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Rwanda, Senegal, Tanzania, Uganda, and Zambia (President's Malaria Initiative, 2009). The PMI Web

site indicates that these countries were chosen from out of the 53 countries in Africa for the following characteristics: high malaria burden, malaria control policies that meet internationally accepted standards, capacity for implementation, willingness to partner with United States resources, and the presence of other international donors. The focus of the United States on countries with a high possibility of success indicates that government leaders are hoping that sharp malaria reductions will inspire additional donors to participate in the project.

This last condition again shows that the United States is attempting to act cooperatively. Some of the organizations on the list of partners are the World Health Organization, The World Bank, UNICEF, The Global Fund, American Red Cross, and Roll Back Malaria. Not only can more work be done by more hands, but the presence of other international specialists brings together combined expertise for fighting malaria.

#### WHAT IS THE UNITED STATES GLOBAL HEALTH BUDGET FOR 2010?

On May 9, 2009, President Barack Obama announced his budget allocations for global health initiatives for the 2010 fiscal year. The total global health budget for 2010 is \$8.6 billion. This is an increase of approximately a half a billion from 2009. The President's Emergency Plan for Aids Relief (PEPFAR) program will receive approximately \$6.6 billion. This is an increase of about \$.165 billion, 3% over the 2009 budget. Funding for the PMI will be increased by \$200 million in 2010 to a total of approximately \$762 million. This is an increase of 36% over the 2009 budget (Obama, 2009).

The primary reason President Obama cites for the budget increase is that global health cannot be separated from American health. With the increase of international travel and porous borders, the possibility of transferring diseases between countries and continents continues to rise. He references the recent H1N1 outbreak as evidence. As of the end of September 2009, the World Health Organization estimated the number of cases for H1N1 totaled 296,471 in more than 50 countries. Nearly 3,486 deaths have been attributed to the new strain of influenza (World Health Organization, 2009). This is astonishing considering the first cases appear to have been diagnosed in September 2008.

Of the \$8.6 billion to be allocated to global health, all but \$1.2 billion will go to PEPFAR and the PMI. If President Obama is just concerned about protecting the American citizen, why is all of the funding going to malaria and AIDS? An outbreak of either seems unlikely. HIV/AIDS was placed on the United States Centers for Disease Control watch list in the early 1980s. Since then the rise in new diagnoses has leveled off. From 2002 to 2006, the number of new cases per year decreased from 38,132 to 36,828 (United States Centers for Disease Control, 2009). Because of the way AIDS is transmitted and general levels of awareness, it seems unlikely that an outbreak could occur in the United States.

The CDC also carefully monitors malaria cases. While the disease was eliminated by the early 1940s from America soil, it is still prevalent in many developing countries. Many tourists traveling abroad return home with the infection each year. The CDC estimates that there were approximately 1,337 cases of malaria in the United States in 2002 (United States Centers for Disease Control, 2007). All but five of these individuals contracted the disease in a malaria-endemic country and only eight patients died. In 2006 the CDC estimated 1,564 cases (Campagna & Patnaik, 2009). This is a slight increase, but the numbers are still negligible when compared to other diseases on the CDC watch list. In 2009 an estimated 562,340 people will die of cancer approximately 1,500 per day (Gardner, 2009). This is roughly the same as the number of malaria cases per year.

What, then, is the real motive for spending the majority of the funds on diseases that are not great concerns for the American public? Why is only \$1.2 billion going to the other category into which the H1N1 virus falls, and not the PEPFAR and malaria \$7.4 billion? The answer appears to lie in the supplementary information at the end of the press release, where we learn that rather than prevent the spread of H1N1, the White House is attempting to demonstrate continued support of the United Nations Development Goals.

#### WHY SHOULD CURRENT PMI FUNDING INCREASES BE MAINTAINED?

##### REGAIN SUPPORT IN THE GLOBAL COMMUNITY

In addition to protecting the average U.S. citizen from global diseases such as H1N1, the U.S. government also wants to comply with the eight Millennium Development Goals set by the G8 back in September 2000. More than 192 countries of the United Nations and 23 other international organizations committed to participating in the program. The target date for these eight goals is 2015 (Millennium Project, 2006). Goal number six is to "combat HIV/AIDS, malaria, and other diseases." So far some progress has been made, but it is unlikely that these goals will be achieved (United Nations, 2009).

In recent years the United States has lost a great deal of respect in the international community for its unilateral actions in Iraq and Afghanistan. The current economic recession stemming from high-risk lending practices appears to have compounded the global animosity. If President Obama wishes to recover the benefits of global leadership, he must heal those wounds. Sinking money into the Millennium Development Goals is a very cost-effective way to reestablish good will with these other countries.

The United States currently donates money to the war on malaria in two ways. The first of these is through The Global Fund, which is associated with the United Nations. The second is through its USAID program. The United States continues to be the largest individual donor to the Global Fund while simultaneously operating its own PMI program through USAID. The government does this to maintain a private line of resources that it can control more close-

ly. The funds can be distributed according to United States ideals rather than global values.

The downside of maintaining two funding streams is that additional administrative costs are incurred. This means that money that might have bought ACTs or bed nets goes instead to paying salaries of employees working in the United States or the European Union. Nevertheless, the United States should consider this an acceptable cost of maintaining an appearance of global cooperation.

In the past, the United States has fought wars to defend the rights of oppressed human beings in other countries, such as Vietnam, South Korea and Iraq. The problem of engaging in such battles is that there is always someone on the other side. That enemy often has allies that might be more powerful and therefore a serious threat to security of the United States. During the first two wars mentioned above, the United States was always fearful of backlash from the Soviet Union. Such concerns are unnecessary when fighting wars against a disease. Everyone is an ally in the war against malaria. A fight against that stronghold will not prompt a counterattack from cancer, HIV, or tuberculosis.

#### REDUCE SPILLOVER FROM FAILED STATES

The current global recession has aggravated the condition of failed or failing states, the majority of which are located in Sub-Saharan Africa. The World Bank predicted in April 2009 “that 50 million people would be pushed into poverty in the coming months” (Kharas, 2009). Commodity prices dropped drastically during the third quarter of 2008. Many people in developing nations and failed states have been unable to find buyers for their products. Many blame countries like the United States as the cause for their suffering, and will lash out to get even.

Other consequences of failed states include the spread of illegal drugs and disease. The lack of a functioning police force and high levels of unemployment force men and women to turn to illegal ways to generate income. The production of illegal drugs increases. Because few people within the state have money to purchase them, the drugs are exported to developed nations. Without a police force, the rate of rape also increases, spreading sexually transmitted diseases such as HIV/AIDS. Without operational health services centers, diagnosis and treatment of these diseases are unavailable, and these diseases can jump national borders to surrounding countries (Collier, 2007, 31).

Continued global health contributions can help to soothe some of this anger and prevent the spread of illegal drugs and disease. The use of bed nets and ACTs will prevent the occurrence of many malaria cases and facilitate the rapid recovery of infected persons, meaning that men and women will spend more time in the workplace and less time sick at home. This will lead to a rise in the GDP of these countries. As their economies stabilize and expand, tension with their neighboring countries will relax (Collier, 2007).

#### PREVENT ECONOMIC DRAIN AND CREATE POSSIBILITIES FOR POST RECOVERY

Developed nations should not be content to let failed states suffer. The cost of a failed state from meltdown to recovery is approximately \$100 billion (Collier, 2007). Costs are allocated not only to the country itself, but also its neighbors and the global marketplace. Preventing a state from falling apart or helping it to recover more quickly can reduce these costs. By assisting these countries in their time of the need the United States can garner both political support and economic gains in these emerging markets in the future.

Aid has meant an average increase in GDP of 1% per year. This has offset the estimated average decrease in GDP of failed states of -1%. Even though global aid has not completely solved the problems in Africa, it has “been the difference between stagnation and severe cumulative decline” (Collier, 2007, 100). Also, on a more personal level, aid has meant the difference between life and death to millions of suffering people.

#### HOW CAN PMI USE ITS RESOURCES MORE EFFICIENTLY?

As indicated earlier in this paper, the United States government is the largest donor to The Global Fund and should continue to be so to maintain the appearance of global cooperation. Being the most generous donor however doesn’t mean that the United States has control over the organization’s operating policies—far from it. Choices made during the Bush administration have weakened the ability of the United States to influence policy changes in The Global Fund.

The organizational changes discussed below might therefore be difficult to push through The Global Fund bureaucracy. These changes can only be instituted today through the President’s Malaria Initiative channels in Sub-Saharan Africa. The President’s Malaria Initiative must set the standard for using malaria funding more effectively. As performance goals for the countries affected are met more often and at a lower overall cost, other funding agencies will be inclined to adopt these changes. By putting these changes into place the organization will be able to do the \$5 billion of work required to eradicate the disease (World Health Organization, 2009) for a significantly lower cost.

#### INCREASE COOPERATION BETWEEN NON-PROFIT ORGANIZATIONS

Organizations are also chosen for their previous experience in a given region. Malaria prevention and treatment methods in the general sense are not a secret. Information of this nature can be procured easily from a variety of sources. But obtaining local expertise for a country is more difficult. The quirks of any culture may prevent the implementation of a certain strategy. For instance, it is a common misconception in Equatorial Guinea that mosquito sprays make men sterile (Carter-Gau, 2009). Organizations are reticent to share this information with others because it gives them an edge for the

renewal of their grants.

In the end, this competition causes a decline in quality of services as organizations hoard information from others. A change in organizational structure is necessary. Renewal of an organization's grant should not be determined by individual performance. Rather, all organizations operating in a particular region should be reviewed together. Performance goals should be set for the group of organizations at the beginning of the round. If the group as a whole meets its goals, all of the contracts should be renewed. This will provide the incentive necessary for the groups to share their life-saving information, improving the overall quality of care for the native population.

#### REDUCE BUREAUCRATIC COSTS

The administrative pyramid of the President's Malaria Initiative is extremely complicated. Several layers of bureaucracy separate the source of funding and the United States Centers for Disease Control from the African child receiving his or her first dose of Artemisinin. The reduction of administrative levels and the addition of monthly correlation meetings between funded non-profit organizations could greatly improve the efficient use of PMI's resources.

The current pyramid is necessary because each organization in Africa is operating independently. Government administration is required to manage the needs of each. Changing the structure from individual renewal of grants to group renewals can help to reduce bureaucracy. As group members realize that their success depends on the efforts of others, they will begin to self-regulate. Policy decisions will begin to be made by these groups who are closest to the issue of combating malaria rather than by the occasionally misinformed leaders in the United States. Costs of conducting research and transmitting that information up the chain of command will also be reduced.

Lowering the barriers between non-profit organizations operating in the same area can also greatly improve efficiency. As groups coordinate their activities in monthly meetings, redundancy costs from research and development can be decreased significantly (Whitehurst, 2009).

#### DECREASE MISUSE OF FUNDS BY FOREIGN GOVERNMENTS

Leaders of autocratic regimes in Africa have become accustomed to receiving large lump sums of cash from foreign governments. Because they are not expected to pay back the donors, they feel no need to use the money wisely. Much of it is simply funneled out of the country into the corrupt leader's foreign bank account. Zaire's President Mobutu is purported to have taken nearly U.S. \$5 billion (Moyo, 2009). The rest of it is squandered in ineffective government programs. Very little of it is ever seen by the citizens of the country for which the money was intended. The prospect of overthrowing the corrupt leader to take control of the aid channels causes frequent civil wars. The atmosphere created by

the corrupt politicians makes foreign and domestic investment unattractive. Without these investments the country descends deeper into dependency on foreign aid (Moyo, 2009).

Using civil service workers and their associated government channels should therefore be avoided whenever possible. Their close ties to corrupt leaders in countries such as Equatorial Guinea and Zaire compromises their ability to support relief efforts. These civil servants are not the ones living in poverty. When seeking local workers, non-profit organizations should seek out persons living in poverty—those who are living with the effects of malaria every day. This familiarity with the malaria parasite and its drain on a family's finances will provide such men and women with the motivation necessary to work hard and meet the performance goals of the non-profit groups working in country. Providing work and educational opportunities for the lowest classes will help to stimulate the economy from the bottom up.

#### FOCUS ON SMART AID

When giving aid to Africa, foreign governments have a tendency to give finished products directly to the people. This puts many local producers out of a job. Manufacturing plants producing bed nets in America can easily undercut start up groups in Africa (Moyo, 2009). PMI administrators and leaders of associated non-profit organizations must remember that the funds combating malaria should not be used just to heal bodies. These resources should be used to also heal national economies.

When considering the destination of the funding for combating malaria, American organizers should give resources first to local producers. This includes the production of medication, bed nets, spraying equipment, chemicals, and education to promote behavioral change. A conscious decision to stimulate local production will spark additional development of African infrastructure.

### CONCLUSION

The malaria parasite has plagued the human race for thousands of years. Only in the past few hundred years have humans been able to fight back against this terrible disease. The development of anti-malaria medication, bed nets, chemical spraying, and behavioral change programs continues to save thousands of lives per day around the globe. Unfortunately though, more funding is needed to bring this disease under control.

During this time of economic recession there is the tendency to turn inward and forget about the suffering of others in distant countries. The Obama administration should be commended for its continued support of global health. Everyone from party leaders down to the average citizen should ensure that this support does not slacken. Support of global health is an excellent way to regain the respect of the

international community, while simultaneously reducing the costs resulting from failed states and creating possibilities for their recovery.

Celebrity-based aid agencies, private corporations, and The Global Fund have made admirable contributions to the campaign against malaria over the past decade, but continued policy revisions are still necessary. The President's Malaria Initiative should be the front-runner in the effort to increase cooperation between non-profit organizations, reduce bureaucratic costs, decrease misuse of funds by foreign governments, and focus on giving smart aid rather than lumped sums of cash. By doing so, the world might someday see the eradication of malaria.

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