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Impacts of Malaria Interventions and their Potential Additional Humanitarian Benefits in Sub-Saharan Africa

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Introduction

Over the past decade, the focused attention of African nations, the United States, U.N. agencies and other multilateral partners has brought significant progress toward achievement of the Millennium Development Goals (MDGs) in health and malaria control and elimination. The potential contribution of these strategies to long-term peace-building objectives and overall regional prosperity is of paramount significance in sub-regions such as the Horn of Africa and Western Africa that are facing the challenges of malaria and other health crises compounded by identity-based conflicts.

National campaigns to address health Millennium Development Goals through cross-ethnic campaigns tackling basic hygiene and malaria have proven effective in reducing child infant mortality while also contributing to comprehensive efforts to overcome health disparities and achieve higher levels of societal well-being.

There is also growing if nascent research to suggest that health and other humanitarian interventions can result in additional benefits to both recipients and donors alike.

The social, economic and political fault lines of conflicts, according to a new study, are most pronounced in Africa within nations (as opposed to international conflicts).[1] Addressing issues of disparate resource allocations in areas such as health could be a primary factor in mitigating such intra-national conflicts.[2] However, to date there has been insufficient research on and policy attention to the potential for wedding proven life-saving health solutions such as malaria intervention to conflict mitigation or other non-health benefits.

U.S. and Global Investment Impact

In 2001, the administration of President George W. Bush escalated the global campaign against HIV/AIDS, tuberculosis (TB) and malaria by issuing the "founding pledge" to The Global Fund to Fight AIDS, Tuberculosis and Malaria ("Global Fund") followed in 2003 by a $15 billion five-year pledge to combat these three leading communicable diseases. Following bipartisan congressional authorization of the U.S. Leadership Against HIV/AIDS, TB and Malaria Act of 2003 (P.L. 108-25) executing this commitment, the President's Malaria Initiative (PMI) was established in 2005 to increase global malaria funding through a five-year, $1.2 billion investment. PMI set the goal to reduce mortality from malaria by 50 percent in fifteen African focus nations through insecticide-treated mosquito nets (ITNs), indoor residual spraying, treatment therapies and prevention for pregnant women.[3] The substantial PMI resource allocation, together with other global and African government funding, was authorized in a manner to enhance alignment with country priorities and integration within national health systems.[4] The commitments were significantly increased again in July 2008 through the Lantos-Hyde Act (P.L. 110-293) authorizing $48 billion for global efforts to fight HIV/AIDS, TB and malaria over five years including $5 billion for bilateral malaria programs and an additional $2 billion for contributions to the Global Fund. In 2009, President Barack Obama further expanded these bipartisan commitments under his Global Health Initiative, a six-year, $63 billion effort promoting enhanced coordination and integration of the streams of global health programs with increased country ownership.[5] These national commitments have been leveraged by increasing commitments and ownership by African nations and the global donor community, including an October 2007 call by the Bill and Melinda Gates Foundation for global commitment to eradication of malaria.[6]

Global malaria control targets have been adjusted upward by the Roll Back Malaria partnership with the World Health Organization (WHO) with the aim of reducing global malaria deaths to near zero along with reducing cases by 75 percent (from 2000 levels) by the end of 2015. The aggressive performance targets would be met by a combination of universal access to preventive measures (such as long-lasting treated nets and indoor residual spraying), full access to case management (including at community level), public and private sector coordination, and stepped up malaria surveillance systems.[7]

According to a joint USAID and Centers for Disease Control and Prevention 2012 report to Congress:

"Over the past five years, many African countries have reported substantial progress in reducing their burden of malaria. Mortality in children under five years of age has fallen dramatically across sub-Saharan Africa in association with a massive scale-up of malaria control efforts with insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), improved diagnostic tests, and highly effective antimalarial drugs. Evidence is growing that the cumulative efforts and funding by the President's Malaria Initiative (PMI), national governments, The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), the World Bank, and many other donors are having an effect, and that the risk of malaria is declining. In fact, according to the World Health Organization's 2011 World Malaria Report, the estimated number of global malaria deaths fell from about 985,000 in 2000 to about 655,000 in 2010, with most of this reduction occurring in sub-Saharan Africa."[8]

Independent evaluation surveys reported progress in 11 countries supported by PMI in reducing under-five mortality. The report to Congress further noted:

"Although multiple factors may be influencing the decline in under-five mortality rates, there is growing evidence that the scale-up of malaria prevention and treatment measures across sub-Saharan Africa are playing a major role in these unprecedented reductions in childhood mortality."[9]

African Leaders Malaria Alliance

According to the WHO, 81 percent of the global malaria burden is in Africa. Through the African Leaders Malaria Alliance (ALMA) over 40 heads of state and governments across the region have banded together to collectively address the burden of malaria. ALMA holds twice yearly meetings at the African Union tracking progress and addressing bottlenecks in malaria prevention and control.

ALMA's efforts have had an effect. The WHO reported in 2011 that eight African nations achieved a 50 percent reduction in malaria cases or admissions and deaths with an added four nations achieving 25 to 50 percent reductions. "In all countries," the WHO report found, "decreases (in malaria cases and deaths) are associated with intensive malaria control activities."[10]

For this assessment of malaria interventions and impacts, six countries of eastern (Kenya, Tanzania, Rwanda and Ethiopia) and western (Nigeria and Senegal) Africa were identified from the President's Malaria Initiative (PMI) focus countries for further analysis. Another two southern African countries (South Africa and Botswana) were included from the current Administration's "Global Health Initiative Plus" nations.

Figure 1: Malaria and Health Intervention Indicators in Selected Sub-Saharan African Nations

Country	Community case management (Malaria)	National Public Sector Financing 2011 (Health as % Total Govt. Expenditure)	Population at Risk Protected by IRS	Operational LLIN coverage (% of at risk population)	Reduced malaria deaths by >50% by 2010 (vs 2000)	Neonatal mortality 2010 (per 1000 live births)
Botswana		17.0	20	7		19
Ethiopia		13.3	48	55		35
Kenya		7.3	5	100		28
Nigeria		5.9	0	32		40
Rwanda		20.1	16	92		29
Senegal		11.6		64		27
South Africa		11.4	99			18
Tanzania		12.9	17	78		26

Source: African Leaders Malaria Alliance Scorecard 2012. Legend: Green (target achieved or on track), Yellow (progress, but more effort required), Red (not on track), Grey (no data/not applicable).

All eight countries have made significant progress in malaria control. Five of the nations examined (Kenya, Ethiopia, Rwanda, Nigeria and Senegal) are implementing community case management for malaria control. Five countries achieved over 50 percent long lasting insecticidal net (LLIN) operational coverage by mid-2012 (Kenya, Ethiopia, Rwanda, Tanzania and Senegal), while South Africa achieved high indoor residential spraying (IRS) coverage. Kenya and Rwanda reported over 90 percent operational net coverage.[11]

Three of the eight countries achieved more than a 50 percent reduction in malaria deaths (Rwanda, South Africa and Botswana) between 2000 and 2010, while four others (Kenya, Ethiopia, Tanzania and Senegal) were in the "progress" category, i.e., moving toward this goal with more effort required.[12] Data for Nigeria in this category was unavailable. Thus, various malaria interventions have had success in many African countries, but can the benefits of malaria interventions spill over to other, seemingly unrelated sectors?

Nigeria and Kenya: Potential Implications of Cross-Cultural Models

The potential effects of malaria and health MDG intervention on conflict mitigation and peacebuilding can be more pronounced where cross-cultural or interfaith interventions are undertaken. Nigeria is the nation with the highest malaria burden coupled with recurring sectarian violence. Over 197,000 malaria-related deaths were reported in 2010 along with close to four million malaria cases.[13]

Over the past three years, an innovative malaria insecticide-treated mosquito net and educational partnership has been forged with the World Bank and the Nigeria National Malaria Control Program (NMCP) through the Nigerian Interfaith Action Association (NIFAA). NIFAA is a Nigerian-based educational interfaith health organization co-chaired by the president of the Christian Association of Nigeria and the chairman of the Nigeria Supreme Council of Islamic Affairs, the Sultan of Sokoto. NIFAA reported that its Muslim and Christian professionals trained nearly 1,500 religious leaders who in turn trained over 15,000 local faith-based leaders to address congregant families on malaria prevention techniques and mosquito net distribution.[14]

A national survey commissioned by NMCP and the World Bank indicated over 50 percent of children under age five were protected by bednets in Akwa Ibom State, where intensive NIFAA interfaith education and bednet distribution occurred, compared to 25 percent protection in a comparable state without such intensive interventions.[15]

This promising collaboration across sectarian divides warrants further assessment on the buildup of cross-cultural trust and social capital. Recent research by Volunteering and Service Enquiry Southern Africa (VOSESA) of cross-cultural service initiatives across borders in Mozambique and South Africa, as well as across Kenya and Tanzania borders, noted the promising enhancements in trust and social capital that can occur in cross-cultural service initiatives.[16]

In Kenya, recent flare-ups of Islamist-fueled violence, including bombing incidents in Nairobi, Mombasa and Garissa by al-Shabab, have further escalated sectarian tensions. In this context, Kenya Ministry of Public Health

and Sanitation officials have affirmed the potential of cross-cultural, interfaith campaigns in addressing health issues such as basic hygiene, malaria and diarrhea. According to Dr. S.K. Sharif, director of Public Health at Kenya's Ministry of Public Health and Sanitation, the correlation of health and identity-based conflict in the region is real. Health is a key component of Kenya's Vision 2030 social pillar. "Disease is a threat," he warns, noting the need to step up community health worker programs with volunteer partnerships and measures to improve disease surveillance.[17]

Kenya has made strong overall progress in combating malaria and is close to accomplishing its goal of universal mosquito net coverage by 2012. Overall, the nation has made increasing investments in public health, with total health expenditures increased from 4.1 percent of GDP in 2004 to 7.9 percent in 2007. The Kenya health ministry's division of malaria control operates six units of vector control, case management, prevention in pregnancy, epidemic preparedness, social mobilization and surveillance, and monitoring and evaluation. Malaria-related deaths decreased from 48,767 in 2000 to 26,017 in 2010.[18] Life expectancy has been markedly increased to 58.9 years over the past decade, while under-five child mortality dropped by 36 percent from 2003 to 2008-2009.[19]

The horrific July 1, 2012 Garissa church bombings in Kenya orchestrated by al-Shabab terrorists further underscored the overall tense situation in the Horn of Africa, which is both one of the most insecure areas of the world and suffering from an acute humanitarian crisis. A report by the Congressional Research Service notes the linkages between regional security issues, food security, water and malaria, and the spillover from Somalia to Kenya, Ethiopia and other Horn of Africa nations demanding regional approaches and global attention.[20] The nations of Ethiopia, Somalia and Kenya came together to ensure that they collectively addressed the threat of potential malaria outbreaks associated with the Horn of Africa nutritional crisis last year.

On July 2-4, 2012, an East Africa Peace Service Corps was launched at the Africa Conference on Volunteer Action for Peace and Development at United Nations headquarters in Nairobi with 25 partnering organizations with the support of leadership from the African Union, East African Community, and the Common Market of Eastern and Southern Africa (COMESA). At the conference, the Kenya Ministry of Public Health and Sanitation, regional volunteering groups and global partners developed strategies for further stepping up national community health strategies, environmental service and youth initiatives through cross-border and national campaigns featured in recent Brookings research on service in three African regions.[21]

Evaluating Humanitarian Aid: Towards A New Framework

Humanitarian aid has been rooted in charity, faith, and increasingly through international conventions in legal norms defining the right of every person to health, food, water and education. These fundamental motivations should form the basis for increased intervention against malaria and other diseases throughout Africa. Over the last decade, however, there has been increasing attention to whether or not there are ancillary benefits to humanitarian assistance, apart from the core reason of improving the quality and longevity of peoples' lives. In this section, we explore the limited empirical research conducted in this new field and conclude with recommendations for future empirical study and analysis.

Potential Additional Benefits of Humanitarian Assistance

In a domestic political and economic environment nearly universal among developed nations, leaders justifying humanitarian aid in an era of fiscal constraints and slow economic growth have increasingly sought reasons for assistance beyond the virtue of compassion. The widespread debate over the benefits of so-called "soft power" in the exercise of a nation's foreign policy has often been used in an attempt to make the case for humanitarian aid.[22] For example, in founding the Peace Corps, President John F. Kennedy and the U.S. Congress sought to foster peace through greater understanding between Americans and peoples served while helping developing nations address critical needs.

"Soft power" and "smart power" concepts, however, have often been framed both too narrowly and too broadly to enable rigorous analytical evaluation. In particular, these concepts are too narrow since they often reduce assistance based on humanitarian motivation into policy tools of calculated national self-interest, which by definition over time could result in a backlash from the aid recipients themselves. We have already seen a number of instances where vaccination programs, for instance in Nigeria and Pakistan, have been viewed as simply another form of neo-colonialism or imperialist intervention.[23] Thus, framing aid as benefiting the image or standing of donors can ironically serve to undercut that image over time. In addition, so-called soft power and smart power, while undoubtedly essential in the exercise of a nation's foreign policy, also encompass such a broad array of diverse policies and actions (from human rights to military training, from public diplomacy to disaster intervention) that their actual impact as a whole is almost incapable of sustained and objective measurement. The issue we address is more specific and in some ways more fundamental: Are there empirically measurable benefits, beyond the core reason of sustaining and improving human life, to humanitarian assistance?

Existing Empirical Research

The present state of research on the ancillary benefits of humanitarian assistance in areas such as conflict mitigation is scant. We must recognize at the outset certain self-evident facts. Beyond saving lives, improving the quality of life and increasing life expectancy, there are a whole host of additional benefits to humanitarian assistance, like health aid and malaria control or eradication in particular, capable of measurement. For example, improving health care may result in increased productivity and economic growth, just as educational assistance can lead to increased productivity in the workplace.

As noted above, however, in this era of mounting strain on developed nations' budgets and economies, over the past decade, there has been a new effort to measure how humanitarian assistance might also benefit donor countries. This research has centered on public opinion surveys as the principal measurement tool.

The seminal research occurred after the incredibly devastating natural disaster of the Asian tsunami in December 2004. Terror Free Tomorrow, a non-partisan research institute in Washington, D.C., conducted the first

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nationwide public opinion survey in Indonesia after the tsunami at the beginning of February 2005.[24] The results were paradigm shifting. Generous American humanitarian assistance following the tsunami resulted directly in substantial and dramatic changes in Indonesian public opinion. A stunning two-thirds of all Indonesians changed their opinion of the United States favorably because of the American response to the tsunami, with the highest percentage among those under age 30—even 71 percent of Osama bin Laden supporters adopted a favorable view of the United States. Moreover, as a direct result of the American effort, support for bin Laden and terrorist attacks in the world's largest Muslim country dropped by half, as did opposition to American counterterrorism policies. These spectacular changes in public opinion grew into a sustained trend. One year later, Terror Free Tomorrow conducted a follow-up survey throughout Indonesia. More than a year after the tsunami, the dramatic increase in Indonesian support for the United States (and against bin Laden) not only continued, but also was notably strengthened.[25] In one illustrative measure, those with the most unfavorable views of the United States dropped from nearly half of all Indonesians in 2003 to a mere 13 percent by the beginning of 2006—as a direct and immediate result of American humanitarian assistance. Another follow-up survey in the latter half of 2006 confirmed that six in ten Indonesians continued to state that American humanitarian aid made them favorable to the United States. Shifts in public opinion of this magnitude are exceptional.[26]

The power of vivid humanitarian aid to move public opinion was not limited to Indonesia. In November 2005, in the first poll of Pakistan after the horrific earthquake of October 8, 2005, Terror Free Tomorrow found that almost four in five Pakistanis surveyed favorably changed their opinion of the United States because of American humanitarian aid following the earthquake.[27] Overall favorable views of the U.S. doubled while unfavorable opinion declined by half; support for bin Laden dropped in tandem, representing the most significant shift in Pakistani public opinion since 9/11. Again, as in Indonesia, these changes in opinion were sustained. In a follow-up Terror Free Tomorrow survey in May 2006, three-quarters of Pakistanis still held to their favorable views.[28]

These surveys document the manifest power of large-scale disaster relief to substantially move public opinion in developing nations—even public opinion previously overwhelmingly hostile to the donor country. What occurs, however, when more routine humanitarian aid, as opposed to unprecedented disaster assistance, is offered?

The U.S. Navy ship USNS Mercy is a fully equipped, 1,000-bed floating hospital, which, while docking for several months in local ports, provided medical care to the people of Indonesia and Bangladesh. Nationwide polls of Indonesia and Bangladesh conducted in August 2006, following the Mercy's visit, found that a remarkable 85 percent of Indonesians and 95 percent of Bangladeshis were favorable to the Mercy's mission.[29] The consensus approval of the Mercy mission by the people of both Indonesia and Bangladesh bridged political views. Whether they were anti-American and opposed to the U.S. war on terrorism, or whether they supported bin Laden and approved of suicide terrorist attacks, people were overwhelmingly favorable toward Mercy's mission. Indeed, 87 percent of those surveyed in Bangladesh said that the activities of the Mercy made their overall opinion of the U.S. more positive. The near-universal approval of the Mercy is a striking testament that tangible humanitarian aid, even from the U.S. military, can improve public opinion of the United States in Muslim countries. In fact, Indonesians and Bangladeshis ranked additional visits by the Mercy as a higher priority for the U.S. in the future than stronger involvement in resolving the Israeli-Palestinian conflict.

The paradigm outlined above would seem to apply in the African context as well. A nationwide public opinion survey of Nigeria conducted in 2006 found that three-quarters of all Nigerians felt that a dramatic increase in American humanitarian assistance to help the victims of HIV/AIDS would measurably improve their opinion of the United States. Again, these opinions cut across every element of society from religion to tribe, from north to south, from young to old.[30]

The impact of humanitarian efforts has its limits, however. Over time in Pakistan, favorable views of America's humanitarian aid declined, particularly in light of the U.S. war in Afghanistan as well as the American armed drone strikes and other attacks inside Pakistan. As the Pew Global Attitudes Project concluded from their surveys in Pakistan, "distrust of American motives and opposition to key elements of U.S. foreign policy may run too deep in Pakistan for humanitarian efforts to have a significant impact over the long term."[31] Yet while on a national level in Pakistan the favorable impact of American humanitarian aid declined, U.S. assistance did appear to have a long-lasting effect on attitudes at the local level among those directly impacted by the aid. A survey conducted four years after the earthquake found that Pakistanis living near the fault line were more likely to express trust in Americans and Europeans than those who were living farther away.[32] The relationship between trust in foreigners and proximity to the fault line mirrored the greater provision of foreign aid and foreign presence. As the survey's authors conclude:

"Aid delivered on the ground by foreign organizations and foreigners has a large positive effect on people's attitudes towards foreigners. These effects remain salient four years after the fact in an environment characterized by low trust in foreigners and Americans. … The results provide a compelling case that trust in foreigners is malleable, responds to humanitarian actions by foreigners and is not a deep-rooted function of local preferences."[33]

Before discussing future areas of measurement, what are the preliminary lessons learned from the available, though obviously inadequate, empirical research? First, the data in Indonesia after the tsunami and Pakistan after the earthquake establish that large-scale humanitarian assistance can have a substantial impact on public attitudes. While these shifts in opinion are likely to be sustained for many years, over time, and particularly when coupled by other factors as in Pakistan, their impact will diminish. Second, the studies following the USNS Mercy missions and the geographical reach of earthquake aid in Pakistan demonstrate that the closer people are to humanitarian assistance that directly affects their health and quality of life, the greater the impact on their attitudes. This is a significant finding for future research on effect of malaria control and treatment in Africa.

Towards a New Framework

Despite the importance of assessing the benefits of humanitarian assistance, the review above demonstrates the severely limited nature of the extant research. The existing data is not only limited in countries and time periods surveyed, but more fundamentally by the rather narrow frame of the issues and questions addressed. While donors are understandably eager to learn whether their assistance is welcomed by those who receive it, that question is only one of many needed to assess the possible ancillary benefits of humanitarian aid—perhaps in many respects it is even the least important question. Suppose, instead, that improving health by treating and

controlling malaria in African countries results in dramatic changes in attitudes among those served—from increasing inter-tribal, regional and religious trust to furthering support for free markets, free trade and democratic values, as well as greater understanding of foreigners—would not all of these shifts in opinion directly benefit donors as much, if not more than, whether aid recipients are merely appreciative of the assistance and more favorable to the country that gives it? The scarce research available suggests that these are fruitful areas for future inquiry.

First, improved health for people in developing countries appears to have the greatest impact on life satisfaction (while conversely life satisfaction has also been shown to predict better, future physical health).[34] As the recent United Nations World Happiness Report concluded, "Improved physical health is probably the single most important factor that has improved human happiness in recent centuries. This is true in countries at all levels of development."[35] Indeed, the relationship between health and happiness is "more statistically robust than between happiness and income."[36]

Second, improvement in health and concomitant happiness in developing nations has been shown to result in greater productivity in the labor market, more future income and higher levels of support for democracy and free markets. Research in Latin America, in particular, has documented these outcomes.[37]

There is another frame to consider these issues. In Kenya, Afrobarometer surveys show that people living in ethnically diverse and racially integrated settings express more trust in members of other ethnic groups than those living in more homogenous communities.[38] Other studies in general have demonstrated a robust correlation between levels of trust in countries and their economic outcomes.[39] However, there is currently no research on the effect of foreign humanitarian aid on trust and its related benefits. Similarly, Afrobarometer surveys in 18 African countries show that increased education results in increased support for democratic institutions and values.[40] Again, there is no research on the effect of foreign humanitarian and health aid on possible subsequent support for democracy, markets and free trade.

Conclusion

We must adopt a far wider framework for evaluating the benefits of humanitarian assistance. While some studies have shown that this assistance can result in improved views of the donor countries (as well as less support for extremism), of equal if not greater benefit to both donors and recipients alike would be to examine whether such assistance could also increase understanding across borders, lessen inter-tribal, religious and regional conflict, and enhance support for free markets, trade and democracy.

Humanitarian assistance to treat and prevent malaria in Africa offers a unique opportunity to investigate the ancillary benefits of the aid. Since malaria control and treatment is targeted aid with tangible and immediate results, as in the case of the health assistance from the USNS Mercy, its impact is most likely to be both measurable and dramatic, as opposed to many other forms of assistance. Moreover, measuring the outcomes of malarial interventions is most likely to yield useful data since health has been demonstrated to be a vital multiplier to other changes in attitudes and outcomes. If we can show that the African Leaders Malaria Alliance and interna-

tional community's current Malaria Campaign results in not only substantial improvements in individual health but also, as seems likely, changes in public opinion among Africans themselves, a new consensus on the benefits of this aid could emerge.

Preventing and treating malaria results in saving lives, improving the quality of life and increased longevity. If we can also demonstrate that eradicating malaria leads to increased trust towards foreigners, lessens conflicts and enhances understanding among diverse tribal, religious and regional populations, while also strengthening support for markets, trade and democracy, these findings will establish that the aid benefits all—the donors and recipients alike.

Policy Recommendations

- Policymakers and donors should adopt a wider framework for evaluating the benefits of humanitarian assistance to include, in addition to the primary health impact indicators, examination of whether such assistance could also increase understanding across borders, lessen inter-tribal, religious and regional conflict, and enhance support free markets, trade and democracy. Research studies should be commissioned including the conduct of pre-and post-intervention polling to measure evidence of cross-cultural and conflict mitigation effects of health and other MDG interventions as well as regional service and volunteering.
- Given the successful anti-malarial record of accomplishment of U.S. and other major donors over the past decade, global and bilateral investment should be sustained and expanded to meet the Roll Back Malaria progress targets on malaria eradication by the end of 2015.
- An international consortium of global health advocates including Roll Back Malaria, the African Leaders Malaria Alliance, NGOs, research institutions, and national health and security agencies could pool efforts on a regionalized basis to develop strategies on enhancing the cross-cultural and conflict mitigation aspects of health and other MDG interventions.
- Regional consortia, such as the newly launched East Africa Peace Service Corps, could be adapted in each region in conjunction with the input and leadership of Regional Economic Communities (RECs), African civic society organizations and the African Union. Such cross-border service partnerships can step up coordination and mobilization of in-country volunteer training in Community Health Teams together with international partner organizations such as the African Union, U.S. Peace Corps, Japan International Cooperation Agency, Korea International Cooperation Agency, Voluntary Service Overseas, FK Norway, Canada World Youth and others with the support of United Nations Volunteers, WHO, UNICEF and other agencies.
- Anti-malaria national mosquito bednet and community outreach campaigns could be further coupled with cross-tribal and interfaith partnerships and service corps approaches as Nigeria has done effectively through the Nigerian Interfaith Action Association.
- Donors and national agencies should invest in impact assessments and further research documenting the capacity-building effects and end outcomes of volunteering in achieving development and social cohesion in areas of MDG intervention including health, climate change and youth empowerment.[41]

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