

研究報告

International Cooperation to Spread Mosquito Nets: Case Studies in Tanzania and Bangladesh

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Abstract

Malaria remains one of the leading health issues threatening development in many parts of the world. In 2000, 189 countries adopted the Millennium Development Goals (MDGs). Among these MDGs is a goal to fight the spread of malaria. Accordingly, international communities have gone to developing countries in order to implement preventive measures against malaria. Although there are many ways of preventing people from contracting malaria, the use of long-lasting insecticidal nets (LLINs) has gained attention as one of the best anti-malaria practices. International efforts utilizing LLINs in malaria stricken areas are currently growing.

With regard to analyzing international efforts to spread LLIN usage in malaria stricken countries, this paper investigates two cases: in Tanzania, A to Z Textile Mills Ltd. and its cooperators; and in Bangladesh, BASF Grameen Ltd. and Grameen Group. In both cases the lead entities locally produce the LLINs and then supply the locally produced LLINs to communities using set distribution lines. In Tanzania, the LLIN this paper will examine is the Olyset[®] net, and in Bangladesh, the Interceptor[®] net (also known locally as “Auschorjo Moshori”). However, there is a significant difference between these two cases regarding the distribution approach of the LLINs to the local people. This paper focuses on this distinction and discusses which case is more successful in distributing the nets to combat the problem of malaria.

1. Introduction

Malaria remains one of the leading health issues threatening human development in many parts of the world. In 2000, 189 countries adopted the UN Millennium Declaration, from which the eight Millennium Development Goals (MDGs) were created. These eight goals consist of specific targets (numbering 18 in total) necessary for meeting each goal. Goal 6 (“Combat HIV/AIDs, malaria, and other diseases”) specifically mentions the fight against malaria and the target of “halting the spread of malaria and beginning to reverse the incidence of malaria by 2015”⁽¹⁾. Among the many ways of preventing people from contracting malaria, long-lasting insecticidal nets (LLINs), which employ advanced, chemical fabric technology, gained attention as one of the best preventive measures against malaria. This caused international cooperation aimed at spreading this technology.

Prominent among international cooperation programs is the Roll Back Malaria (RBM) Partnership initiated in 1998 to control the spread of malaria. The program has been coordinated by various entities including the governments of countries in which malaria is endemic, international development donors, the private sector, and nongovernmental and community-based organizations⁽²⁾. RBM has consistently emphasized expansion of the full use of insecticidal mosquito nets as a shared vision among stakeholders in malaria-endemic countries⁽³⁾. The Global Fund, on the other hand, has functioned remarkably as the leading donor for malaria control programs. The Fund has been operating under an international partnership among multiple governments, the private sector, and civil society. Since its establishment in 2002, the Fund has supported programs to distribute more than 310 million LLINs to malaria-plagued areas in the world⁽⁴⁾.

In light of addressing international cooperation to spread the use of mosquito nets in malaria plagued countries, this paper examines two cases: in Tanzania, A to Z Textile Mills Ltd. and its cooperators; and in Bangladesh, BASF Grameen Ltd. along with Grameen

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Group. In both cases, the programs locally produce the LLINs and supply the finished products to communities using their own distribution lines. The LLIN produced in Tanzania is called the Olyset[®] net, and the Bangladesh LLIN is called the Interceptor[®] net (also known locally as the “Auschorjo Moshori”). These two nets, which remain effective against mosquitoes for several years, have already received commendation from the World Health Organization (WHO) due to their quality and effectiveness. However, there is a significant difference between the two cases regarding the approach to spreading the LLINs among the local people. This paper focuses on this distinction, and discusses which case is more successful in distributing the nets to solve the problem of malaria.

2. The state of malaria in Tanzania and Bangladesh

Malaria is a mosquito-borne illness which causes fever, headache, shivering, and vomiting. Though malaria is a preventable and treatable disease, these symptoms can lead to comas in severe cases, or death in the worst cases.

The “Reported Malaria Cases and Deaths 2013” was released as part of the “World Malaria Report 2014.” These findings of these reports together stated that malaria is currently being actively transmitted in 97 countries and territories worldwide⁽⁵⁾. Table 1 shows some information from the “Reported Malaria Cases and Deaths 2013” comparing malaria in Tanzania and Bangladesh in perspective of the rest of the world. According to Table 1, as of 2013, malaria puts the health of 3.2 billion people at risk and causes 118,000 deaths annually, worldwide. The number of people at risk accounts for approximately 60% of the UN’s reported global population, 1.2 billion people are at “high risk” (people living in areas with more than one incident per 1000 people per year) and the remaining 2 billion people at “low risk” (people living in areas with 0-1 incident per 1000 people per year).

In Tanzania, the country’s entire population is exposed to malaria and are considered “at risk” of contraction. Of the total population, 36 million people (more than 70% of the population) are at “high risk.”

In Bangladesh, on the other hand, only 16 million people (10% of the whole population) are “at risk,” a quarter (4 million people) of who are considered to be at “high risk.” Therefore, Tanzania has a much greater number of presumed and confirmed cases of malaria, patients suffering from malaria, and deaths attributed to malaria than does Bangladesh (Table 1).

As mentioned above, according to recent studies Bangladesh’s entire population is not immediately at risk of malaria. Figure 1 illustrates the areas in Bangladesh where malaria is most often transmitted. Bangladesh consists of 64 administrative districts, 13 of which register troubling rates of the spread of malaria. These 13 districts are all in the east and north-east of Bangladesh near the borders of India and Myanmar.

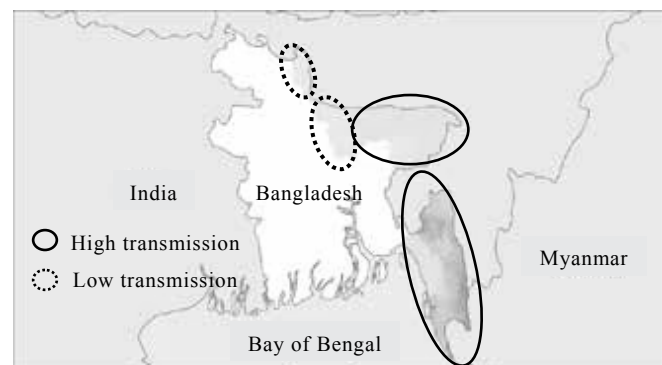


Fig. 1 Epidemiological profile in Bangladesh⁽⁵⁾.

3. A to Z Textile Mills Ltd. and its cooperators in Tanzania

3.1 Background: a series of campaigns for malaria control in Tanzania

The effort for malaria control in Tanzania has been operating on a full scale due to the efforts of its Ministry

Table 1 Reported malaria cases and deaths 2013⁽⁵⁾.

| | UN population | At risk (low + high) | At risk (high) | Presumed and confirmed malaria cases | Inpatient malaria cases | Malaria attributed deaths |
|------------|---------------|----------------------|----------------|--------------------------------------|-------------------------|---------------------------|
| Tanzania | 49,253,126 | 49,253,126 | 36,331,049 | 8,585,482 | 371,553 | 8,528 |
| Bangladesh | 156,594,962 | 16,223,238 | 4,165,426 | 3,864 | 1,155 | 15 |
| World | 5,594,188,398 | 3,230,675,778 | 1,163,534,413 | 132,412,050 | 5,431,427 | 118,645 |

of Health and Social Welfare and its development partners since 2004. These efforts conform to recommendations made by the RBM Partnership and support offered by the Global Fund and other development partners. The Ministry's National Malaria Control Programme (NMCP) has played a core role in promoting the effort to curb malaria through subsidizing the spread of LLINs and their use across the nation.

In the initial stages, NMCP introduced the Tanzania National Voucher Scheme (TNVS) with the financial support of the Global Fund. In the scheme, vouchers are provided to pregnant women when they visit their prenatal care facilities and/or to mothers who already have a child under-five years of age when the child goes in for their first vaccination. Those mothers and expecting mothers then exchange the vouchers with a modest top-up expense for LLINs at registered retailers⁽⁶⁾.

Upon extension of the grant by the Global Fund, the NMCP proposed continuing the voucher system as well as an Under-5 Catch-up Campaign (U5CC) whereby LLINs were distributed free to children under five years of age⁽⁷⁾. The U5CC was implemented from April 2009 to May 2010 with the support of the World Bank, President's Malaria Initiative (PMI), UNICEF, and other governmental and non-governmental organizations. The Universal Coverage Campaign (UCC), mainly funded by the Global Fund, then followed after U5CC from October 2010 to October 2011 in order to provide additional LLINs to those who were not covered by TNVS or U5CC. Currently, the Mass LLIN Replacement Campaign is expected to start during 2015 to replace LLINs across the nation⁽⁸⁾.

3.2 A to Z Textile Mills Ltd. and cooperators

In accordance with the continuous effort to end malaria in Tanzania, A to Z Textile Mills Ltd. (A to Z) played an essential role in spreading LLIN usage across the nation. A to Z is a private holding company established in the 1960s and has come into prominence for the production of LLINs in response to the demand for controlling malaria. The company together with its affiliates is creating employment opportunities for more than 7,000 Tanzanian people and is capable of producing 30 million LLINs per year at the moment⁽⁹⁾.

A to Z was originally a producer of garments for the local market. During the 1970s, it started producing bed nets, to which consumers could coat with insecticide

as needed. Later, it started producing insecticide-treated bed nets, although consumers had to reapply insecticide after washing the nets or when they became dirty. Recognized by consumers for the strength of the company's bed nets and production technology, A to Z was the largest producer of insecticide-treated bed nets in Africa by the beginning of the 1990s⁽¹⁰⁾.

An opportunity arose in early 2000s when initiatives for malaria control became active within the Tanzanian government and development partners, aiming to halt the spread of malaria by 2015. Accordingly, WHO, a promoter of RBM approached Sumitomo Chemical Company (SCC) of Japan. SCC was a pioneer of producing LLINs, called Olyset[®] net, that were made with an insecticidal constituent woven into the fabric⁽¹¹⁾. WHO requested SCC to transfer the LLIN technology to local companies in Africa and SCC accepted the request.

Seeking a stable local producer of LLINs under RBM, WHO short-listed local companies and after which SCC selected A to Z for the technology transfer⁽¹²⁾. Acumen Fund, another promoter of RBM and a funder to social venture capital, also played a significant role, providing a loan (325,000 USD)⁽¹³⁾ to A to Z for the capital investment in producing LLINs. The Acumen Fund also facilitated ExxonMobil to develop a local market for LLINs as well as to offer resin, a material of synthetic fabric, to produce LLINs. Figure 2 shows the relation between A to Z and these cooperators.

As a result, Olyset[®] nets produced by A to Z and SCC became the only polyethylene net with a full WHO Pesticide Evaluation Scheme recommendation during the 2000s⁽⁷⁾. Not only that, but with the quality product, A to Z became the largest producer in Africa. A to Z currently supplies Olyset[®] nets for the demands of the local market, but it mainly supplies organizations including UNICEF and the government of Tanzania and other African nations (see Fig. 2). Due to the significant contribution of A to Z and cooperators, Tanzania achieved full coverage of LLINs across the nation in October 2011⁽¹⁴⁾.

3.3 Successful factors in the spread of LLINs

In the A to Z case, there are key factors associated with the success of spreading the LLINs and their usage. First, the international demand for controlling malaria has been a fundamental factor enabling various stakeholders to cooperate with each other under the

same goal of reversing and ultimately halting the spread of malaria. In accordance with international demand, the Tanzanian government in partnership with international organizations and private organizations has taken initiative to promote three national campaigns: TNVS, U5CC, and UCC.

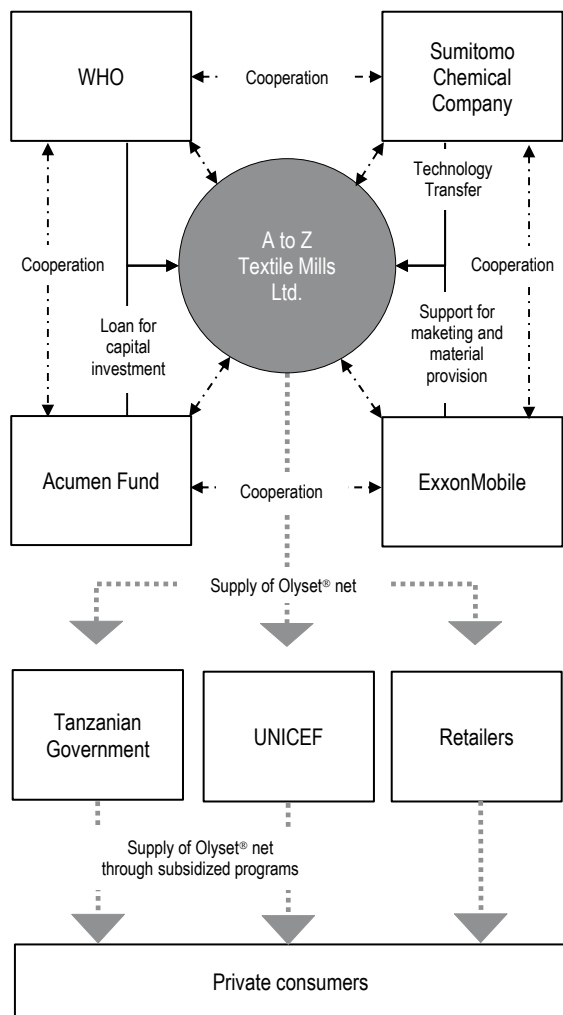


Fig. 2 A to Z Textile Mills Ltd. and cooperators.

Second, in line with the national campaigns, WHO and the Acumen Fund actively promoted a partnership among A to Z as a local LLIN producer and supplier, SCC to provide the necessary technology to assure the quality of LLINs, ExxonMobile as a supporter for material provision and marketing, and UNICEF and Tanzanian government as buyers and distributors of LLINs.

Third, A to Z was an appropriate organization as a producer and supplier. It had already accumulated experiences of producing products that require sewing

and most importantly the relevant skills and knowledge for producing the best quality nets. It was not a coincidence that SCC selected A to Z as the recipient of its technology, but rather A to Z's accumulated skills and knowledge. In addition, A to Z itself was capable of playing a role in distribution. A to Z was even selected under a procurement process of U5CC to deliver LLINs to villages due to its capacity⁽¹⁵⁾.

After achieving full coverage of LLINs across the nation, A to Z's challenge has been to diversify its products and activities in order to sustain the company and its presence in the textile and plastic industry for decades to come.

4. BASF Grameen Ltd. and Grameen Group in Bangladesh

4.1 Establishment of BASF Grameen Ltd.

In 2004, the Bangladeshi government took measures to form an official treatment policy for malaria and adopted Artemisinin-based combination therapy (ACT) treatment methods. At around the same time, in 2006, the government started to receive outside grants. Soon after (2007) the Global Fund became the main sponsor promoting the use of LLINs and insecticide-treated nets (ITNs). An NGO called BRAC, a Bangladesh-based international development organization, has also been receiving sponsorship by the Global Fund and has been distributing LLINs and ITNs. However, the health infrastructure in malaria-plagued areas (see Fig. 1) is still inadequate and access to health care services is poor. Therefore, even after these measures malaria is still a nationwide risk⁽¹⁶⁾.

The "World Malaria Report 2008" announced that 72% of the Bangladeshi population was at risk of malaria⁽¹⁷⁾. In response, BASF SE (a leading chemical company) and Grameen Healthcare Trust (a non-profit organization founded by Muhammad Yunus, the founder of the Grameen Bank) established BASF Grameen as a social business joint venture in Bangladesh in March 2009. BASF Grameen's social purpose was to improve Bangladeshi people's health conditions while providing business opportunities for the poor⁽¹⁶⁾.

4.2 Mosquito net plant, and marketing by BASF Grameen and Grameen Group

BASF Grameen utilized two existing products from BASF's portfolio: 1) chemically treated mosquito nets (LLINs) under the worldwide brand name Interceptor[®]

that protect people from insect-borne diseases, and 2) dietary supplement sachets (referred to as multi-micronutrient sachets) that contain vitamins and essential micronutrients⁽¹⁶⁾. This paper focuses on the company's mosquito net project.

In the initial stages, the mosquito nets were sold in grocery stores and pharmacies in urban areas. They were also sold in rural areas via established Grameen networks. Then, the plant producing LLINs was opened in Gazipur, near the capital city of Dhaka, on March 23, 2012. This plant, owned by Grameen Fabrics & Fashions Ltd., is the first local LLIN production facility in Bangladesh. The nets are coated with the insecticide Fendona[®], a BASF product, and are sold under the local brand-name "Auschorjo Moshori" (the magic mosquito net). The nets remain effective against mosquitoes for several years, in compliance with the WHO's requirements for LLINs. They also retain their repellent properties for up to 20 washes⁽¹⁶⁾.

By establishing this LLIN production facility, BASF Grameen and Grameen Group have created new jobs for the local people and have influenced the reduction in the number of mosquitoes. Now, BASF Grameen and Grameen Group can source the LLINs (specifically the Auschorjo Moshori brand) from the plant and market them directly. Grameen Distribution Ltd. sells the nets through Grameen Marketing Network⁽¹⁸⁾ as well as other marketing channels. The main sales area is headed by the Chittagong Division in the south-eastern region of Bangladesh. Needless to say, the Grameen Bank, BASF Grameen, and the Grameen Group have made the value of these LLINs very clear to the people in these malaria stricken areas.

According to the second author's fieldwork in December 2012, three sizes of the nets (L, M, and S) are available, retailing for TK.650 (\$7), TK.600 (\$6.5), and TK.550 (\$6), respectively. Baring in mind that the cheapest non-LLIN or ITN that is available is sold for Tk.200 (\$2.2), the upfront cost of an LLIN might be too high for the poor, even though the net lasts longer than a non-LLIN. Therefore, it is important to reduce the retail price of the superior LLINs in order to accelerate the spread of their usage.

Figure 3 (which is also based on the second author's fieldwork) shows the collaborative structure between BASF Grameen and Grameen Group.

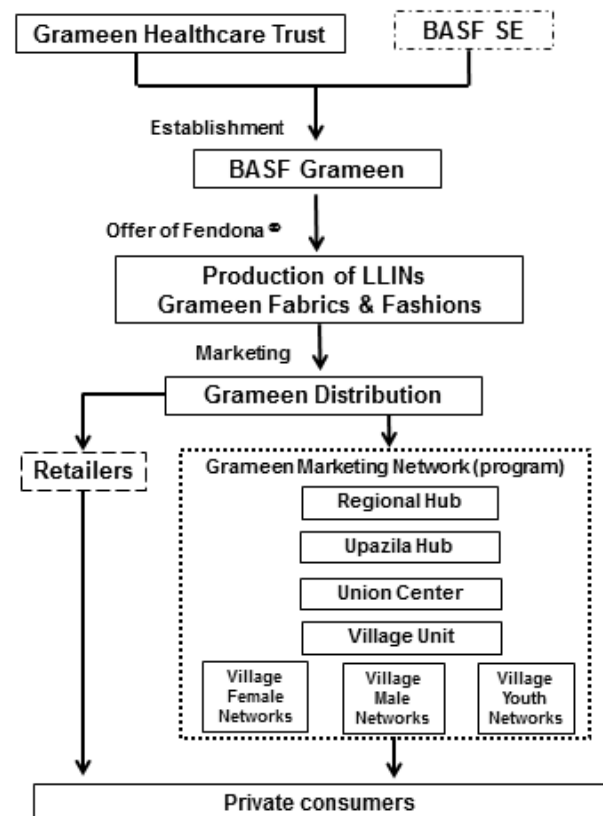


Fig. 3 BASF Grameen and Grameen Group's collaborative structure.

5. Conclusion

As of now, malaria treatments and prevention methods differ from region to region and country to country. No universal approach has been developed to tackle the issue of malaria. Malaria stricken areas lack appropriate treatments, and medicine is typically too costly for the poorest victims. Irrigation ditches, drains, and other places where water tends to collect are not adequately maintained in many places in developing countries, which also aid the spread of malaria. In places with conditions such as these, an LLIN is the best solution⁽¹⁶⁾.

In Tanzania, A to Z's efforts, with the support of the government, has played an essential role in spreading the use of LLINs. They have done so through a social marketing effort that is financially supported by international donors such as the Global Fund, the World Bank, and UNICEF, as well as by private companies such as SCC and ExxonMobile. The initiative has brought full coverage to malaria stricken areas by LLINs, which it achieved in October 2011.

In Bangladesh, on the other hand, efforts to combat malaria are being undertaken by BASF Grameen and Grameen Group, who are not charities but rather for-profit businesses. Therefore, BASF Grameen and Grameen Group do not promote LLINs via social marketing like a national voucher scheme which brings subsidized nets to the poor⁽¹⁹⁾, nor do they (at the time of publication) participate in Bangladesh's National Malaria Control Programme, supported by the Global Fund.

From the perspective of the Millennium Development Goals (however broad or narrow they may be), the case study of malaria control and eradication in Tanzania appears to be more significant than the Bangladeshi case. However, the malaria problem needs to be addressed over the long-term. Therefore, in terms of project sustainability, it remains to be seen as to what extent the Tanzanian government can continuously subsidize the replacement of worn LLINs without financial support from donors. The Bangladeshi case, on the other hand, could be more sustainable in the long run since it is a business whereby the LLINs retail prices are based on the purchasing power of the consumer market.

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国際協力を通じた蚊帳の普及： タンザニアとバングラデシュの事例から

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要 旨

マラリアは、世界の地域における開発を脅かす深刻な問題の一つである。このため、2000年に国連189か国が採択したミレニアム開発目標(MDGs)ではマラリア撲滅が目標の一つとして掲げられた。そしてこれを受け、国際社会もマラリア流行地域における撲滅対策を講じてきた。マラリア対策には様々な方法があるが、その中でも予防対策としての防虫蚊帳(LLINs)は、マラリア撲滅対策の最も有効な手段として注目を集めている。

本論では、マラリア流行地域における国際社会による防虫蚊帳の普及にかかる分析を行う。このため、二つの取り組み事例について検討する。ひとつはタンザニアにおけるA to Z社とそのパートナーによる取り組みで、もう一つはバングラデシュにおけるBASFグラミン社とグラミン・グループによる取り組みである。具体的には、タンザニアの事例ではオリセット・ネット、バングラデシュの事例ではインターセプター（地域の呼称は「Auschorjo Moshori（魔法の蚊帳）」と呼ばれる防虫蚊帳の普及について検討する。

どちらの事例でも、地域の民間企業・グループが防虫蚊帳を生産し、それぞれの普及ルートを通じて防虫蚊帳を住民に供給している。一方で、二つの防虫蚊帳の住民への普及方法には大きな違いがある。本論では、この違いに着目し、マラリア対策のための防虫蚊帳の普及のためにはどちらの方法が有効かについて検討する。

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