

PAPER • OPEN ACCESS

The past is the future: learning from tanzania in securitizing and combating malaria endemic as a national security issue

To cite this article: F Z Pamungkas *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **243** 012148

View the [article online](#) for updates and enhancements.

You may also like

- [Demonstration of successful malaria forecasts for Botswana using an operational seasonal climate model](#)
Dave A MacLeod, Anne Jones, Francesca Di Giuseppe et al.
- [On QSPR study of energies and thermodynamic aspects of anti-malaria medicines](#)
Lei Huang, Abid Mahboob, Muhammad Kamran Siddiqui et al.
- [Malaria Parasite Diagnosis Using Computational Techniques: A Comprehensive Review](#)
Wan Azani Mustafa, Hiam Alquran, Muhammad Zaid Aihsan et al.



ECS
The
Electrochemical
Society
Advancing solid state &
electrochemical science & technology

DISCOVER
how sustainability
intersects with
electrochemistry & solid
state science research

The past is the future: learning from tanzania in securitizing and combating malaria endemic as a national security issue

F Z Pamungkas¹, B S Sunarko¹, and A Trihartono^{3*}

¹ Department of International Relations, Faculty of Social and Political Sciences, University of Jember, Jl. Kalimantan 37, Jember 68121, INDONESIA.

² Department of International Relations, Faculty of Social and Political Sciences and Centre for Research in Social Sciences and Humanities (C-RiSSH), University of Jember, Jl. Kalimantan 37, Jember 68121, INDONESIA.

*atrihartono@unej.ac.id

Abstract. Tanzania is among the countries with the most significant endemic of Malaria in Africa. Considering its impact on the society Malaria turned into a national security issue in the country. Several efforts had done to save the people, which also brought several actors, from national organizations to international ones, into the process of fighting Malaria. However, it is fascinating that as a developing country, during the rapid growth of methods and achievements to combat Malaria in the planet, Tanzania would instead go back in time and use the old yet effective way by distributing insecticide-treated nets to the people intensively. Other than being financially effective, this solution is also showing the best result among other solutions provided. This paper shows that for developing countries, the case of Tanzania provides a lesson learned that utilizing a way from the past, but affordable, might be a decent option in combating national-wide health insecurity. While learning and developing modern methods in combating Malaria, we still need to put old ways into consideration. So, the solution in the past might be our way to the future.

1. Introduction

The spread of infectious diseases is one of the crucial problems that have been faced by all countries in the world. The proliferation of infectious diseases can be a source of threats to the survival of society. The diseases such as Malaria, HIV/AIDS, Typhoid, SARS, Dysentery, Cholera, H1N1, H5N1, and Ebola are some of the diseases that pose a severe threat to human security. Threats can easily cross national borders [1]. Among the various types of infectious diseases, Malaria is categorized as a threat that has not ended until now. According to the World Malaria Report made by the World Health Organization (WHO) in 2017, there are at least 93 countries in the world still suffering from Malaria problems. In the same report, it was stated that in 2016 there were 445,000 deaths from Malaria. The high number of deaths has placed Malaria as one of the leading killer diseases in the world today [2].

While there are still many countries that have not succeeded in stopping the Malaria epidemic, there is one country in Africa, the Republic of Tanzania, which is quite successful in fighting this contagious disease. In the late 1990s to 2004/2005, it was a difficult period for Tanzania in its struggle against Malaria. In the 2004/2005 period, for example, there were around 20,782 losses due to this disease outbreak [3]. However, ten years later (2016) the World Malaria Report informed that in Tanzania there had been a significant decreased in the number of deaths, totaling 5,046 deaths and 6,880,000 Malaria cases. The figure makes Tanzania ranked sixth out of 15 countries contributing to the highest mortality rate in the world [2].

The paper shows that Tanzania's success story in overcoming Malaria outbreaks and reducing the number of deaths was because the country chose (among others) to re-use the old ways that are considered old-fashioned by most developed countries.

2. Methods

The paper uses the literature study and employs secondary data as a source of study. Literature study is a data collection method that does not require researchers to conduct field observations or fieldworks.



The researcher refers to the information that already exists from previous research publication or official reports from credible institutions, which are considered relevant to the issue or phenomenon that need to analyze. This work uses secondary data. The secondary data are documents obtained by people who are not present at the scene, but they receive information by interviewing eyewitnesses or by reading primary documents [4]. Secondary data obtained from books, periodic reports, journals, scientific articles, and other factual information contained in the mass media, printed and online media. Thus the data collection method used in this study is the library research. The analysis will rest on the efforts of describing, explaining, and interpreting an object of research that is the context of the discussion.

3. Results and Discussion

In this section, the paper presents several aspects. The first part is the National Insecticide Treated-Nets (NATNETS) Program Table, which consists of 5 sub-programs of the NATNETS, the actors involved, and the implementing period and its performance. The second part is a diagram of the ownership of the 2004-2012 Insecticide Treated-Nets (ITN) in Tanzania. The final part is the Malaria Prevalence diagram for children in 2012.

Firstly, the paper describes the NATNETS Program and the Insecticide Treated-nets/Long Lasting Insecticide Nets (ITN/LLIN) as the core aspect of the discussion. The NATNETS is a national Malaria control program that has been designed since 2000 and was implemented in 2003. ITN/LLIN is a prevention tool for dealing with Malaria. It functions as a barrier between the Malaria vectors, the Anopheles mosquito, to humans, especially when sleeping, which will prevent humans from contracting Malaria.

The National Insecticide Treated-Nets (NATNETS) is a program to plan, to implement and to manage the increased use of Insecticide Treated-nets/Long Lasting Insecticide Nets (ITN/LLIN) in Tanzania. The NATNETS is a multi-donor and multi-partner program. The goal of the strategy carried out by NATNETS is to maintain public access to ITN/LLIN so that in one household there is at least one ITN/LLIN for every two people (National Insecticide Treated Nets, 2012). NATNETS is a unity of Malaria prevention programs consisting of 6 main programs, namely. First, the Insecticide Treated Cells (ITN Cell) is a program that focuses on Malaria control vector in the community. Secondly, The Tanzanian National Voucher Scheme (TNVS) is a program that provides ITN/LLIN subsidies to pregnant women and infants less than five years old. Third, The School Net Program (SNP) is a program that gives attention to the distribution of ITN/LLIN that utilizes school institutions. Fourth, Mass Distribution Campaign, an Under Five Catch-Up Campaign (U5CC), Universal Coverage Campaign (UCC), all three of them were mass distribution campaigns for ITN/LLIN in Tanzania. Finally, Behavior Change Communication is a complementary intervention to socialize healthy behavior. [5].

Table 1. Program NATNETS

Program/ Campaign	The Actor involved	Range of time	Accomplishment
The Insecticide Treated-Nets Cell (ITN Cell)	Ministry of Health, Swiss Agency for Development and Cooperation (SDC) and Public Health Institute (Swiss) Ministry of Health, Global Fund, USAID: President Malaria Initiative (PMI) and	2003-2012	Organizing actors to strengthen NATNETS Steering Committee.
The Tanzania National Voucher Scheme (TNVS)	Center for Disease Control and Prevention (CDC), Menonite Economic Development Associates (MEDA), Ifakara Health Institute and UK Department for International Development (DFID).	2004-2012	1.5 - 2 million nets have sold every year.
Behavior Change Communication (BCC)	Population Services International, John Hopkins	2008-2014	Socialization and recruitment of

Program/ Campaign	The Actor involved	Range of time	Accomplishment
	Center and NGO networks in Tanzania		strategic media to influence people.
LLIN Mass Distribution Campaigns Under Five Catch-up Campaign (U5CC)	Ministry of Health, Ifakara Health Institute, CDC and Global Fund.	2009-2010	8.7 Million nets for toddlers <5 years.
LLIN Mass Distribution Campaigns Universal Coverage Campaign (UCC)	Ministry of Health, Global Fund, PMI, World Bank, and The Christian Social Services Commission (CSSC).	2010-2011	Distribution 17.6 million nets to people who were out of U5CC or TNVS campaigns.
The School Net Program (SNP)	Ministry of Health, PMI, and SDC	2013-2014	Distribution of 437.930 nets to students at 2,300 schools from 19 districts.

(Source: Ministry of Health and Social Welfare 2014)

Since 2004, there has been a significant increase in insecticide nets ownership from the NATNETS program created by the Ministry of Health and Social Welfare of Tanzania and its partners (see Figure 1). The results of a survey of Tanzania Malaria Demographic and Health Survey (TDMS), Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) from 2004 to 2012 have shown that cumulative fact. The survey also demonstrated that the ownership of insecticide-treated nets in the Mainland. Previously there was only 23%, in 2004. However, the property of insecticide nets reached 92% in 2012 [6].

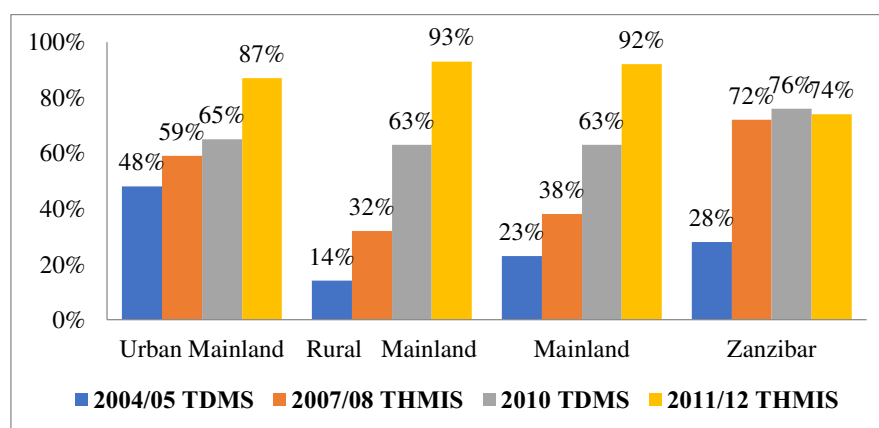


Figure 1. The trend of the Ownership of the ITN 2004-2012
(Source: U.S President Malaria Initiative, 2017)

According to Figure 2, Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) measured for two periods in 2007/2008 and 2011/2012. The results of the survey showed that Malaria prevalence in all populations decreased significantly. The survey in 2007-2008 shows Malaria Prevalence to Children in 2007-2008 was two from ten children. It decreased significantly to be less than one from ten children.

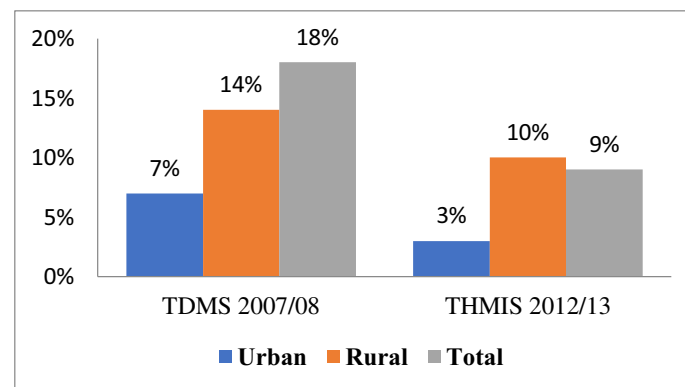


Figure 2. Malaria Prevalence to Children in 2012
(Source: National Bureau of Statistics, 2013)

Malaria is a substantial public health issue in Tanzania; especially Malaria is a significant problem for pregnant women and toddlers (<5 years) [7]. Based on a survey conducted by THMIS in Tanzania in 2011-2012, there have been around 7.7 million cases of Malaria. Malaria transmission cases consist of 3.4 million for infants <5 years and 4.3 million claims for mixed ages that are more dominated by pregnant women [6]. More than 70% of deaths from Malaria worldwide occurred in this age group [2].

From other data issued by the U.S President of the Malaria Initiative, namely Tanzania Malaria Operation Plan 2018, it highlighted that 93% of the population in Mainland and Zanzibar Islands live in areas that are susceptible to Malaria transmission. Changes in Malaria transmission in Tanzania can be classified into several groups. That classification changes in transmission due to seasonal changes of 20%; changes in transmission stable with seasonal changes as much as 20% and another 60% are endemic areas with lasting or constant Malaria transmission [6]. The extent of the endemic Malaria area in Tanzania has triggered the government's efforts to avoid the community from the threat of Malaria not only tricky but also requires a long time efforts. Moreover, geographically around 59% of the population lives in endemic Malaria areas (hypoendemic). The remaining 41% live in *meso*, *holo* and hyperendemic areas [8].

Considering the risk, the Government of Tanzania paid attention significantly to its efforts in overcoming this contagious disease. President Benjamin William Mkapa at the World Economic Forum meeting in 2000 emphasized the commitment to allocate multi-year dollar to handle the disease. Tanzania's commitment then received a positive response from the international community. Even Sharon Stone, an international public figure, donated USD10.000 to buy ITN for the African community. Furthermore, she even urged the Global Fund to participate in helping to find funds to tackle Malaria in developing countries [9].

With the Global Fund joining Malaria prevention in Tanzania, the Ministry of Health and Social Welfare of Tanzania (MoHSW) then developed a proposal program called National Insecticide Treated Nets Implementation (NATNETS). This program proposal was submitted to the Global Fund. The first realization of the collaboration between the national government of Tanzania and the Global Fund was that the Global Fund provided funds to Tanzania for USD 19.8 million for the NATNETS program for three years [9].

The program implemented by the government as collaboration with the Global Fund results in a positive impact on the readiness of the community to have the means to prevent outbreaks of Malaria. A survey conducted by the Ifakara Health Institute in 2011 found data that in the coastal zone of Tanzania, out of as many as 99% of households surveyed, each family had at least one ITN. The community ownership of LLIN is 97%. The percentage mentioned above shows a figure of a double from the survey in 2008 which was only 46%. Even in the same survey, data shows that in Kisaware and Rufiji districts, many households have at least three or more ITN nets. ITN/LLIN owned by the community in these two districts is the result of the implementation of the UCC and U5CC [10].

Meanwhile, a survey conducted at Lake Zone and the Southern Zone of Tanzania found that the percentage of ownership of ITN and LLIN experienced a significant increase. Ownership of the ITN in 2011 was 95%, and the LLIN was 96%. This figure increased compared to 2009 which was 82% of

ITN and 76% of the LLIN in the Lake Zone. Meanwhile, there are 61% of the ITN and 43% of the LLIN for Southern Zone. In both these zones, UCC contributed 53% to Lake Zone and 67% to Southern Zone in increasing the number of ITN/LLIN holdings. The UCC program also contributes positively to an increase in the proportion of households that have 4 or more nets. Ownership of ITN/LLIN increased from 20% in 2010 to 51% in the lake zone, and 35% in the Southern zone in 2011[11]. In both the Coastal Zone and the Lake Zone and the Southern Zone, the survey results indicate that there is a definite trend of ownership of ITN/LLIN in the Tanzanian community in general. Every year through the UCC and U5CC, NATNETS program has successfully distributed ITN/LLIN effectively to all elements of society.

While at the district level, based on household ownership survey by Ifakara Health Institute, at least one household has ITN/LLIN in 2010 and 2011. While from the five districts surveyed, namely Mtwara (urban) Nachingwea, Chato, Sengerema, and Rorya, all districts experienced an increase in the amount of ownership of ITN / LLIN. Ownership rates in Mtwara which in 2010 amounted to 58%, in 2011 to 95%. Meanwhile, Nachingwea's figure rose from 62% to 97%, Chato from 85% to 93%, Sengerema from 84% to 95%, and Rorya from 73% to 98% [12]. For more complete data about the increase in ownership of ITN/LLIN (see Figure 1).

In addition to conducting mass distribution campaigns for ITN/LLIN to the community, NATNETS program also conducts a periodic bi-annual review of information on ownership and use at the district and community level. This campaign is vital because interventions that will be carried out further depend on the results of the information received [12]. Also, the funding source of the NATNETS program is not only from the Tanzanian government but many international actors.

The implementation of the NATNETS program shows positive results. There was a significant reduction in Malaria prevalence in Tanzania. Based on a survey conducted by the Tanzania Malaria Demographic and Health Survey (TDMS) and the Tanzania HIV/AIDS and the Malaria Indicator Survey (THMIS) (see Figure 2), the data shows that the prevalence in children aged 6-59 months was initially 18.1% decreased nationally significant to 9.5%. Also, the fact that children in rural areas were found to be more vulnerable to Malaria infection compared to urban children through clinical trials using Rapid Diagnostic Treatment (RDT) [7]. Overall Malaria prevalence has decreased in all districts and all age groups in Tanzania [13]. In both surveys conducted by the THMIS and the TDMS showed Malaria prevalence was significantly higher than other populations in children living in households with low levels of wealth, and with mothers with low levels of education. Whereas for children who live on the rich level and have mothers with a high level of education the prevalence of Malaria has decreased. This decrease is a good result for Malaria prevention in Tanzania along with the campaign to distribute insecticide-treated mosquito nets to fight Malaria [13].

Having read the data above, Tanzania has provided an example that Malaria prevention is not an impossible thing to do amid its limitations as a developing country. The decision of the Tanzanian government to adopt the old method of Insecticide-Treated Nets and the seriousness of the government in establishing various partnerships and collaborations has proven to be successful in significantly reducing the occurrence of Malaria outbreaks. The Tanzanian government has also confirmed that the old way through NATNETS program, with lower costs compared to new and modern prevention tools, turned out to have positive results. The choice of the Tanzania government to choose this program seems to be a lesson learned for other developing countries. An essential lesson from Tanzania is that the old method is not a method that must always be left to overcome the problem of Malaria. The old ways that most modern societies consider as old methods can be more effective and efficient than more modern methods.

4. Conclusions

The significant reduction in Malaria prevalence in Tanzania is inseparable from the bold choices of the government to use a method of overcoming Malaria outbreaks that are considered by various groups as an ancient way. The NATNETS program implemented by the government through the Ministry of Health and Social Welfare (MoHSW) is indeed not the only method used by the government to combat the Malaria epidemic. Several other methods have been applied, but the results are not optimal and require relatively expensive costs for developing countries.

With the above program, the Government of Tanzania succeeded in reducing the prevalence of Malaria. The results achieved by Tanzania are strong evidence that solving problems in developing

countries does not always have to depend on the findings of developed countries. The solution was taken by Tanzania in simple ways and can be pursued easily and inexpensively. It is probable that various problems in the world, especially in the health sector, can be effectively and efficiently overcome by local wisdom that has grown and developed for years and even centuries. The lesson from Tanzania is that in some ways, what might be considered as a past could be a source of future problem-solving.

Acknowledgments

We thank the Department of International Relations, Faculty of Social & Political Sciences and Centre for the University of Jember's Research in Social Sciences and Humanities (C-RiSSH) for supporting this paper to publish. We also express gratitude to anonymous reviewers. We are solely responsible for the contents of the paper.

References

- [1] Caballero-Anthony M and Emmers R 2006 *The Understanding The Dynamic of Securitisation*. Hampshire: Ashgate
- [2] World Health Organization. *World Malaria Report 2018*. Geneva: World Health Organization; 2017.
- [3] Ministry of Health and Social Welfare. *National Malaria Medium Term Strategic Plan 2002-2007*. National Malaria Medium Term Strategic Plan. Dar Es Salaam; 2003.
- [4] Bailey, K. *Methods of Social Research*. Minnesota: Free Press. 2016
- [5] National Insecticide Treated Nets. NATNETS [Internet]. 2012 [cited 2018 Nov 5]. Available from: <http://www.natnets.org/>.
- [6] President Malaria Initiative. *TANZANIA Malaria Operational Plan FY 2018*.
- [7] Index Mundi. *Tanzania Demographics Profile 2018* [Internet]. CIA World Factbook. 2018 [cited 2018 Nov 5]. Available from: https://www.indexmundi.com/tanzania/demographics_profile.html.
- [8] Ministry of Health and Social Welfare. *National Malaria Strategic Plan 2014-2020*. Dar Es Salaam; 2014.
- [9] Njau, Ritha JA, Don de Savigny, Lucy Gilson, Eleuther Mwageni and FWM. Implementation of an insecticide-treated net subsidy scheme under a public-private partnership for malaria control in Tanzania-challenges in implementation. *Malaria Journal* [Internet]. 2009;8(201):1–27. Available from: <https://malariajournal.biomedcentral.com/track/pdf/10.1186/1475-2875-8-201>.
- [10] Nathan R, Sedekia Y. *Monitoring and Evaluation of the Tanzanian National Net Strategy Universal Coverage Campaign Household Survey Report- Coastal zone*. Dar Es Salaam; 2011.
- [11] Nathan R, Sedekia Y. *Monitoring and Evaluation of the Tanzanian National Net Strategy Universal Coverage Campaign Household Survey Report-Lake and Southern zones*. Rose Nathan. Dar Es Salaam; 2011.
- [12] Global Fund. *Global Fund Round 8 Grant Number TNX-809-G11-M Bed Net Evaluation Report* [Internet]. 2011 [cited 2018 Nov 5]. Available from: [http://www.natnets.org/attachments/article/42/Bed Net Evaluation Report Final- 30 March 2012.pdf](http://www.natnets.org/attachments/article/42/Bed%20Net%20Evaluation%20Report%20Final-30%20March%202012.pdf).
- [13] National Bureau of Statistics. *HIV/AIDS and Malaria Indicator Survey 2011–12* [Internet], Tanzania. Tanzania: Dar Es Salaam; 2013. Available from: <http://www.nbs.go.tz/>.