Malaria in Zanzibar: An Economic and Social Burden Transformed

Professor Matthew McCartney

August, 2025

1 Executive Summary

In the early 2000s, the World Health Organization (WHO) estimated there were between 300 and 500 million cases of malaria a year, resulting in between 700,000 and 2.7 million deaths annually. Even then during that time, 90% of the disease burden related to malaria was located in Africa, primarily due to geographic and ecological factors, including year-round warm temperatures and long rainy seasons[i].

Malaria imposes economic hardship on households and government through missed schooling, lost wages, and treatment expenditure. Malaria can also cause anemia in pregnant women, leading to greater risk of low birth-weight, and thus increasing the likelihood of poor health outcomes and lost schooling for the child later in life. At the national level, in 1995, the average income (GDP per capita) of 54 countries that were intensive in malaria was $1,526 compared to $8,268 in 96 countries without[ii].

In the early 2000s, a big push backed by global leaders, funding, and research led to a dramatic global reduction in the incidence of malaria, culminating in 2012 with the successful trial and scaling up of a malaria vaccine.

More specifically, efforts to eradicate malaria in Zanzibar were a globally important success. The incidence of malaria fell faster than elsewhere, despite being a vulnerable tourist destination and exposure to resurgent malaria in mainland Tanzania. This was primarily due to sustained and successful efforts led by the government of Zanzibar in partnership with the global malaria community. The Zanzibari success was very publicly lauded by the WHO in 2022.

We would expect to see Zanzibar, particularly the government, publicly celebrating this success and integrating the implications for near-eradication into their medium term economic planning. Here we have a big puzzle: Vision 2050 is all but completely silent about malaria. This policy brief thinks about why the government of Zanzibar has neglected to publicize or even reflect on the economic implications of the near eradication of malaria. The two ideas introduced here relate to the dominance of the ‘good governance’ agenda and to the macroeconomics of health respectively.

2 Introduction

2.1 What is Malaria?

Malaria is spread to humans through mosquito bites, with symptoms ranging from mild, including fever, chills and a headache, to more severe, including fatigue, confusion, seizures, and difficulty breathing (WHO). Infants, children under 5 years, and pregnant women are at higher risk of severe infection. Malaria has long been a scourge of humanity. 40% of the 5,000 year-old Egyptian mummies at the Turin museum in Italy were found to have traces of malaria. It is widely thought that malaria stopped Alexander the Great in India in 326BC and killed Genghis Khan 1,500 years later[iii]. While malaria killed 60% of European missionaries to West Africa between 1804 and 1825, the comparative immunity of local inhabitants gave them a decisive advantage in migratory-conquest. Bantu tribes from West Africa spread into East and South Africa, where their descendants–the Kikuyu in Kenya, Shona in Zimbabwe, Xhosa and Zulu in South Africa–remain dominant today[iv].

In the early 2000s, the WHO estimated there were between 300 and 500 million cases of malaria a year, resulting in between 700,000 and 2.7 million deaths annually. During that time, 90% of the malaria disease burden was located in Africa[v]. In 2000, more than 80 million cases of malaria occurred among African children younger than five years. Approximately 500,000 million of these episodes were severe enough to require hospital admission. At least 20,000 children suffered permanent neurological damage as a result of malaria infection[vi]. In 2009, the average person in Uganda was bitten thousands of times a year by mosquitoes, of which 1,586 (four bites a day) resulted in infection by malaria. Of the 500,000 residents in the district of Apec, approximately 124,000 sought treatment for malaria in the year after July 2008, including nearly 60,000 children below the age of five[vii]. Malaria is both ancient in its malice and contemporary in virulence.

Malaria can be prevented by avoiding mosquito bites through the use of mosquito nets and mosquito repellent applied to skin, coils, protective clothing, and window screens. In recent years, a vaccine has been developed that stimulates the immune system to produce antibodies that block the malaria parasite from infecting liver cells and leading to blood-stage disease. After 2000, these means of malaria prevention were scaled up and improved in such a manner that they helped cause a dramatic global decline in the incidence of and mortality from malaria. According to the WHO website[viii], since 2015, 14 countries have been certified by the WHO Director-General as malaria-free, including Maldives (2015), Sri Lanka (2016), Kyrgyzstan (2016), Paraguay (2018), Uzbekistan (2018), Argentina (2019), Algeria (2019), China (2021), El Salvador (2021), Azerbaijan (2023), Tajikistan (2023), Belize (2023), Cabo Verde (2024) and Egypt (2024) (WHO). In 2021, the WHO reached further and set new global targets to reduce malaria cases and mortality by at least 90% by 2030, and to eliminate malaria in at least 25 countries by 2030.

2.2 The Economic Burden of Malaria

It is no surprise that more than 90% of the global malaria burden has been obstinately lodged in Africa. The year-round hot temperatures across most of Africa are ideal for mosquitos, since there is no cold season to kill them off. There is also sufficient rain to stimulate breeding among mosquitos. Unlike other parts of the world, Africa's mosquitos are almost exclusively those that bite humans, enhancing the chain first of mosquito-to-human and eventually human-to-human transmission. Africa is also the only major world region where the most malignant human biting malaria species, Plasmodium Falciparum, predominates[ix].

Malaria is a product of geography, not primarily a product of poverty–unlike, for example, diarrhea driven by poor sanitation. However, the lower levels of national and household incomes in Africa mean households have been less able to afford to spray their households, to purchase insecticide-treated bed nets, and to access health care treatments[x]. Malaria also works to push households further into poverty. Evidence from Malawi in the 1990s showed that the direct costs of malaria treatment were equivalent to 28% of household income among very low income households, and 2% among the rest[xi].

Malaria also generates a significant material demand on the limited governmental resources in Africa. One study of Rwanda estimated that almost 20% of the Ministry of Health budget was spent on malaria treatment[xii]. There are also substantial indirect costs associated with malaria. The average time lost per episode for both sick children and adults ranges from one to five days. In Kenya, primary school students were estimated to have, on average, four episodes of malaria per year and to miss on average five days of school per episode, equaling more than 10% of Kenya's school year[xiii].

Malaria can have much more invidious impacts on schooling and workplace productivity than a mechanical accumulation of time lost in school and employment. Malaria can cause anemia in pregnant women, which leads to a greater risk of intra-uterine growth retardation and low birth-weight, increasing the likelihood of poor health outcomes and lost schooling later in life. A child that catches malaria in the first few months of life is at increased risk of permanent cognitive damage (known as 'scarring'), leading to less accumulation of learning, lower labor force productivity, and decreased wages in later life[xiv]. These economic costs are clearly reflected in macroeconomic outcomes. In 1995, the average income (GDP per capita) of 54 countries that faced intensive malaria was $1,526 compared to $8,268 in 96 countries without[xv]. Between 1965 and 1990, countries with intensive malaria grew by 0.4% p.a., compared to 2.3% in countries without[xvi]. Those countries who were able to eradicate malaria typically experienced a subsequent acceleration in economic growth. Such examples include Greece, Italy, and Spain in the 1930s and 1940s, Portugal after 1958, Taiwan in 1961, Jamaica in 1958, and the Southern states of the US in the 1960s[xvii]. The national malaria eradication program in India in the 1950s led to higher per capita household expenditures in the subsequent decades through boosting labor productivity among males[xviii].

2.3 Global Efforts to Eradicate Malaria

Successful efforts to eradicate malaria were abandoned in the late 1960s, leading to a resurgence in malaria incidence.. However, a big push backed by global leaders, funding, and research was launched in the early 2000s, leading to a dramatic global reduction in the incidence of malaria, and by 2012, the successful trial and scaling up of a malaria vaccine.

2.3.1 From Near Eradication to Inertia. Malaria was nearly eradicated in the 1950s. Carbon, hydrogen, and chlorine were synthesized into dichloro-diphenyl-trichloroethane (DDT) in 1874. In 1939, Swiss chemist Paul Hermann Muller discovered the properties of DDT as an insecticide, for which he won the Nobel Prize for medicine in 1948. DDT was cheap to produce and seemingly harmless to people. Led by the nascent post-war international community, DDT was sprayed on walls, fields, and swamps and dropped from the air. In the US, malaria was eradicated by 1952, in Sri Lanka the number of malaria cases declined from 3 million in 1946 to 18 in 1963[xix]. In India, the number of malaria cases declined from 75 million in 1947 to 100,000 by 1964[xx].

In 1962, Rachel Carson published the book *Silent Spring* which suggested that pesticides such as DDT had entered the food chain and were endangering entire ecosystems, pushing species such as the bald eagle to the point of extinction. The WHO stopped funding the DDT campaign in 1963 and banned DDT in 1972. While large parts of the world– including Europe, the US, Russia and parts of Asia–remained malaria free, infections in other regions skyrocketed. For example, in Sri Lanka, the number of cases jumped back to one million cases per year by 1969[xxi]. By the 1990s, malaria was low on the global public health agenda; in 1996, the WHO spent only $9 million on malaria control in Africa.

Research including the 1993 *World Development Report* by the World Bank and economic studies by academics such as Jeffrey Sachs quantified the link between malaria and development, revealing the scale of the economic burden of malaria. Business and national governments began to see more value in fighting malaria[xxii].

2.3.2 New Big Push. Jeffrey Sachs framed the intervention needed in terms of a 'big push' arguing that "targeted investments backed by donor aid lie at the heart of breaking the poverty trap"[xxiii] By the 1990s, evidence of the successful scaling up of public health programs had accumulated, such as the high-yield variety (HYV) wheat seeds first used in Mexico that went on to prompt a global green revolution in agriculture, and the global (near eradication) of smallpox and polio between the 1960s and 1980s. The key lessons revolved around the importance of leadership, financing, and the provision of technology appropriate to local conditions that allowed for a rapid and sustained scaling up[xxiv]. In relation to malaria, the required big push constituted simultaneous efforts to address research into malaria prevention, development of a vaccine, provision of treatments, and data collection on malaria prevalence to monitor the success of these efforts. Much of this discussion was framed around the need for developed countries to commit themselves to providing 0.7% of GDP in aid every year[xxv].

The late 1990s and early 2000s saw a complete transformation of the global politics of malaria. The Roll Back Malaria (RBM) Partnership was launched in December 1998 with

leadership from the WHO, UN Children's Fund, World Bank (WB), and United Nations Development Programme (UNDP). The UN Millennium Development Goals (MDGs) in 1999 identified malaria as a key priority. In 2000, 44 African countries committed to halving malaria by 2010[xxvi]. By the mid-2000s, major shifts had occurred in every aspect of malaria control since 2000, including interventions, global and national policies, partnerships, financing, systems for monitoring program scale-up and progress, and new technologies, such as long-lasting insecticide treated mosquito nets (LLINs), rapid diagnostic tests (RDTs), and new treatments[xxvii].

2.3.3 Leadership. Case studies of successful intervention efforts across Vietnam, Eritrea, Brazil, and India show that a unique feature of these four country programs was the presence of a lead partner agency that provided technical and programmatic support. In Eritrea, the US Agency for International Development (USAID) played a major role. In Vietnam and Brazil, intensive hands-on guidance and implementation support was provided by WRPO and PAHO, respectively, and in India, local health departments[xxviii]. The global malaria community was led by the Roll Back Malaria Partnership, which coordinated a global response to control, eliminate and eventually eradicate malaria through the Global Malaria Action Plan[xxix].

2.3.4 Financing. Funding was ramped up in response to the political commitments to fighting malaria. The Bill and Melinda Gates Foundation, formed in 1999, made funding malaria research and treatment an early priority. In April 2005, the World Bank launched a three-year malaria campaign, setting aside $500 million to fund it. In 2005, President Bush announced the formation of the President's Malaria Initiative, with a five-year $1.2 billion budget to provide Tanzania, Uganda and Angola with insecticide-treated bed-nets, treatment drugs and insecticide spraying[xxx]. By 2023, global funding for malaria control and elimination totaled $4 billion across 90 countries with the WHO African Region receiving 75% of this funding[xxxi]. In 2023, malaria research and development (R&D) funding reached $690 million. At $201 million and $181 million, the United States National Institute of Health and the Bill & Melinda Gates Foundation, respectively, were the largest funders of R&D[xxxii]. The Gates Foundation provided grants to develop and disseminate a malaria vaccine, ensure access to affordable treatments, and collect evidence about which set of interventions would have the most impact on interrupting malaria transmission[xxxiii].

2.3.5 Expansion of Preventative Treatments and Vaccination. In 2010, the WHO recommended that universal diagnostic testing was necessary to confirm malaria infections and treat them accordingly. Prompt diagnostic testing reduces the over-use of expensive Artemisinin-based combination therapies (ACTs) and prevents other causes of fever from being inappropriately treated[xxxiv]. Spending on diagnostic tests increased rapidly after 2010[xxxv]. Between 2010 and 2023, manufacturers reported 4.4 billion sales of rapid diagnostic tests (RDTs) for malaria and 4.5 billion ACT treatment courses[xxxvi]. Analysis of household surveys conducted in SSA between 2005 and 2023 found that ACT use among children who sought care and who were treated with an antimalarial drug increased from 38% at baseline (2005–2011) to 71% (2017–2023)[xxxvii].

Furthermore, in the early 2000s, anti-malarial beds were used by less than 1% of rural Africans living in endemic malarial regions[xxxviii]. In response, insecticide-treated nets (ITNs)– nets that needed an annual treatment to remain fully effective–were marketed to at-risk populations, mainly young children and pregnant women. In Tanzania, ITNs were found to be linked to 55-75% reductions in malarial morbidity for children aged six months to two years[xxxix]. Within a few years, long-lasting insecticidal nets (LLINs) were developed which no longer required regular chemical treatments to be made effective. More than 400 million LLINs had been delivered to African countries by the end of 2010. Increase in coverage was done equitably, with UNICEF buying and disseminating 164 million nets between 2000 and 2010. That was enough to provide LLINs to 80% of the people at risk of malaria across Africa[xl]. By 2023 an estimated 73% of households in sub-Saharan Africa (SSA) owned at least one ITN, compared with 68% in 2015, and 52% of the population were sleeping under an ITN, compared with 46% in 2015[xli].

Then in 2005, the malaria community adopted a Malaria Vaccine Technology Roadmap that called for the development of a first-generation malaria vaccine by 2015, and a second generation malaria vaccine by 2025[xlii]. The vaccine aimed to have at least an 80% efficacy against clinical malaria, most importantly in children under the age of five and in pregnant women[xliii]. This effort was led by the PATH Malaria Vaccine Initiative (MVI), an international non-profit organization[xliv]. PATH offered 40 years of with experience forging multisector partnerships, and expertise in science, economics, technology, and advocacy (PATH).

PATH's work encompassed early-stage identification of targets for malaria vaccines, preclinical, clinical, and advanced clinical trials[xlv]. PATH also helped to ensure that malaria vaccines would be affordable and available where needed and targeted their utilization at levels of coverage similar to other childhood[xlvi]. PATH focused on establishing partnerships to manufacture and disseminate malaria vaccines that would not be hindered by intellectual property issues creating commercial barriers to vaccine development[xlvii]. The large private sector pharmaceutical companies joined the effort.

In 2012, GSK noted that they were "determined to help stop malaria"[xlviii]. They recorded their malaria strategy as involving three prongs of attack: (1) R+D for new malaria treatments and vaccines; (2) community investment activities through African Malaria Partnerships, established in 2001; and (3) preferential pricing for anti-malaria drugs in Africa and other least developed countries. In 2012, the leading vaccine candidate was RTS, developed in partnership with PATH MVI and supported by grants from the Bill and Melinda Gates Foundation[xlix].

By 2023, two malaria vaccines, known in the industry as RTS,S and R21, were recommended for use in malaria endemic areas. The RTS,S malaria vaccine was initially piloted in Ghana, Kenya and Malawi, where more than 6 million doses were delivered to 2 million children between 2019 and 2023. An evaluation of impact demonstrated a 13% reduction in all-cause

mortality (excluding injury) and a 22% reduction in hospitalizations for severe malaria among children. By December 2024, 17 countries had introduced malaria vaccines through routine childhood immunization, and additional countries had expressed plans to introduce the malaria vaccine in 2025[l].

2.3.8 The Results. Modelling shows that the number of malaria cases in Africa in 2009 (176,000), was 21% lower than would have been expected due to population growth in a world without global interventions. The number of deaths in 2009 (709,000) was 39% lower, indicating that global interventions saved around 445,000 African lives[li]. Between 2000 and 2010, an estimated 1.1 million child malaria deaths were averted in SSA[lii]. Between 2000 and 2023, an estimated 2.2 billion malaria cases and 12.7 million malaria deaths were averted worldwide, with 1.7 billion cases and 12 million deaths prevented in Africa alone. In 2023, more than 177 million cases and more than 1 million deaths were averted globally[liii]. It was widely acknowledged that "global funding of malaria control in the past decade clearly has been one of the most productive health investments ever"[liv]

3 Zanzibar: A Public Health Success

Efforts to eradicate malaria in Zanzibar were a globally important success. The incidence of malaria on the island fell faster than elsewhere, despite being a vulnerable tourist destination and having to cope with a resurgence of malaria in mainland Tanzania. This was linked to sustained and successful efforts led by the government of Zanzibar in partnership with the global malaria community.

3.1 Declining Numbers

Across Africa, the most successful countries were those that reduced the incidence of and mortality from malaria by 50%. Zanzibar went much further, to near eradication. One study using data collected from 129 public outpatient facilities in Zanzibar found a 90% reduction in the mean incidence of malaria between 2000 and 2015[lv]. Using a combination of outpatient and inpatient cases and mortality, another study found that between 1999 and 2008, malaria deaths had fallen by 90%, malaria in-patient cases by 78%, and confirmed malaria outpatient cases by 99.5%. Among under-fives, the proportion of all-cause deaths due to malaria fell from 46% in 1999-2003 to 12% in 2008[lvi]. An in-depth study of two districts, both with a 100,000 plus population, using a variety of hospital and community surveys found a sharp decline in the incidence of malaria concentrated in the years between 2004 and 2007. By 2015, the incidence of malaria had declined by 94% compared to the level prevailing in 2003. The all-cause mortality of children under the age of five years dropped by 72% between 2002 and 2007[lvii].

3.2 Decline Related to Government Intervention

In Zanzibar, the anti-malaria program was extensive and sustained. The program, launched in September 2003, was led by the Ministry of Health and supported by various local and international partners. It consisted of ensuring the widespread availability of ACTs in all public health facilities, vector control measures including free LLIN distribution to all children and pregnant women, and campaigns to spray buildings and water-rich areas[lviii].

These interventions were large in scale and were sustained A targeted mass distribution of free LLINs to children under five and pregnant women was implemented in Zanzibar between August 2005 and January 2006[lix]. The 712,782 ITNs distributed in 2021 (including carry-over from 2020) in Zanzibar, were more than the whole of mainland Tanzania, 611,717[lx].

The outcomes of this distribution were evaluated four to nine months after implementation. Two cross-sectional surveys across 509 respondents were conducted in May 2006 in two districts, Micheweni (MI) on Pemba Island and North A (NA) on Unguja Island. The overall proportion of children under five sleeping under any type of treated net was 83.7% in MI and 91.8% in NA; usage of modern LLINs reached 56.8% in MI and 86.9% in NA[lxi].

There is clear evidence that these efforts had a direct impact on the incidence of malaria. Using data on the time-trend of malaria incidence across 129 public outpatient facilities between 2000 and 2015, after accounting for climate, seasonality, diagnostic testing rates, and outpatient attendance, average monthly incidence of confirmed malaria showed no trend between 2000 and 2003. It only started declining once the government introduced ACT treatments on a large scale (2003-2005), and continued declining when the government introduced free LLIN[lxii]. Another study found that the combination of LLINs, indoor spraying, and ACT together reduced the burden of malaria registered in health facilities by 75% in the five years after 2003[lxiii].

Government intervention efforts improved over time. As per the recommended best practice, since 2012, Zanzibar has implemented reactive case detection (RACD) methods. This involved health staff notifying individuals by phone about malaria status, which in turn triggered a review of health records and malaria testing and treatment at the household level by a district malaria surveillance officer[lxiv]. One study reviewed two years (2015–2016) of related data across 40 randomly selected health facilities. The operational coverage of the system was calculated as the proportion of registered cases that were successfully reviewed and followed up at the household level. The survey found that public health facilities notified (within one day) almost all registered cases (91% in Unguja and 87% in Pemba). This was entirely a public-sector success; records and data from private health facilities on Unguja indicated poor notification performance in the private sector[lxv].

In 2017, the government announced new targets for 2022. These included rapid diagnosis available in 100% of health facilities, vector control measures (spraying and LLINs) expanded to 100% of households at risk, and reinforced surveillance of malaria to ensure 100% of cases were classified and confirmed[lxvi]. A review conducted in September 2022 by different stakeholders, including the government and development partners, confirmed that all these objectives were reached, and taking Zanzibar very close to elimination of malaria. 95% of targeted structures had been sprayed with insecticides. LLIN distribution reached the rate of one net for every 1.8 people, even better than the ideal of one net per every two people[lxvii]. The review also found a strong system for malaria reporting through national health information, with case investigation improving from 73% in (2017/18) to 92% (2020/21)[lxviii].

3.3 Other Explanations

Zanzibar did not have a favorable starting point. In 2002, malaria transmission in Zanzibar was as intense as anywhere else in Africa[lxix]. By 2022 the prevalence rate of malaria in Zanzibar was below one percent, lower than anywhere else in Tanzania, or Eastern and Central Africa[lxx]. By 2010, it was estimated that Zanzibar was averting 660,000 malaria cases and 3300 malaria attributable deaths per year. Based on data for spending on intervention measures, this translated into $1,183 per death averted, in line with the world's most cost-effective public health interventions[lxxi].

The rapid decline in the incidence of malaria in Zanzibar did not simply reflect a regional trend that Zanzibar was a lucky participant in. The East African region showed a very varied pattern. In coastal Kenya, malaria admissions into hospitals declined by 75% between 2003 and 2007. In lowland Kenya around Lake Victoria, there was a 42% reduction in all-cause child mortality between 2003 and 2007. Data compiled from inpatient record across 17 hospitals in western Kenya, showed substantial decline in malaria admissions in only four of them[lxxii]. In the Muheza district of Tanzania, the number of malaria cases increased between 1994 and 2006, with prevalence among children remaining consistently above 80%. In the neighboring Korogwe district, the prevalence of malaria fell substantially between 2003 and 2006[lxxiii].

Even by 2023, according to the WHO, there were still an estimated 263 million malaria cases that resulted in almost 600,000 deaths across 83 countries (WHO). Between 2019 and 2023, there were substantial increases in estimated case numbers in Nigeria (6.8 million), Ethiopia (6.9 million), Madagascar (4.2 million), the Democratic Republic of the Congo (1.8 million), Uganda (1.3 million), Mali (1.4 million), Cameroon (1.2 million), and importantly for this paper, the United Republic of Tanzania (1.9 million)[lxxiv]. According to the WHO[lxxv], Africa suffered 94% of those malaria cases and 95% of deaths, with 76% of deaths occurring in children under five (WHO). Over half of these deaths occurred in four countries: Nigeria (30.9%), the Democratic Republic of the Congo (11.3%), Niger (5.9%) and important for this paper, Tanzania (4.3%). Striving for eradication in an environment where the rest of Tanzania was experiencing resurgence was even more impressive given the status of Zanzibar as a tourist destination. Between 2015 and 2020, data collected by Zanzibar's Malaria Case Notification (MCN) system showed that 40% of malaria cases had a travel history outside Zanzibar in the month prior to testing positive for malaria[lxxvi]. As a tourist hub, Zanzibar was importing the consequences of weaker efforts to control malaria elsewhere in the East African region[lxxvii]. A reported travel history to/from the Tanzania mainland was a risk factor in the incidence of malaria in Zanzibar[lxxviii].

4 Policy Implications for Zanzibar

The near-eradication of malaria in Zanzibar represents a striking success in public policy, not just reflecting global donor commitment, but also the sustained, targeted, scientifically-empirically-politically driven domestic commitment by the government of Zanzibar. The success was achieved despite the resurgence of malaria in mainland Tanzania and the importation of this through Zanzibar's status as a tourist destination. There is an extended, and interesting research project remaining here that explores exactly how this was done and how various stakeholders contributed to this remarkable success.

The Zanzibari success was very publicly lauded by the WHO in 2022. We would expect to see Zanzibar, particularly the government, publicly celebrating this success and integrating the implications for near-eradication into their medium term economic planning. Tourism for example has a significant presence in government planning documents, but there is no discussion of how the near eradication of malaria can boost tourist arrival numbers. Recall

Section 2 in this paper, which showed that malaria has negative impacts on tourism. In Greece and Spain (1930s and 1940s) and Jamaica (1958) the eradication of malaria was a pre-condition for the development of large-scale tourism[lxxix]. What then will be the economic dividend from the near-eradication of malaria? We turn to Zanzibar's Vision 2050, published in 2020, to find out.

We soon have a big puzzle; Vision 2050 is all but completely silent about malaria. Malaria gets two mentions in Vision 2050. One mention dismisses the success with faint praise: "Though efforts to control HIV/AIDS, malaria and gastro-intestinal diseases have been relatively successful, there is an increasing concern of emerging non-communicable diseases (NCDs) as well as perinatal, neonatal and infant mortality"[lxxx].

The second references malaria in terms of a climate change induced threat: "Ecological stability is further threatened by climate change, which could potentially affect future livelihoods, with children in particular at greater risk of food and water scarcity; vector and water-borne diseases, such as malaria, dengue and cholera as well as air pollution"[lxxxi].

The final part of this policy brief explores why the government of Zanzibar has neglected to publicize or even reflect on the economic implications of the near eradication of malaria. The two ideas introduced here relate to the dominance of the 'good governance' agenda and to the macroeconomics of health, respectively.

4.1 Good Governance

In the early 1990s, the World Bank explained the relative economic failure of many African economies over the past few decades: "The main factors behind the stagnation and decline were poor policies – macroeconomic and sectoral – emanating from a development paradigm that gave the state a prominent role in production and regulating economic activity"[lxxxii]

Despite substantial policy reform in the 1980s and 1990s, there was no apparent economic revival. Policy reforms, they argued, weren't generating good economic outcomes because they were implemented in a context of 'bad governance'. The World Bank and IMF shifted attention from good policy to good governance, which included aspects related to the functioning of government administration–transparency, accountability, fairness, participation, and ownership–and to those impacting economic transactions, such as the registration, protection, and tradability of property rights[lxxxiii]. Consequently, the development debate became tightly focused on the role of good governance and institutions. This is clearly reflected in Zanzibar, where Vision 2050 was structured around four pillars.

Of those four, three were related to "good policy": economic transformation (industry, trade, tourism, blue economy, oil and gas, creative and digital economy, finance and investment); infrastructure (housing, transport, seaports, airports, energy, ICT); and social welfare (education, health, sanitation, social protection, heritage and sports). Good policy is defined in a conventional manner throughout, as making markets work better, improving incentives, allocating resources more efficiently, boosting investment, and increasing exports. The final pillar is good governance, which provides the context to ensure that good policy leads to economic success.

Good governance in Zanzibar is discussed in globally conventional terms, "The RGoZ has consistently acknowledged the role of good governance in facilitating development in its previous national plans. The establishment of an accountable, transparent, responsive and effective system of governance that is resilient to developmental pressures cannot be emphasised enough"[lxxxiv].

Jeffrey Sachs wrote that this conventional set up of good policy being framed by good governance left the development debate "dangerously simplified"; if the economy was performing poorly and efforts to implement good policy were not generating desired economic outcomes, the blame could always be placed on the governance or institutional framework[lxxxv]. The implication of this debate has been to distract attention from the undoubted success of the campaign to near-eradicate malaria in Zanzibar and the likely economic benefits. In thinking about economic development in the years to 2050, Zanzibar remains committed to this "dangerous simplification" whereby good policy in a framework of good governance are the only objectives that a government needs to focus on.

4.2 The Economics of Health

Vision 2050 does briefly acknowledge the multi-faceted benefits from having a healthy workforce, including the direct welfare benefits for people as well as the more indirect economic benefits: *"*Zanzibar needs a healthy workforce with relevant skills and talents to serve the local labour market as well as to contribute and compete as global citizens. The stock of human capital has to be served by adequate social services, with education and health in particular as important flows needed to mould the capable and competitive Zanzibaris of tomorrow"[lxxxvi]

The economic benefits of health are noted only in passing and the implications are not discussed in any detail in Vision 2050. Health is headlined as a social goal for individuals, households, governments, firms, donors, and international organizations to pursue.

A modern healthcare delivery system supported through effective investment plans and related interventions with a focus on human capital development, research, health infrastructure, medical technology, digital health systems, quality control as well as specialized medical and health practitioners and services."[lxxxvii]

Vision 2050 targets health improvements in reference to the third UN Sustainable Development Goals (SDGs), which aspires to "Ensure healthy lives and promote well-being for all at all ages"[lxxxviii]. The implication is that a combination of general economic growth and policy-targeted health outcomes will boost health outcomes in Zanzibar. There is good reason to suppose this, as increased incomes provide households with the resources to pay for health care, better nutrition, education, and housing and the government with tax revenues to invest in the health care system. As one study found, "wealthier is healthier"[lxxxix].

Health is also about equity in two ways. For one, the poor are less able to access expensive health care. Second, the poor suffer an increased burden of disease, so they benefit disproportionately from improved health. Vision 2050 captures the first of these, promising "Diversified and sustainable healthcare financing for quality service provision to all"[xc] The second of these is neglected by Vision 2050. The poor are more susceptible to disease because of lack of access to clean water and sanitation, safe housing, medical care, information about preventive behaviors, and adequate nutrition. The poor are also less likely to seek medical care even when urgent due to greater distance from providers, lack of resources to cover out of pocket health costs, and lack of knowledge of how to respond to illness. Finally, the poor are less able to afford health care; in the extreme, a health emergency can push households into a poverty trap when they are forced to sell assets and take on debt[xci].

Finally, aside from the brief reference noted above, Vision 2050 makes no reference to health as an input into development that a healthier nation will become a wealthier nation. There is global evidence that shows several economic take-offs, such as rapid growth of Britain during the Industrial Revolution, the US south and Japan in the early 20th century, and southern Europe and East Asia beginning in the 1950s and 1960s. Each were supported by important breakthroughs in public health, disease control and improved nutritional intake[xcii]. Data shows that between the 1960s and 1990s, for any given initial income level, countries with lower infant mortality rates experienced higher economic growth during the period[xciii].

Another study found that more than half of Africa's growth shortfall relative to East Asia could be explained by the greater disease burden in Africa[xciv]. The links from health to economic growth are varied and include the loss of educational capital from children's ill health and missing schooling, the loss of output from ill health of workers, and the crowding out of productive investment through an increased health-care spending burden. Diseases such as malaria are geographically specific, and may prevent or depress tourism, FDI and the effective use of farmland[xcv]. Without investigating further it is difficult to explain this lacunae in Vision 2050. The most likely explanation (not explored in this policy brief) is that Zanzibar doesn't have well-qualified health economists working in the planning department and ministry of health, so doesn't have the capacity to think through and integrate into its development planning the macroeconomics of health?

References

Aregawi, M.W., Ali, A.S., Al-mafazy, A., Molteni, F., Katikiti, S., Warsame, M., Njau, R.J.A., Komatsu, R., Korenromp, E., Hosseini, M., Low-Beer, D., Bjorkman, A., D'Alessandro, U., Coosemans, M., & Otten, M. (2011). Reductions in Malaria and Anaemia Case and Death Burden at Hospitals Following Scale-Up of Malaria Control in Zanzibar, 1999-2008. *Malaria Journal, 10*(46), p. 1–9.

Ashton, R. A., Bennetta, A., Al-Mafazy, A., Abassc, A. K., Msellemd, M. I., McElroye, P., Kachur, S. P., Ali, A. S., Yukicha, J., Eiselea, T. P., & Bhattarai, A. (2019).Use of Routine Health Information System Data to Evaluate Impact of Malaria Control Interventions in Zanzibar, Tanzania from 2000 to 2015. *EClinical Medicine, 21*(12), p. 11–19.

Barat, L. M. (2006). Four Malaria Success Stories: How Malaria Burden Was Successfully Reduced in Brazil, Eritrea, India and Vietnam. *American Journal of Tropical Medicine and Hygiene, 74*(1), p. 12–16.

Beer, N., Ali, A. S., Savigny, D., Hal-mafazy, A., Ramsan, M., Abass, A. K., Omari, R. S., Björkman, A., & Källander, K. (2010). System Effectiveness of a Targeted Free Mass Distribution of Long Lasting Insecticidal Nets in Zanzibar, Tanzania. *Malaria Journal*, 9(173). DOI: 10.1186/1475-2875-9-173.

Bisanzio, D., Lalji, S., Abbas, F. B., Ali, M. H., Hassan, W., Mkali, H. R., Al-Mafazy, A., Joseph, J. J., Nyinondi, S., Kitojo, C., Serbantez, N., Reaves, E., Eckert, E., Ngondi, J. M., Reithinger, R. (2022). Spatiotemporal Dynamics of Malaria in Zanzibar, 2015–2020. *BMJ Global Health, 8*(1). DOI: 10.1136/bmjgh-2022-009566

Bloom, D. E., Sachs, J. D., Collier, P., & Udry, C. (1998). Geography, Demography, and Economic Growth in Africa. *Brookings Papers on Economic Growth in Africa*, 2, p. 207–295.

Björkman, A. D., Shakely, A. S., Ali, U., Morris, H., Mkali, A. K., Abbas, A.-W., Al-Mafazy, K. A., Haji, J., Mcha, R., Omar, J., Cook, J., Elfving, K., Petzold, M., Sachs, M. C., Aydin-Schmidt, B., Drakeley, C., Msellem, M., & Mårtensson, A. (2019). From High to Low Malaria Transmission in Zanzibar—Challenges and Opportunities to Achieve Elimination. *BMC Medicine*, 17, 14. https://doi.org/10.1186/s12916-018-1243-z.

Chima, R. I., Goodwin, C. A., & Mills, A. (2003). The Economic Impact of Malaria in Africa: A Critical Review of the Evidence. *Health Policy*, 63, p. 17–36.

Commission on Macroeconomics and Health. (2001). *Macroeconomics and Health: Investing in Health for Economic Development*. World Health Organization.

Cutler, D., Fung, W., Kremer, M., Singhal, M., & Vogl, T. (2010). Early-Life Malaria Exposure and Adult Outcomes: Evidence from Malaria Eradication in India. *American Economic Journal: Applied Economics*, 2, p. 72–94.

Gallup, J. L., & Sachs, J. D. (2000). The Economic Burden of Malaria (*CID Working Paper* No. 52). Center for International Development, Harvard University.

Gates Foundation. (2011). *Malaria: Strategy Overview*. Retrieved November 17, 2011, from www.gatesfoundation.org

GSK. (2012). The Fight Against Malaria. Retrieved November 17, 2012, from http://www.gsk.com/explore-gsk/health-for-all/the-fight-against-malaria.html
Kumar, A., Valecha, N., Jain, T., & Dash, A. P. (2007). Burden of Malaria in India: Retrospective and Prospective View. *American Journal of Tropical Medicine and Hygiene*, 77(6), p. 69–78.

Meisel, N., & Aoudia, J. O. (2008). Is "Good governance" a Good Development Strategy? (*Agence Française de Développement Working* Paper No. 58). Agence Française de Développement.

Malaria Vaccine Initiative. (2012a). *Our Goals*. Retrieved November 17, 2012, from http://www.malariavaccine.org/about-goals.php

Malaria Vaccine Initiative. (2012b). *What We Do*. Retrieved November 17, 2012, from http://www.malariavaccine.org/about-what-we-do.php

O'Meara, W. P., Mangeni, J. N., Steketee, R., & Greenwood, B. (2010). Changes in the Burden of Malaria in sub-Saharan Africa. *Lancet Infectious Diseases*, 10(8), p. 545–555.

Perry, A. (2011). Lifeblood: How to Change the World, One Dead Mosquito at a Time. Hurst and Company, London.

Pritchett, L., & Summers, L. H. (1996). Wealthier is Healthier. *Journal of Human Resources*, 31(4), p. 841–868.

Revolutionary Government of Zanzibar. (2020a). *Zanzibar Development Vision 2050: Responsibly Developing Livelihoods*. Zanzibar Town, Zanzibar.

Roll Back Malaria Partnership. (2011). A Decade of Partnership and Results. Progress and Impact Series, Number 7. World Health Organization.

Sachs, J. D. (2003). Institutions Matter, but Not for Everything: The Role of Geography and Resource Endowments in Development Shouldn't be Underestimated. *Finance and Development*, 40(2), p. 38–41.

Sachs, J. D. (2005). *The End of Poverty: How We Can Make It Happen in Our Lifetime*. London, Penguin Books.

Sachs, J. D., McArthur, J. W., Schmidt-Traub, G., Kruk, M., Bahadur, C., Faye, M., & McCord, G. (2004). Ending Africa's Poverty Trap. *Brookings Papers on Economic Activity*, 1, p. 117–240.

Smith, D. L., Cohen, J. M., Moonen, B., Tatem, A. J., Sabot, O. J., Ali, A., & Mugheiry, S. M. (2010). Solving the Sisyphean Problem of Malaria in Zanzibar. *Policy Forum*, 332(6036), p. 1384–1385.

van der Horst, T., Al-Mafazy, A.-W., Fakih, B. S., Stuck, L., Ali, A., Yukich, J., & Hetzel,

M. W. (2020). Operational Coverage and Timeliness of Reactive Case Detection for Malaria Elimination in Zanzibar, Tanzania. *The American Journal of Tropical Medicine and Hygiene*. 102(2): p. 298-306.

World Health Organization. (2022, October 19). *Moving Towards Zero Malaria in Zanzibar*. Retrieved from https://www.afro.who.int/countries/united-republic-of-tanzania/news/moving-towards-zero-malaria-zanzibar

World Health Organization. (2024). *World Malaria Report 2024: Addressing Inequity in the Global Malaria Response*. World Health Organization.

World Bank. (1994). *Adjustment in Africa: Reforms, Results, and the Road Ahead*. Oxford, Oxford University Press.

[i] Kumar et al (2007).
[ii] Gallup & Sachs (2000).
[iiiii] Perry (2011).
[iv] Perry (2011).
[v] Kumar et al (2007
[vi] Roll Back Malaria Partnership (2011:18).
[vii] Perry (2011).
[viii] www.who.int/news-room/fact-sheets/detail/malaria
[ix] Sachs et al (2004).
[x] Sachs (2005).
[xi] Chima et al (2003).
[xii] Chima et al (2003).
[xiii] Chima et al (2003
[xiv] Chima et al (2003).
[xv] Gallup and Sachs (2000).
[xvi] Gallup and Sachs (2000).
[xvii] Gallup and Sachs (2000).
[xviii] Cutler et al (2010).
[xix] Perry (2011).
[xx] Kumar et al (2007).
[xxi] Perry (2011).
[xxii] Perry (2011).
[xxiii] Sachs (2005:250).
[xxiv] Sachs (2005).
[xxv] Sachs (2003).
[xxvi] Perry (2011).
[xxvii] Roll Back Malaria Partnership (2011).
[xxviii] Barat (2006).

[xxix] Gates Foundation (2011).
[xxx] Perry (2011)
[xxxi] WHO (2024:xx).
[xxxii] WHO (2024:xx).
[xxxiii] Gates Foundation (2011).
[xxxiv] Roll Back Malaria Partnership (2011).
[xxxv] Roll Back Malaria Partnership (2011).
[xxxvi] WHO (2024:xix).
[xxxvii] WHO (2024:xix).
[xxxviii] Sachs (2005).
[xxxix] Sachs et al (2004:157).
[xl] Roll Back Malaria Partnership (2011).
[xli] WHO (2024:xviii).
[xlii] MVI (2012c).
[xliii] MVI (2012b).
[xliv] www.malariavaccine.org/about-us
[xlv] MVI (2012c).
[xlvi] MVI (2012a).
[xlvii] MVI (2012b).
[xlviii] GSK (2012).
[xlix] GSK (2012).
[l] WHO (2024:xviii).
[li] Roll Back Malaria Partnership (2011:54-5).
[lii] Roll Back Malaria Partnership (2011).
[liii] WHO (2024:xvi).
[liv] Roll Back Malaria Partnership (2011:18).
[lv] Ashton et al (2019).
[lvi] Aregawi et al (2011).
[lvii] Björkman et al (2019).
[lviii] Roll Back Malaria Partnership (2011:71).
[lix] Beer et al (2010).
[lx] WHO (2023:156).
[lxi] Beer et al (2010).
[lxii] Ashton et al (2019).
[lxiii] Aregawi et al (2011).
[lxiv] van der Horst et al (2020).
[lxv] van der Horst et al (2020).
[lxvi] WHO (2022).
[lxvii] WHO (2022).
[lxviii] WHO (2022).
[lxix] Smith (2010).
[lxx] \WHO (2022).
[lxxi] Smith (2010).
[lxxii] O'Meara et al (2010).
[lxxiii] O'Meara et al (2010).
[lxxiv] WHO (2023:12).
[lxxv] www.who.int/news-room/fact-sheets/detail/malaria
[lxxvi] Bis Anzio et al (2022).
[lxxvii] Bisanzio et al (2022).
[lxxviii] Bjorkman et al (2019).
[lxxix] Gallup and Sachs (2000).

[lxxx] GRZ (2020:35).
[lxxxi] GRZ (2020:62).
[lxxxii] World Bank (1994:20).
[lxxxiii] Meisel and Aoudia (2008).
[lxxxiv] RGZ (2020:58)
[lxxxv] Sachs (2003).
[lxxxvi] RGZ (2020:27).
[lxxxvii] RGZ (2020:35)
[lxxxviii] https://sdgs.un.org/goals/goal3
[lxxxix] Pritchett and Summers (1996).
[xc] RGZ (2020:35)
[xci] CMH (2001).
[xcii] CMH (2001).
[xciii] CMH (2001:23).
[xciv] Bloom et al (1998).
[xcv] CMH 92001).